

THE ROLE OF INTUITION IN NURSES WHO ACTIVATE THE RAPID RESPONSE
TEAM (RRT) IN MEDICAL-SURGICAL AND TELEMETRY UNITS.

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DEDICATION

For my husband, Deepak D. Robert, and my children, Stacy, Michelle and Joshua.
Thank you for your never-ending patience and love.

ACKNOWLEDGEMENTS

I would like to take this opportunity to acknowledge and express gratitude to my husband, Deepak Robert, and my children, Joshua Robert, Michelle Robert, and Stacy Robert for their unwavering love and support. I could never have done this without the four of you. I want to thank my parents, Samuel and Sheela Samuel and my brothers Sunil and Anil, for instilling the values and the drive that made me who I am today. I wish to acknowledge the rest of my family and close friends who made this doctoral journey possible. A special thanks to my devoted dissertation committee and especially my chair, Dr. Donna Scott Tilley, for taking on this project with no hesitation. Your experience and positive reinforcement has made my path more enjoyable. I will never be able to thank you enough. This dissertation is dedicated to my nursing profession, especially the nurses who work hard at bedsides to save lives. I would like to end by giving all the glory to God. This document is proof that through Him all things are possible (Matthew 19:26).

ABSTRACT

RUTH REKHA ROBERT

NURSING INTUITION AND ACTIVATION OF RAPID RESPONSE TEAM

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The process of making decisions in nursing is filled not only with rational, cognitive ways of knowing, but also with non-rational, intuitive ways of knowing that foster holistic care. In professional practice, nurses should not be limited to cognitive rational processes alone. Williams, Newman and Jones (2011) reported, “Nurses viewed the Rapid Response Team (RRT) as a way to call for help when they knew something was wrong, especially when they could not pinpoint the cause” (p. 268). This study and other evidence suggest that additional research is needed to better understand nurses’ perspectives of RRTs, how they impact the work environment, and the relevance of RRT composition. Limited understanding exists about nurses’ perspectives regarding the use of intuition in activating RRT. The purpose of the proposed qualitative study was to explore the experiences of staff nurses using nursing intuition in the process of activating RRT for patients being cared for in medical-surgical and telemetry units.

The primary data for this qualitative study were collected through in-depth, face-to-face interviews ranging from 45 to 60 minutes in duration. The interviews were semi-structured and open-ended to explore the phenomenon of nursing intuition in activating the RRT. Following the requirements of GT methodology (Strauss & Corbin, 1998), the

sample of participants recruited for this study was purposive. The participants were purposely selected because of their knowledge of activating the RRT. The sample of N = 32 adult registered nurses currently worked full time with 12 hour shifts in adult medical-surgical, and telemetry units.

Open, axial, and selective coding of 295 units of communication elicited from 32 registered nurses working in medical-surgery and telemetry units resulted ultimately in the generation of a theory grounded in data to increase understanding of the role of intuition in nurses who activate the RRT for patients in medical-surgical and telemetry units. According to this theory, nursing intuition cannot be defined in terms of a linear process of reasoning. The theory proposes that nursing intuition is rooted in the recognition of patterns among a complex combination of factual information and subjective inferences collected from the patient. The components of these patterns are classified for the purposes of the theory as objective assessment, visual observation, verbal interaction, and subjective assessment. Having collected and interpreted the assessment data, the decision to activate the RRT is moderated by emotional and physiological reactions, collaboration with others, education, and historical experience. These moderating factors help to enhance a nurse's ability to trust in his or her feelings and inspire confidence to call the RRT, leading to a beneficial patient outcome, as well as the development and acquisition of the nurse's knowledge.

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CHAPTER I

INTRODUCTION

Focus of Inquiry

The nursing profession has traditionally valued empirical or analytical knowledge above all other forms of knowledge. In contrast with empirical knowledge, intuition is defined as the power of attaining direct knowledge or cognition without evident rational thought and inference (Merriam-Webster, 2002). This act or process of coming to direct knowledge or certainty without reasoning or inference has been viewed negatively (Klein, 2003). Intuition has been poorly understood, because even though nurses often made accurate intuitive decisions, they were not always able to articulate how they arrived at a particular decision.

Benner (1984) was the first to describe a systematic relationship between intuition and expert clinical practice. For over 20 years, the relationship between intuitive components of decision making and clinical practice remained relatively unexplored, and opposition to intuition prevailed. For example, Lamond and Thompson (2000) argued for a shift in focus from intuitive to more analytic ways of examining the outcomes of clinical decisions because "in most instances the analytical approaches are more effective" (p. 411). In the 21st century, research focusing on intuition in clinical practice has expanded. Intuition is now gaining credibility as a part of expert nursing, mainly due to an increasing body of evidence indicating that beneficial patient outcomes may result

from intuitive decision-making processes (Billay, Myrick, Luhanga, &Yonge, 2007; De Vries, Fagerlin, Witteman, & Scherer, 2013; Green, 2012; King & Clark, 2002; Nyatanga & Vocht, 2008; Pearson, 2013; Ruth-Sahd & Tisdell, 2007).

The benefits of intuition in the nursing profession are exemplified by the following illustration: Ruth, the primary nurse for Mr. Jones, received a change of shift report from the night shift nurse, Anne. Anne reported that Mr. Jones was found in his apartment, semi-comatose with alcohol intoxication. He lived alone, was a heavy drinker and was considered by staff to be a “frequent flyer” to the hospital. He was admitted from the emergency department after midnight with a diagnosis of high blood pressure, a history of hypertension, and chronic alcoholism. Anne reported that Mr. Jones’s condition was stable during the night with no adverse episodes. She also reported his vital signs were stable and he was slated for discharge.

The physical assessment completed by Ruth revealed that Mr. Jones was alert and oriented to person, place, and time. His vital signs remained stable, and his pupils were equal and reactive to light. Even so, Ruth’s instincts told her something was wrong. Mr. Jones was very talkative, but his voice was slurred and he did not “look good.” Ruth did not believe this was related to alcohol consumption. She monitored him closely throughout her shift until he could be examined by the resident physician, who attributed Mr. Jones’s behavior to alcohol consumption and wrote orders for discharge. Ruth discussed her concerns about Mr. Jones’s speech with the resident physician, who insisted that Mr. Jones should be discharged.

Ruth persisted and presented her concern to the attending physician, who ordered that Mr. Jones be monitored for one more day. The next morning's assessment revealed that Mr. Jones was unable to ambulate to the bathroom because he could not move his left arm and leg. He also exhibited facial drooping. Ruth activated a rapid response team (RRT) based upon her nursing intuition. Mr. Jones was ultimately diagnosed with a left-sided cerebrovascular accident (CVA) and transferred to the stroke unit.

Ruth's decision that Mr. Jones was ill rather than intoxicated, was based on the convergence of several pieces of assessment data, but was independent of linear reasoning or critical thinking, defined by Polge (1995) as a process of thought following a step-by-step progression, in which a response to each step must be elicited before another step is taken. Neither was Ruth's decision part of the clinical reasoning cycle, a term used to describe the circular succession of processes, whereby clinicians analyze factual information, identify problems, establish goals, take action, evaluate outcomes, then reflect upon and learn from the process (McCarthy, 2003). Ultimately, Ruth's knowledge and decision-making process were drawn from synthesis rather than analysis and reflection. Through the process of trusting her intuition, and her timely activation of RRT, Mr. Jones received appropriate interventions and a well-timed admission to the stroke unit. Ruth's receptivity to her own intuition led to a safe passage for Mr. Jones.

It has recently been proposed that a more detailed understanding of the nature of intuition is important to help nurses gain more confidence in applying this legitimate form of knowledge in current clinical practice (Pearson, 2013). Over a quarter of a

century ago, Benner and Tanner (1987) suggested that intuition in nursing goes beyond data gathered from technology, tests, and records and extends to an immediate grasp of the importance of ambiguous patterns of data leading to action. This explains how nurses, like Ruth can look beyond empirical facts and apply their experience, observation skills, and reflexivity, to initiate a productive line of inquiry in order to achieve the best patient outcome. Benner and Tanner (1987) defined the components of intuition, as “pattern and recognition, common-sense understanding, skilled know-how, sense of salience and deliberative rationality” (p. 26). More recently, Green (2012) expanded the seminal work of Benner and Tanner, arguing that nursing intuition is composed of four distinct dimensions, specifically: (a) sensory perception (attentive to subtle details of complex and rapidly changing situations and conditions), (b) "embodied" knowledge (similar to knowing from past experience), (c) "conceptual" knowledge (theoretical understanding, pertinent to specific situations and conditions), and (d) "a history of beneficial habitual actions" (directed towards achieving the best outcomes for patients) (p. 98).

Pattern recognition is the ability to find relationships between data elements (Gobet & Chassy, 2008) and is analogous to what Green (2012) terms “sensory perception” (p. 98). For example, the observed patterns of response of a patient to an illness may be reflected by his or her rapidly changing clinical condition. Pattern recognition enhances the depth of inquiry and problem identification, even if tangible factors noted within the situation are vague. In the example involving Mr. Jones, the

physical symptoms of the patient were not definitive, yet the nurse sensed a problem beyond what the data indicated. Common-sense understanding, involves knowledge of the illness experience beyond the disease or physiological state, and is analogous to Green's embodied knowledge and conceptual knowledge. Benner and Tanner's (1987) concept of an expert nurse's ability to immediately evaluate the important facts of a situation, based on "skilled know-how, a sense of salience and deliberative rationality," (p. 27) is analogous to Green's history of habitual actions.

Intuition and evaluation skills are uniquely human, placing people skills above machines and technology. Intuition is an integral part of nursing practice that comes into play when nurses access unconscious knowledge, without inhibition, or second-guessing. Intuition is difficult to explain because it is abstract. It is a misnomer to call intuition a "sixth sense," "gut instinct," "gut feeling," or "hunch," implying a perception of knowing but without knowing how. More accurately, intuition is a cognitive skill that may be applied in practice to assist clinical assessment, causing a nurse to take action, leading to patient-centered care (Klein, 2003; Pearson, 2013).

The role of intuition underpins a nurse's timely decision to activate a RRT. Early intervention by a RRT is known to prevent acute deterioration of patients, including death outside Intensive Care Unit (ICU) settings (Agor, 1984; Atkinson & Claxton, 2000; Institute of Medicine [IOM] 2011; Rew, 1988). Although it has been studied broadly in nursing practice, little information exists regarding the experiences of nurses using intuition in their decision-making processes within acute care settings (Andersson,

Omberg, & Svendlund, 2006; Nyatunga & Vocht, 2008). The focus of the proposed research was to explore the role of intuition in nurses who activate the rapid response team (RRT) for patients in medical-surgical and telemetry units. No studies were found in the literature that directly examined how non- ICU staff nurses use intuition to activate RRTs using a grounded theory (GT) methodology. It has been suggested that more qualitative research is needed to explain how intuition is used by nurses to support complex and critical decision making in complex patient care situations (Pringle, Hanson, & Falk, 2011).

Additionally, more studies are needed to prepare nurses at all levels to understand and use their intuitive ability to activate timely RRT, which has a direct impact on reducing failure to rescue and improving patient outcomes. This qualitative study lends additional information to the body of knowledge concerning the utilization of nursing intuition in the activation of RRT.

Background

In the United States (US), 98,000 deaths occur annually as a consequence of adverse events during hospitalization (IOM, 2011). The IOM (2001) aims for a 21st century health care system that provides safe, effective, patient-centered care in a timely, efficient, and equitable manner. In 2004, in its 100,000 Lives Campaign, the Institute for Healthcare Improvement (IHI) encouraged American hospitals to implement RRTs to reduce the number of avoidable deaths in hospitals (IHI, 2006).

Ideally, deploying the RRT is the first response to patient decline (Scholle & Mininni, 2006). Researchers and clinicians theorize that early detection of warning signs, perhaps through intuition, will provide an opportunity to intervene and prevent cardiac arrests (Williams, Newman, Jones, & Woodard, 2011). Today, more than 25% of U.S. hospitals have implemented a RRT (Jenkins & Lindsey, 2010). The success of any RRT program is determined by availability, accessibility, a high level of clinical competence (Metcalf, Scott, Ridgway, & Gibson, 2008), and the vigilance and astute clinical judgment of expert nurses (Shapiro, Donaldson, & Scott, 2010).

The IOM (2011) recognized the need for nurses to be better prepared to deliver high quality and safe health care services focused on the patient. This report also focused on nurses assuming leadership roles in the redesign of the health care system. Practitioners in the field of nursing recognize that nurses use many different sources of knowledge, including intuition, to gain a holistic perspective of the patient's condition, guide decision making, and initiate prompt action (Benner, 1984; Benner & Tanner, 1987; Rew, 1991, 2000).

For many years, nursing clinicians and scholars have acknowledged that intuition is a component of clinical judgment and decision making (Benner, 1984; Benner & Tanner, 1987). Intuition as a concept is now widely discussed in nursing as one of the ways nurses can make important decisions about patient care. Intuition is now gaining validity as a part of expert nursing, mainly due to an increasing body of evidence collected in the last decade, indicating that beneficial patient outcomes may result from

intuitive decision-making processes (Aflague & Ferszt, 2010; Billay et al., 2007; De Vries et al., 2013; Green, 2012; King & Clark, 2002; Nyatanga & Vocht, 2008; Pearson, 2013; Ruth-Sahd & Tisdell, 2007).

Billay and colleagues (2007) propose that nursing intuition is an important and integral component of nursing knowledge and nursing care. Furthermore, Nyatanga and Vocht (2008) assert that "experts, especially those working in acute and palliative care, where there are difficult ethical as well as clinical patient situations, can benefit from using intuitive ideas to arrive at complex decisions" (p. 492). In fact, it has been suggested that "intuition is seemingly becoming an acceptable way of thinking and knowing in clinical decision making" (Pearson, 2013, p. 212) and that "patients may be better served by combined strategies that draw on the strengths and minimize the weaknesses of both deliberative and intuitive processes" (De Vries et al., 2013, p. 156).

Intuition in clinical practice, however, has been described as a "polarizing concept" (Lyneham, Parkinson, & Denholm, 2008, p. 101). Because it is intangible and often perceived as irrational and unprovable, intuition is rejected by some as part of a justifiable decision-making process for nurses (Lamond & Thompson, 2000; Traynor, Boland, & Buus, 2010). Despite the controversial nature of intuition as a concept, several studies have indicated that intuition is a measurable decision-making process among nurses. Intuition is no longer considered to be a vague qualitative concept, but a quantitative construct that can be measured accurately using instruments with valid and reliable psychometric properties. For example, Smith, Thurkettle, and De La Cruz (2004)

developed an instrument that measured clinical intuition as "a non-linear process of knowing perceived through physical awareness, emotional awareness, and/or through physical or spiritual connections" (p. 614). Similarly, Demir, Denat, Khorshid, and Eser (2012) validated an instrument called the "Scale of Use of Intuition by Nursing Students" (p. 369).

Little is known or understood about the extent to which nursing intuition benefits patients in acute health care settings, specifically decisions involving the activation of RRT. Kongsuwan, Locsin, and Schoenhofer (2011) describe intuitive knowledge as an important element in nurses promoting a peaceful death in their terminally ill clients. Odell, Victor, and Oliver (2009) reported that nurses cite intuitive processes when recognizing patient deterioration and activating the RRT. As patient acuity levels increase and rapid admission and discharge cycles continue, there is an expectation for nurses to be able to recognize changes in a patient's condition quickly.

There is a link between intuitive thinking and the theory behind the use of RRTs. This is because the complexity of nursing demands a full battery of both rational, cognitive ways of knowing and also non-rational, intuitive ways of knowing that foster holistic care. Nursing practice is not limited to cognitive rational processes, but also includes a comparison of alternatives, leading to critical, complex decision making (Roberto, 2009). Optimal thought processes are best accomplished using a combination of clinical judgment and intuition. Using clinical judgment and intuition, nurses must intervene in a timely manner to maximize optimum patient outcomes (Thomas, Force,

Rasmussen, Dodd, & Whildin, 2007). Nyatanga and Vocht (2008) suggested that nurses working in acute care, where there are difficult ethical as well as clinical patient situations, can benefit from using intuition to make complex decisions. Pearson (2013) suggested that intuition should be used in conjunction with evidence-based practice to achieve the best patient outcomes.

Problem of Study /Statement of Purpose

The purpose of this qualitative study was to explore the role of intuition in nurses who activate the rapid response team (RRT) in medical-surgical and telemetry units. The ultimate outcome of this study was the development of a theory grounded in data to increase understanding of how staff nurses use nursing intuition during the process of activating RRTs for patients in medical-surgical and telemetry units.

This study was based on the assumption that when a nurse calls a RRT, the clinical reasoning cycle, conventionally involving an objective analysis of factual information, leading to the taking of action, based upon a logical and rational series of alternatives, followed by an evaluation of the outcomes (McCarthy, 2003) is not necessarily evoked. Nurses experienced in activating a RRT may depend more upon their innate ability to identify relationships between data elements (pattern recognition), and to match their expectations of these patterns to a given clinical situation (Benner & Tanner, 1987; Roberto, 2009). Pattern recognition is analogous to "sensory perception," defined by Green (2012) as a "nurse's sensitivity to subtle details of complex and rapidly changing situations and conditions" (p. 98). Although pattern recognition and sensory

perception have been identified as psychometric constructs, it is difficult for nurses to verbalize why they believe it is necessary to activate a RRT. Experienced nurses appear to innately know when the patterns do not match, the situation is changing, and the patient's condition is deteriorating. These experiences were explored in this study.

Little information exists regarding the experiences of nurses using intuition in decision-making processes within acute care settings (Andersson et al., 2006; Nyatunga & Vocht, 2008). According to Odell, Victor, and Oliver (2009), nurses have identified intuition as a key factor in recognizing patient deterioration and activating a RRT in a timely manner. Williams et al. (2011) reported that “nurses viewed the RRT as a way to call for help when they knew something was wrong, especially when they could not pinpoint the cause” (p. 268). The nurses' intuition was considered to be the most important ingredient for successful RRT use. Williams et al. (2011) also suggested that additional research is needed to better understand nurses' perspectives of RRTs, how RRTs impact the work environment, and the importance of recognizing the nurse as a key participant in the RRT experience. It is evident that, due to the literature gap and limited research, there is an urgent need to explore the role of intuition in nurses who activate the RRT for patients in medical-surgical and telemetry units. This need provided a rationale and direction for this study.

Rationale for the Study

There is growing evidence that intuition in nursing is an important part of clinical decision making that supports timely intervention and safe patient care (Green, 2012).

Achieving clarity in what contributes to intuition in nursing is an important step in designing research that can illuminate the role of intuition in the provision of safe nursing care by early and timely activation of a RRT in patients in a non-ICU setting. The nurse's intuitive and timely activation of a RRT can decrease mortality and reduce failure to rescue. The evidence to support the study is described in Chapter 2.

Philosophical Underpinning

The philosophy that underpins this study is termed symbolic interactionism (SI) developed by Blumer (1986). SI attempts to explain how people learn to interpret and give meaning to their world through the use of symbols. Symbols not only include the language of words, but also the language of gestures (i.e., forms of communication in which the action of one person influences the action of another); and roles (i.e., socially expected behavior patterns). The perspective of the symbolic interactionist is to study how people develop and react to the complex sets of symbols that give meaning to their world (LaRossa & Reitzes, 1993).

SI theory embraces three core principles: meaning, language and thought (Reynolds & Hermann-Kinney, 2003). Symbolic interactionism posits the principle of meaning to be the central aspect of human behavior. Meaning arises in the process of interactions between people, implying that meaning must be considered in the context of social relationships. People modify meaning subjectively through an interpretive process, to deal with the symbols that they experience in everyday life. Once people have defined the meaning of a symbol to be real, then it is very real in its consequences. Human

beings communicate using language (words, gestures, and roles) which is the vehicle through which symbolic meaning arises out of social interaction. People also have an ability to think about things. Thought modifies each individual's interpretation of symbols, implying they have inner conversations with themselves, and take reflective pauses, in which they modify their understanding of the meaning of symbols. Within the three principles of meaning, language, and thought, the concept of the self can be framed. For example, people can use symbols to take the role of another, imagining how they look to another person.

SI embraces three major premises (Reynolds & Hermann-Kinney, 2003) specifically: (a) people react toward symbols on the basis of their perceived meanings; (b) the meaning attributed to symbols arises out of social interaction with others; and (c) these meanings are modified through an interpretive process. People are not born knowing the meaning of symbols, and they do not learn the meaning of symbols through their individual experiences, but rather through social interactions with others. Symbols do not have an inherent, universal, and unvarying meaning, but their meanings vary, depending on how each individual defines and responds to them. Each individual's interpretation of the meaning of a symbol will guide and determine his or her subsequent actions.

The practical implications of SI are that, in order to better understand human behavior, researchers need to determine how people define and react to the symbols that they encounter through social interactions in their environment. SI therefore underpins

the use of qualitative research methods, including participant observation, and interviews, to evaluate the nature of human relationships. In this respect, Cuff, Shamrock, and Francis (2006) argued that to understand people's actions, it is necessary to investigate what makes their behavior meaningful to them, and that the meaningfulness of their actions must be studied in the context of a configuration of circumstances, within which the actors are able to describe the reasons for their actions.

Consequently, from a symbolic interactionist perspective, nursing intuition can be studied in terms of how it arises from the experiences of nurses, interpreting symbols, in the context of their interactions with patients. Furthermore, the principles of social interactionism imply that nurses should be able to describe their innermost thoughts about the subjective meanings that they give to symbols, in terms of their intuitive responses to interactions with patients, and the subsequent actions that they take.

Research Design

In the social sciences, processes are actions intended to bring about a desired result, and a theory is a conceptual explanation of how these actions are carried out (Creswell, 2009). The ultimate outcome of the GT methodology applied in this study was the development of a theory grounded in data to understand the role of intuition in nurses who activate the RRT for patients in medical-surgical and telemetry units. Consequently, the Strauss and Corbin (1998) approach to GT was selected as the research methodology. According to Lingard, Albert, and Levinson (2008), the main purpose of GT is to "generate theories regarding social phenomena" (p. 460).

Elliot and Lazenbatt (2005) emphasized that researchers may erroneously equate GT with qualitative research methods in general, failing to understand the distinctive features of GT. They further state that more than half of researchers claiming to use GT are not applying it correctly. GT studies must follow a specific and narrowly defined methodology in order to ensure that the theory is properly grounded in data. Consequently, this study closely followed the methodology developed by Strauss and Corbin (1998).

Three features contributed to the selection of GT: (a) general user-friendliness for data analysis; (b) a potential to generate theory; and (c) compatibility with contemporary thinking. GT reflects a shift toward social constructivist ontology and postmodernism, which is compatible with current thinking (Corbin & Strauss, 2008). GT is an inductive approach, meaning that it moves from the specific to the general. The processes of asking questions and making comparisons inform the analysis and facilitate the theorizing process. For example, it is specifically stated that the research questions must be open and general, rather than formed as specific hypotheses, and that the emergent theory should account for the phenomenon experienced in reality by the participants.

In 1998, Strauss and Corbin described GT methodology which uses the constant comparative method to compare newly-collected data with previously collected data. Using numerous iterations of comparisons, new theories are formed, enhanced, confirmed, or discounted as new data emerge. This is a continuous, ongoing procedure, in which the researcher looks at what makes certain elements of data different and/or

similar to other pieces of data. Open coding, axial coding and selective coding are then utilized to uncover and refine the theory. Open coding is based on the concept of units of communication (i.e., words, phrases, or sentences) being dissected as a means of identifying relevant categories. Axial coding is the process of relating codes (i.e., categories and properties) to each other through a combination of inductive and deductive thinking. Axial coding is most often used when categories are in an advanced stage of development. Selective coding is the process of choosing one category to be the core category, and relating all other categories to that category.

Research Question

The research question for this study was: What is the role of intuition in nurses who activate the rapid response team (RRT) for patients in medical-surgical and telemetry units? The specific aims of the study were to determine: (a) the process of using intuition in the activation of RRT for patients and (b) the value staff nurses place on intuition in the activation of RRTs for patients. The ultimate outcome of this study was the development of a theory grounded in data to increase understanding of the role of intuition in nurses who activate the RRT for patients in medical-surgical and telemetry units.

Guiding Interview Questions

In the process of examining literature about RRTs, no studies were located that explored the experiences of staff nurses and the use of intuition in the process of activating RRT for patients. Carper's model (1978) describes empirical, ethical,

aesthetic, and personal knowing regarding one's actions and forms the basis for the interview questions. Carper's work was based on the assumption that the patterns and structure of nursing knowledge provide the unique perspectives of the discipline (Mantzorou & Mastrogiannis, 2011). In keeping with Carper's model, the interview guide for the proposed study was crafted specifically to elicit information regarding the role of intuition in nurses who activated the rapid response team (RRT) in medical-surgical and telemetry units.

Demographic information was collected for all participants (see Appendix A for the Demographic Data Collection Tool). A semi-structured interview guide was utilized to gather pertinent information from study participants (see Appendix B for the Interview Guide). The semi-structured interview was open, allowing new ideas to surface during the interview as a result of what the interviewee said. The interviewer adhered to a framework of themes to be explored but was not constrained to a particular format. This freedom assisted the interviewer in tailoring the questions to the interview context and to the participant's responses.

Summary

The focus of this inquiry was on providing a more detailed understanding of the role of intuition in nurses who activate the RRT for patients in medical-surgical and telemetry units. Intuition is a concept now widely recognized in nursing as one of the ways nurses can make important decisions about patient care. It is gaining validity as a part of expert nursing practice because of an increasing body of evidence collected in the

last 30 years, indicating that beneficial patient outcomes may result from intuitive decision-making processes

The purpose of the proposed qualitative study was to explore the role of intuition in nurses who activated the RRT for patients in medical-surgical and telemetry units. The specific aims of the study were to determine: (a) the process of using nursing intuition in the activation of RRT for patients and (b) the value staff nurses place on nursing intuition in the activation of RRTs for patients.

The ultimate outcome of this study was the development of a theory grounded in data to increase understanding of the role of intuition in nurses who activate the RRT for patients in medical-surgical and telemetry units. The study was rooted in the philosophy of symbolic interactionism. The Strauss and Corbin (1998) approach to GT is justified as the research methodology to address the research question: What is the role of intuition in nurses who activate the rapid response team (RRT) for patients in medical-surgical and telemetry units? Information collected during semi-structured interviews with individual nurses was used to address this question.

Chapter two presents a comprehensive review of the nursing and medical literature concerning nursing intuition and RRT activation, which explains the concepts that underpin this study and justifies the formulation of the guiding research question and the use of GT research methodology.

CHAPTER II

REVIEW OF LITERATURE

In American culture, rationalism and positivism are valued, and consequently “our educational institutions give little attention to the development of intuitive understanding” (Bruner, 1960, p. 56). Yet a nurse’s success in reducing failure to rescue sometimes depends on a RRT program. Using a RRT, the ICU is brought to the bedside as a result of a staff nurse’s call for a second opinion to address the patient’s perceived tenuous condition (Cioffi, 2003).

To explain the concepts and justify the formulation of the guiding research question, the researcher conducted a review of nursing and medical literature from 2007 to 2013. The keywords initially searched were “intuition” and “nursing.” Search engines used were CINAHL, PubMed, and Medline. The CINAHL search yielded 122 citations. The Medline search yielded 116 citations. The PubMed search yielded 88 citations. When the search was narrowed to include peer-reviewed research articles in English, the total number of citations was 45. The abstracts of these articles were reviewed and 19 articles unrelated to intuition were discarded. Twenty six articles were retained for review. In addition, standard references, such as dictionaries, white papers, and textbooks were consulted.

The search was then further expanded to the databases ultimately used to collect the articles for the literature review. These databases were the Cochrane Collaboration of

Systematic Reviews, CINAHL, MEDLINE, and social sciences databases. Keywords used for this additional query were “nursing and emergency response,” “rapid response teams,” “nursing and decision-making,” “cardiopulmonary resuscitation,” “modified early warning score,” “patient deterioration,” “suboptimal care,” “failure to rescue,” “medical emergency team,” “organizational learning,” “intuition,” “building and maintaining mental models,” “novice nurse,” “expert nurse,” “team building,” and “collaboration.” Several peer-reviewed journals were manually searched for relevant articles.

Only peer reviewed research articles were selected for inclusion in this review of literature. Initially, the title and abstract were screened to determine relevance to the pre-determined inclusion criteria considering the following subtopics: intuition in nursing practice, intuitive ability among expert and novice nurses, the history and activation criteria for activating a RRT, and the importance of intuition with respect to RRT activation.

There were 33 articles found meeting the pre-determined inclusion criteria for the role of intuition, and only 18 articles were found relevant to the nursing field. Further screening of the articles relevant to the nursing field, only four articles were specific to activation of RRT and intuition among nurses, further emphasizing the need for more research on the topic of the role of intuition and activation of RRT. The articles selected were both research articles and primary sources. The literature reviewed is listed in Appendix D.

The following literature review considers the following subtopics: intuition in nursing practice, intuitive ability among expert and novice nurses, the history and activation criteria for activating a RRT, and the importance of intuition with respect to RRT activation.

Intuition in Nursing Practice

Patricia Benner (Benner, 1984) and Christine Tanner (Benner & Tanner, 1987) were the first to present intuition as an integral part of the nursing process. Benner and Tanner proposed that intuitive knowledge and analytical reasoning are not mutually exclusive but frequently coexist. Subsequently, Young (1987), following Benner and Tanner's line of reasoning, studied 39 nurses and two non-nurses across seven health care agencies to reveal that nursing interactions encompassed both intuition and analytical reasoning. Rew (1988) examined intuition in nurses' decision making in a qualitative descriptive study. The purpose of the study was to explore intuitive experiences of nurses in critical care and home care settings. Fifty-six nurses were interviewed, and transcriptions of interviews were analyzed for emergent themes. Nurses described their experiences in terms of feeling and knowledge and gave examples of types of intuition. Rew's study provided further recognition of intuitive experiences and provided evidence of the consequences of the use of intuition in communication and decision-making processes in clinical practice, consolidating the work of Young, Benner, and Benner and Tanner.

Leners (1992) sought to expand knowledge about intuition in nursing practice, terming it “deep connections” (p. 143). The purpose of this ethnographic study, which included 40 nurses from hospitals and home health agencies, was to describe the phenomenon of intuition in nursing culture. Findings indicated that intuition was deeply connected to caring as the moral ideal of the nursing profession. Likewise, Barrett (1992) noted that “intuition was found to : (a) facilitate the depth of nurse-client relationships; (b) lead to a deeper understanding and connection with client patterns; (c) be acknowledged as a professional risk; (d) emphasize the significant influence of autonomy, independence, and assertiveness in nursing practice; and (e) contribute to excellence in nursing care” (p. 158).

In a qualitative descriptive study of 10 nursing students, McCormack (1993) considered both nursing practice and nursing education in an exploration of intuition. The study addressed the ways in which nurse educators can learn to value the concept of intuition and integrate it into curriculum, ultimately facilitating the use of intuition in their students’ nursing practice. The study underscores the importance of nursing faculty encouraging the recognition and use of intuition in nursing as students move into practice.

Kenny (1994) explored the topic of nursing intuition with regard to its role in nursing decision making. The phenomenological study examined 11 nurses with more than five years of experience to determine whether nursing intuition could be researched, whether it was possible to develop a language of intuition, and whether nursing intuition

is related to hands-on experience. This study supports that the use of nursing intuition in decision-making may be related to years of experience.

Seeking further validation and understanding of nursing intuition, Miller (1995) conducted a qualitative study to discover the characteristics related to intuition in 228 nurses. These characteristics provided the framework for the construction of the Miller Intuitiveness Instrument (MII) reported earlier by Miller (1993). Miller emphasized that intuitive nurses are willing to act on their intuitions. Intuitive nurses prefer intuition to sensing as a way to take in information. Likewise, nurses who delay making decisions until all information is present are more intuitive than those who make decisions abruptly.

Nursing intuition was challenged in the 21st century. Lamond and Thompson (2000) contradicted previous researchers by suggesting that there is need for a shift in focus away from intuitive to more analytic ways of examining both the processes and outcomes of clinical decision making processes. They presented evidence based on the literature to indicate that, in many instances, analytical approaches are more effective than intuition. In a clinical ethics review, Davis (2007) argued that intuition lacks epistemic justification, because it "can only be justified in easy or obvious cases" (p. 1). Davis also argued that medical ethicists have urged that clinical decision procedures should dispense with intuition in favor of more analytical forms of reasoning and that researchers and clinical practitioners should not overstate their support for intuition. These controversial views however, do not seem to have been reinforced by other authors in the 21st century.

Buckingham and Adams (2000) explored the role of decision making in nursing by conducting a review of literature from 1970 forward. They constructed a unifying theoretical framework in which intuition, traditionally associated with nurses' decision making, is posited to be no less rational and scientific than other approaches.

McCutcheon and Pincombe (2001) also explored intuition as an important theoretical concept in the practice of nursing in a GT study. Using focus group interviews and the Delphi survey technique, data were collected from 262 Registered Nurses (RNs) who volunteered to take part in the study. The goals were to evaluate the role of intuition, to examine nurses' understanding of intuition and their perceptions of their use of intuition, and to assess the impact of intuition on nursing practice. The theory that emerged from this study provides nurses with a way of articulating their understanding of intuition and their perceptions of its use in nursing practice. This theory posits that intuition is a product of the synergy resulting from the interaction of a number of factors.

Subsequent research has provided further descriptions of intuitive decision-making processes based on empirical data and how the use of intuition varied across different groups of nurses. King and Clark (2002) used observation and interviews to explore decision-making processes among 61 qualified nurses through their assessment of patients following major surgery. The combined use of intuitive and analytical elements of decision making was found to vary across four levels of expertise. The most effective use of intuitive and analytical components was found in the most highly experienced group.

Minick (2003) studied the early recognition of patient problems among 14 medical-surgical nurses in an urban hospital. Nurses' early recognition of patient problems through the use of traditional assessment skills and intuition was shown as a key aspect in producing positive patient outcomes in acute care settings. The skill of early recognition, the language to describe it, and institutional support of the nurse to use the information in a consistent way are all critical aspects of quality care discussed in Minick's study. The study supports the use of intuition as a potential part of nurses' early recognition of patient problems or concerns.

Ruth-Sahd and Tisdall (2007) studied predictors of novice nurses' use of intuition to guide patient care decisions. They compared personal, interpersonal, and professional experiences suggested by past research and examined their association with the use of intuition by nurses. A questionnaire completed by 323 novice nurses measured the use of intuition with an 18-item subscale identified by Miller (1993) in the MII. Measures of personal experience included age, gender, hospitalizations, self-esteem, and religiosity. Multiple regression analysis indicated novice nurses used intuition more to guide patient care if the nurse was older, had more hospitalizations, and experienced more social support.

Stockhausen (2006) conducted an ethnographic study involving the observation of 11 RNs and 40 students and reported that experienced nurses use a personally unnoticed process of "reflection-in-action"(p. 54) during patient encounters. It was

concluded that an intrinsic element exists in experienced nurses' decision-making processes when addressing patient needs that goes beyond traditional assessment.

The recognition of intuition as a quantitative measure, rather than a qualitative construct, was emphasized by the development of an instrument that measured clinical intuition as "a non-linear process of knowing perceived through physical awareness, emotional awareness, and/or through physical or spiritual connections" (Smith et al., 2004, p. 614). The 33 self-report items in their questionnaire were derived from a literature review and interviews with nurses. Seven content experts established a content validity index of 0.86. The construct validity of the instrument was evaluated using a random sample of 1,000 senior nursing students. The validation process using principal components analysis resulted in a revised 25-item instrument, with an overall Cronbach's alpha coefficient of 0.89, reflecting a high level of internal consistency. Demir et al. (2012) evaluated the reliability of the Turkish version of the Use of Intuition by Nursing Students Scale (UINSS). The sample was composed of 250 nursing students, and the Cronbach alpha coefficient was 0.86.

Little has been published since 2008 to contradict the generally accepted view that nursing intuition is beneficial to clinical decision-making processes. Thompson and Yang (2009) suggested that teaching nurses to handle uncertain situations intuitively is problematic, because: (a) intuitive decision making is prone to reasoning biases, and (b) studies to explore nurses' decision-making processes rarely use intuitive responses alone as the basis for judging the benefits of intuition.

Since 2008, few studies exploring how intuitive decision-making processes may operate in clinical practice have been conducted. Nyatanga and Vocht (2008) conducted two experiments to determine how cognitive and physiological functions of intuition are related to complex decision-making processes with respect to patient care. They concluded that health care professionals, especially those working in acute and palliative care, who are exposed to complex ethical and clinical situations, can benefit from using intuitive knowledge to make complex decisions.

Bjørk and Hamilton (2011) compared the differences in clinical decision-making processes with respect to the demographic and contextual characteristics of 2095 nurses at four hospitals. A statistically significant increase in the use of intuition was associated with years in present job, higher level of education, male gender, higher age, and working in predominantly surgical units.

More recently, researchers have turned more actively toward providing philosophical and theoretical explanations, based on systematic reviews of the literature, rather than empirical descriptions about the nature of nursing intuition. Gobet and Chassy (2008) discussed the classical theory of Benner (1984), and reviewed the data that supported and challenged this theory. Based on their review, Gobet and Chassy proposed a new theory of nursing intuition, which emphasized how perception and conscious problem solving are intimately related. They suggested that this theory opens new avenues of inquiry for further research into nursing intuition. Banning (2008) also reviewed the current literature on the application of theory to clinical practice and

proposed a multidimensional model that contained patient-specific elements that are necessary for pattern recognition, supporting the original theory of Benner and Tanner (1987).

In a philosophical review, Braude (2013) proposed that clinical intuition is necessary in linking medicine as both art and practice, and suggested that phenomenology provides a method to restore the Hippocratic synthesis of empirical and holistic observations associated with clinical intuition. In a conceptual review of nursing intuitive processes in the context of meeting the needs of patients, De Vries et al. (2013) proposed that patients may be better served by combining both deliberative and intuitive processes. Similarly, Pearson (2013) supported the proposition that intuition can be used in conjunction with evidence-based practice to achieve good patient outcomes.

Although it is evident that a large number of studies conducted in the last 30 years have explored the phenomenon of nursing intuition, a gap in the research still remains regarding how nurses utilize intuition in decision-making processes leading to the activation of RRTs, providing direction and rationale for the proposed study.

Novice and Expert Nurses' Intuitive Ability

Several researchers have focused on comparing the intuitive abilities of novice and expert nurses. Benner (1984) was the first to suggest that expert nurses depend more on intuitive processes than novice nurses for critical thinking to initiate action. Rew (1987) suggested that, although novice nurses may use intuition during assessment, implementation, and/or intervention stages of a therapeutic consultation, they do not

necessarily respond to intuition when it comes to planning, diagnosis, or evaluation. Chase (1995) and Itano (1989) suggested that novice nurses, due to their limited knowledge and experience in the profession, tend to view decision making as responding to patient complaints, and they depend more than expert nurses on nursing protocols and documented care plans (Chase, 1995; Itano, 1989). Gillespie and Peterson (2009) similarly suggested that newly qualified RNs frequently do not identify or understand the relevance of departing from a textbook picture in a clinical patient setting.

James, Simpson and Knox (2003) explored the impact of nursing experience on the use of intuition. The study included 54 labor and delivery nurses with five or more years of experience. The researchers concluded that expert obstetrical nurses developed a keen sense of intuitive knowledge based on their years of experience, lending support to the notion that the successful use of intuition may be connected to the nurse's years of experience. Messmer, Jones, and Taylor (2004) noted that when novice nurses lack confidence in the clinical setting, they may rely excessively on more experienced nurses and avoid situations that require them to make decisions. Such lack of confidence may lead to dissatisfaction and can ultimately result in the novice's exit from the profession. Conversely, the expert nurse tends to perform better and is more proficient than the novice in diagnosing and planning in a clinical care setting (Tanner, 2006). Tanner emphasized that "the novice nurses need to learn how to recognize a situation in which particular aspects of theoretical knowledge enhance the development of a practical knowledge that helps to refine, extend and adjust the textbook knowledge" (p. 206).

English (2008) suggested that the expert nurse has a “sixth sense” (p. 388) in each situation, and a “vision of what is possible” (p. 388) in terms of knowledge, enhancement and recognition. Green (2012) conducted a review on the differences between novice and expert nurses’ intuitive ability. This review, based on a synthesis of data from philosophy and neurophysiology, attempted to provide an understanding of why intuitive actions are found in some, but not all, nurses. It also provides specific information about how nurse educators can foster intuition in young nurses and allow them to respond with greater confidence in acting upon their own intuition.

Only one study has focused on comparing intuition among different age groups or generations of nurses. Farr-Wharton, Brunetto, and Shacklock (2012) used a self-report survey to collect information from 900 Baby Boomer, Generation X, and Generation Y nurses, randomly chosen from seven private hospitals in Australia. The findings indicated that intuition is more important to the older nurses (i.e., Baby Boomers and those part of Generation X, born between the 1950s and 1970s) than to the younger Generation Y nurses (i.e., those born in the 1980s).

Only two studies have focused on the characteristics of nurses relating to the activation of RRTs, emphasizing the need for more research in this area. Galhotra et al. (2006) recorded that of the 83% of the 300 staff nurses who activated RRTs and responded to their survey, 48% had a total of 10 or more years of nursing experience, while 30% had been at the hospital for less than 10 years. A total of 35% of nurses worked in a telemetry unit, 30% in a medical/surgical unit, and 22% in an intensive care

unit. Relatively few (9%) worked in more than one type of unit with the most likely combination being medical/surgical and telemetry. Similarly, Salamonson, van Heere, Everett, and Davidson (2006) reported a positive and significant relationship between years of nursing experience and RRT activation.

Although it is evident that issues related to the critical thinking and intuition of novice and expert nurses have been studied in general, a gap remains regarding the potentially different uses of intuition with respect to the level of experience and expertise of the nurses involved in the activation of RRTs. This gap provided direction and rationale for the study.

Activation of Rapid Response Team

Although the term RRT has been used extensively in the literature, standardization of this term was promoted in 2006, when the first International Consensus Conference on Medical Emergency Teams (ICMET) was held to discuss the major content areas related to RRT programs (Pringle et al., 2011). Today, more than 25% of U.S. hospitals have implemented a RRT (Jenkins & Lindsey, 2010) (See Appendix C for the process of activating RRT). Currently, a RRT refers to a medical emergency team that resembles a code team staffed by health care professionals with critical care expertise, including an ICU charge nurse and a respiratory therapist. The process of calling the RRT begins when at least one of the following physiologic criteria has been established: (a) acute onset of chest pain, (b) heart rate > 130 or < 40 beats per minutes, (c) systolic blood pressure < 90 mmHg, (d) oxygen saturation $< 90\%$, (e)

respiratory rate > 30 or < 8 breaths per minute, (f) change in level of consciousness, (g) urine output < 50 ml in 4 hours, or (h) the staff member is sufficiently worried about the patient to call the RRT. This last criterion provides an opportunity for intuition to activate RRT (Pringle et al., 2011).

Chan, Jain, Nallmothu, Berg, and Sasson (2010) conducted a meta-analysis of studies published from January 1, 1950, through November 31, 2008. The findings demonstrated the implementation of a RRT in adults was associated with a 33.8% reduction in rates of cardiopulmonary arrest outside the ICU.

DeVita et al. (2006) explored the use of RRTs to reduce hospital cardiopulmonary arrests. The study focused on determining how the incidence and outcomes of cardiac arrests had changed following increased use of the RRT. A retrospective analysis of clinical outcomes was performed to compare the incidence and mortality of cardiopulmonary arrest before and after the increased use of the RRT. A retrospective analysis of 3,269 RRT responses and 1,220 cardiopulmonary arrests over 6.8 years showed an increase in RRT responses from 13.7 to 25.8 per 1,000 admissions after instituting objective activation criteria. The increased use of the RRT resulted in fewer cardiopulmonary arrests overall. While the study addressed the institutional objective criteria for calling RRT, additional research concerning the non-tangible aspects of the increase in the number of RRTs should be investigated.

The success of the RRT is partially dependent on the primary nurse's "trigger" for the activation of the RRT as a response to his or her intuitive and clinical skills that

recognize high-risk situations needing immediate response (IHI, 2006). The first RRT was developed at Liverpool Hospital in Sydney, Australia, in 1989. Since that time, RRTs have gained international implementation (Pringle et al., 2011). RRTs have gained widespread popularity, and research has shown that early detection of warning signs provides an opportunity to prevent cardiac arrests and related mortality.

Nurses and Rapid Response Team Activation

As RRTs become standard practice, further research is needed to examine the benefits and further refine effective early intervention for high-risk patients. Only a few studies have focused on the characteristics or experiences of nurses activating RRTs (Cioffi, 2000; Daffurn, Lee, Hillman, Bishop, & Bauman, 1994; Galhotra et al., 2006). In Great Britain, Cioffi (2000) conducted a descriptive study of 32 staff nurses using unstructured interviews to examine nurses' experiences in making decisions about when to call for emergency assistance. The key findings indicated nurses questioned whether they were doing the right thing by calling the emergency team; they sometimes collaborated with others prior to calling and most felt nervous and anxious. The nurses recognized patient deterioration from their gut feelings that something was wrong; however, the nurses were not able to fully identify or describe triggers for these gut feelings. Participants requested a debriefing session to learn from the experience after a RRT call. The debriefing session would likely help the nurses realize how they might improve upon the management of deteriorating patients and build confidence in utilizing the RRT. The participants in this study were required to have five or more years of

experience; thus, the findings were not generalizable because less experienced nurses were not represented.

Salamonson et al. (2006) also explored nurses' satisfaction with the RRT, perceived benefits of RRT, and suggestions for improvement. The study was comprised of 73 staff nurses and explored the characteristics of nurses who were more likely to activate the RRT. Again, as noted in Cioffi's (2000) earlier study, a connection existed between experienced nurses and the activation of RRT for deteriorating patients.

Daffurn et al. (1994) conducted a two-year study to determine if nurses knew when to call for emergency assistance, following the implementation of a RRT in acute care hospitals. Questionnaires were distributed to 141 nurses to determine their opinions on, knowledge of, and use of RRTs. Nurses from the ICU High Dependency Unit and Coronary Care Unit were excluded, as pilot testing was undertaken in these areas. The questionnaires were completed at shift change and returned within 30 minutes. The researchers felt that shift change and inherent distractions provided little quality time for participants to reflect on the questionnaire. Daffurn et al. found that nurses had a favorable attitude toward the RRT but felt there was insufficient education of the staff regarding the benefits of early intervention.

Ray et al. (2009) conducted a review of randomized clinical trials and prospective studies of RRTs. A coincidental 17% decrease in the incidence of cardiopulmonary resuscitation (CPR), from 6.5 to 5.4 per 1,000 admissions, was noted. The proportion of

fatal arrests was similar before and after the increase in use of RRT. This study supports the positive impact of RRT on patient care in the hospital environment.

Jones, King, and Wilson (2009) conducted a literature review of publications from 1994 to 2007 regarding factors that impact nurses' decisions regarding RRT activation. The aim of the literature review was to identify factors, both positive and negative, that impact nurses' effective use of a RRT in acute care settings. Five major themes emerged from the analysis of the 15 articles reviewed as the major factors affecting nurses' use of the RRT system. The themes included: (a) education on the RRT, (b) expertise, (c) support by medical and nursing staff, (d) nurses' familiarity with and advocacy for the patient, and (e) nurses' workload. The study recommended ongoing education on all aspects of the RRT for the nursing, medical, and RRT staff. The study further emphasized bringing RRT education into undergraduate programs to prepare new graduates entering the workforce to care for acutely ill patients and recommended further research to determine other influences on RRT activation.

Summary

This literature review was structured around the following subtopics: intuition in nursing practice, novice and expert nurse's intuitive ability, activation of RRT, and nurses and RRT activation. The work of Patricia Benner (1984) and Christine Tanner (Benner and Tanner, 1987) did much to promote the importance of intuition as an integral part of the nursing process. This concept was not extensively followed up until the 1990s, when further empirical information was provided to support Benner and Tanner's

propositions. In the 21st century, there has been some opposition to the use of intuition in nursing practice; however, this controversial stance has garnered few supporters. Further information, recognizing intuition as a legitimate form of knowledge in nursing practice, has been embraced. In the last few years, researchers have turned more actively toward providing philosophical and theoretical explanations, based on systematic reviews of the literature, rather than empirical descriptions of nursing intuition. In general, it is posited that intuition can be used in conjunction with evidence-based practice to achieve good patient outcomes.

Relatively few studies have focused on comparing the intuitive abilities of novice and expert nurses. The apparent lack of a combination of intuitive and analytical reasoning is an issue among novice nurses that requires attention, especially in rescue situations with early RRT intervention. It has recently been proposed that nurse educators should foster intuition in young nurses and allow them to respond with greater confidence in acting upon their own intuition (Green, 2012).

Activation criteria for RRT are clearly outlined, and investigators have claimed that nursing intuition is a legitimate basis for activating RRT. The literature indicates that nurses possess differing perceptions and attitudes, and they exhibit differing behaviors regarding using intuition to activate RRT. Information regarding nurses' responses to managing patient deterioration in non-critical care units in hospitals reveals some of the underlying concepts that guide their ability to recognize cues and call for help in a timely manner. A gap exists in the education of nurses about RRT and what

should prompt a call to the RRT. The literature on the effectiveness of the RRT in promoting the importance of intuition as a part of the RRT process for managing patient deterioration is largely absent, but effects of RRTs on patient outcomes appear to be beneficial.

It is evident that limited research has specifically addressed the decision making processes of nursing inactivating RRTs using intuition as a contributing factor. The lack of published research underscored the need for the current study exploring the role of intuition in nurses who activate the rapid response team (RRT) in medical-surgical and telemetry units. The methods used to conduct this study are described in Chapter III.

CHAPTER III

PROCEDURES FOR COLLECTION AND TREATMENT OF DATA

The procedures used for the collection and treatment of data in this study focus on addressing the purpose for the proposed study, which was to explore the role of intuition in nurses who activate the rapid response team (RRT) in medical-surgical and telemetry units. Methods were used to explore: (a) the process of using intuition in the activation of RRT for patients and (b) the value staff nurses place on intuition in the activation of RRTs for patients.

The researcher conducted in-depth, face-to-face semi-structured interviews with a purposive sample of staff nurses. Strauss and Corbin's (1998) GT approach were used to generate theory from the data. This study was rooted in the philosophy of symbolic interactionism, meaning how individuals interact with each other and within society, through the meanings of symbols, such as the body language of patients (Jeon, 2004).

The remainder of this chapter describes the study setting, sample, protection of human subjects, and potential benefits. Procedure for data collection, analysis, and requirements for qualitative rigor are also addressed.

Setting

In terms of setting, researchers using the qualitative design usually collect their data in real-world naturalistic settings (Polit & Beck, 2012). The setting for this study was a private hospital in North Texas. This 240-bed hospital has been serving eight

communities in North Texas since 1964. The hospital employs 375 registered nurses, serving 50 medical- surgical and 75 telemetry beds. RRT programs were initiated in the hospital in 2007.

Sample

Following the requirements of a GT methodology (Strauss & Corbin, 1998), the sample was purposive, in that participants were selected based on their knowledge of a phenomenon and the purpose of the study. A purposeful sample of adult registered nurses working full time in an adult medical surgical and telemetry floor were asked to participate in the study. Only nurses with documented RRT activation related to expressing a pre-crisis “concern about their patient” as a critical factor in the activation of RRT were interviewed. Sampling in GT method is based on emerging concepts so that further sampling of participants and smaller analysis units may complement initial sampling during the course of data collection and analysis (Eisenhardt, 1989; Strauss and Corbin, 1998). Inclusion criteria to participate were: (a) full-time male or female registered staff nurses, age ≥ 21 years, working in adult medical-surgical and telemetry units; (b) RNs with documented RRT activation within the last six months preceding enrollment, related to expressing a pre-crisis concern about a high-risk patient as a critical factor in their activation of RRT; (c) RNs who were willing and able to give their informed consent to participate in this study; and (d) RNs who were able to speak and understand English. The exclusion criteria were (a) registered nurses with previous ICU experience, float pool nurses, and agency nurses; (b) RNs who had not activated RRT in

the last six months; (c) RNs working in an Intensive Care Unit or emergency room; and (d) RNs who do not speak and understand English.

Sampling continued until saturation was achieved. Data saturation has occurred when interviews become repetitive and contain no new information or categories (Cresswell, 2009). Saturation was achieved by means of zigzag sampling (diagrammed in Figure 1, Creswell, 2009).

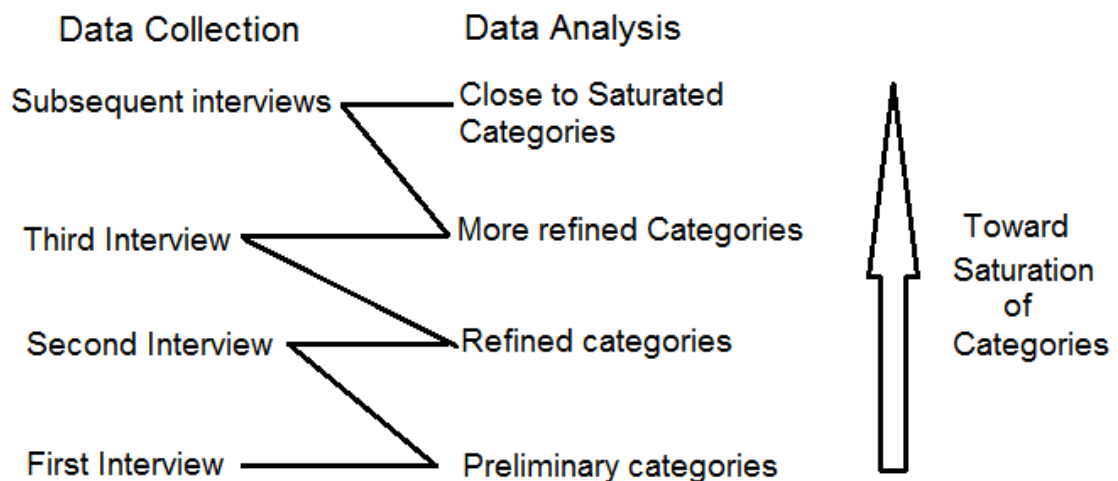


Figure 1. Zigzag sampling

Zigzag sampling is a component of the constant comparative method, whereby newly collected data are compared with previously collected data (Strauss & Corbin, 1998). The preliminary categories for the preliminary thematic analysis are identified using the data from the first interview. These categories are refined after analysis of the data from the second interview. More refined categories emerge after the analysis of the data from the third interview. This iterative process continues until the researcher

believes that saturation has been achieved. In the context of health research, Green and Thorogood (2009) suggested that "the experience of most qualitative researchers is that, in interview studies, little that is new comes out of transcripts after you have interviewed 20 or so people" (p. 120). Consequently, it was expected that at least 20 and no more than 32 nurses would be interviewed for this study to reach saturation.

Theoretical sampling is the process of data collection that is directed by evolving theory rather than by predetermined population dimensions (Strauss, 1987). It is a pivotal strategy in GT methodology (Charmaz, 2000). Glaser (1978) indicated that theoretical sampling occurs when the researcher jointly collects, codes, and analyzes data and decides what data to collect next and where to find them, in order to develop theory as it emerges. In this study theoretical sampling occurred by: (a) refocusing the interview questions to gain specific information regarding an emerging concept, (b) redirecting interviews as some categories became saturated and the participants started introducing new concepts, and (c) considering interview modifications if needed to validate theoretical concepts. The researcher developed a guide to facilitate and document decisions related to theoretical sampling. Pilot study subject interviews were included in this study. This was because there was no change in the inclusion and exclusion criteria and it was similar to the research study.

Protection of Human Subjects

The study adhered to a institutional review board (IRB) guidelines. IRB approval was obtained from Texas Woman's University and the hospital setting prior to beginning

data collection. The risks of participation in this study were minimal. The risks were related to possible emotional discomfort, loss of confidentiality, and coercion that could have occurred when responding to the sensitive nature of questions during the interviews. For these reasons, the researcher made it clear that participants could withdraw from the study at any time. Because electronic transmission of information occurred during the study, there was a potential risk of loss of confidentiality through e-mail, downloading, faxing, and Internet transactions.

Confidentiality was protected to the extent that is allowed by law. The interview was held at a private location and the researcher was in a work office/conference room with the door closed. Pseudonyms were utilized to protect the identity of participants during the interview. Participants were asked to provide their own pseudonym if they wished to do so. The digital interview files were kept on a password protected computer and the written interviews were stored in a locked cabinet in the researcher's office. Only the researcher and the person who transcribed the interview heard the tapes or read the written interview. There was a potential risk of loss of confidentiality in all email, downloading, and internet transactions. The other possible risk in this study was emotional discomfort with the questions that were asked. If participants became tired or upset, they could take breaks as needed. Participants could also stop answering questions at any time and end the interview. If participants felt the need to talk to a professional about their discomfort, the researcher provided a list of resources. For the potential risk related to the loss of time, the interview was conducted at a time that was

convenient for the participants. Due to total maximum time commitment, participants received a thank you card. Participants could choose to stop the interview, resume the interview at another time, or completely withdraw from the study at any time. Coercion was a possible risk since participants were employed at an organization of which the researcher was also employed as a nursing leader. Taking part in the study was voluntary and participants could choose not to take part if they desired.

Confidentiality was protected to the extent allowed by law. All responses were confidential. Names of participants did not appear anywhere except on the informed consent forms. The consent forms were stored in a location separate from data in a locked filing cabinet in the researcher's locked office. Transcripts used pseudonyms, rather than participant names. Audio recording and transcripts remained in a locked filing cabinet in the researcher's home office. Computers and files used to store data were password protected. Aggregate results of this study may be published in a scientific journal with no identifying information included.

Potential Benefits

The potential benefits of this study outweighed the risks. The insights from this study will allow for future educational sessions and refinement of the RRT effort. The study will help to improve future RRT education and form the basis for collaboration with scholars from other disciplines, such as psychology, education, and medicine, to design more complex studies that will expand understanding of the phenomenon of nursing intuition.

Data Collection and Analysis

Data Collection

The following is a stepwise description of how data were collected. After obtaining IRB approval, participant recruitment began by placing flyers in the nursing break rooms of medical-surgical and telemetry units. Permission of the nurse managers was obtained first. Potential participants were asked to contact the researcher if they wanted to participate. The respondents who provided their informed consent and satisfied the inclusion criteria were asked to participate in an interview.

Confidentiality of the participants was protected. Each participant was assigned a pseudonym, or unique identification number, that was not connected with any form of personal identification. A quiet conference room on the medical-surgical floors of a private hospital in North Texas was reserved to conduct the interviews. The researcher conducted in-depth, face-to-face, semi-structured interviews with each participant in the selected conference room at an agreed time. The researcher's questions and participant's responses were audio-recorded by two devices to ensure complete capture of all spoken words. Each interview lasted on an average to 45 minutes. The interview began with the participant completing a demographic survey to include age, gender, ethnicity, education level, specialty, certifications; years of nursing experience, shift, and frequency of RRT activation (see Appendix A). The researcher interviewed participants using the semi-structured interview guide (see Appendix B). The researcher developed a rapport with respondents by clarifying the questions; providing prompts to clarify the questions asked

of participants and encouraging elaboration on responses, including asking follow-up questions, when needed.

Pseudonyms were utilized to protect the identity of participants during the interview. Participants were asked to provide their own pseudonym if they wanted to do so. The recorded interviews were transcribed verbatim into an electronic, printable, Microsoft Excel file. Each sentence was transcribed line by line into one row of a spreadsheet. The filename included the pseudonym of the participant and the date of the interview. No information that could be used to personally identify the participant was used in the transcripts. A thematic analysis of the text was conducted using the constant comparison method described by Strauss and Corbin (1998).

Data Analysis

The units of communication (words, phrases, or sentences) in the transcripts were categorized into coded themes, defined as mutually exclusive units of meaning. Theme identification is one of the most fundamental tasks in qualitative research, but is also one of the most intangible, because exactly how researchers discover themes are rarely described in explicit detail (Creswell, 2009). Themes may be identified before, during, or after the collection of qualitative data. In this study, which applied GT methodology (Strauss & Corbin, 1998), themes emerged inductively, during collection of data, through insights that the researcher gained by interpreting each unit of communication through the process of zigzag sampling (see Figure 1).

Each theme consisted of a cluster of units of communication, categorized using the same alphanumeric code, because the responses had common attributes reflecting the participants' perceptions about an identifiable concept. Coding progressed to increased levels of abstraction from identifying codes and themes to developing and relating categories (Cranley, Doran, Tourangeau, Kushniruk, & Nagle, 2012). During this process, the researcher wrote a reflexive journal, containing memos that recorded assumptions, reflections, and propositions, including hunches, and thoughts that elaborated on ideas about the data and the coded categories.

Data analysis proceeded using the following stepwise procedures. Open coding, based on the concept of dissecting units of communication (words, phrases, or sentences) to identify relevant conceptual categories, was conducted (Strauss & Corbin, 1998). Each unit of communication collected at the first interview was subjectively interpreted by the researcher, and openly coded with: (a) the pseudonym of the participant, followed by a name to identify a primary theme, followed by a number to identify a subtheme. Each subtheme was categorized. For example, the code, "Jane Knowledge 1 Positive" is a possible example, representing the code for one of Jane's units of communication, classified by its primary theme (knowledge) and subtheme (a category of knowledge), manifesting a positive viewpoint about the value of intuition in nursing. Each category was color coded, to permit rapid visualization of themes and subthemes during the thematic analysis (Marshall & Rossman, 1999). Units of communication were sorted and

aggregated, to align them with their thematic codes, using the appropriate features of Microsoft Excel.

The constant comparative method, whereby newly collected data are compared with previously collected data was applied (Strauss & Corbin, 1998). The preliminary categories for thematic analysis emerged by open coding and using data from the first interview. These categories were refined after analysis of data from the second interview. More refined categories emerged after analysis of data from the third interview. This iterative process continued by means of zigzag sampling until the researcher believed that emergent themes were complete, and saturation had been achieved. After all the units of communication were coded, the researcher reviewed and reflected upon the initial open coding of the themes. The open coding was then revised. The code structure was refined until themes exhibited internal convergence and external divergence, meaning that categories appeared to be internally consistent but distinct from one another (Patton, 2002).

Axial coding began following open coding. Axial coding is the process of relating themes and their manifestations to each other through a combination of inductive and deductive thinking (Strauss & Corbin, 1998). Selective coding is the process of choosing one category to be the core category and relating all other categories to that category. Selective coding began after axial coding to further develop and relate the thematic categories (Strauss & Corbin, 1998). A central phenomenon was identified as the core theme to which other themes were related.

The results of the thematic analysis were tabulated and described using narrative summaries. The interview responses were presented in their original transcribed form to allow the reader to gain his or her own interpretation of the interview responses, rather than that filtered by the researcher. Verbatim quotations, representing salient views of the participants, were extracted from the transcripts to provide a thorough description. Everything that was said was accurately portrayed and reported to create an audit trail. Lincoln and Guba (1985) stated that the audit trail is, “one of the principal techniques for establishing the ‘confirmability’ of qualitative findings (p. 318).

This final stage of selecting coding was the creation of a substantive theory from “core” categories. Furthermore, the core category was logical and consistent without any retrospective force of the data. The theory was described as both a diagram and narrative (broad research question became statements about what is found). These generated category that integrated all other categories (tell the whole story).

The results of the thematic analysis were discussed in which the research question— What is the role of intuition in nurses who activate the rapid response team (RRT) for patients in medical-surgical and telemetry units? —was addressed. Chapter V includes a discussion of the way in which a theory grounded in data was developed to describe the experiences of staff nurses who use intuition in activating RRT for patients in medical-surgical and telemetry units. This theory explains the role of intuition in nurses who activate the RRT for patients in medical-surgical and telemetry units. Additionally, the theory describes how intuition is used alongside objective, empirical

evidence when evaluating a patient's condition and in planning care through activation of RRT in the hospital setting. Finally, it also explains how intuition varied with respect to the level of experience and expertise of the nurses.

Presentation and discussion of the findings effectively depends on the integrity of the researcher to achieve rigor through trustworthiness. Trustworthiness is established using credibility, confirmability, dependability and transferability. Authenticity is also a way to demonstrate rigor.

Credibility

Credibility implies establishing that results of qualitative research are believable and trustworthy (Lincoln & Guba, 1985). Credibility in a GT study is achieved by collecting accurate data, creating meaningful connections between the themes and the raw data, and constructing a theory that is a conceptual and relevant explanation for the process being studied (Strauss & Corbin, 1998). From the perspective of the participants, credibility implies that they believe what they say is true, because they are the only ones who can legitimately judge the believability of the findings (Creswell, 2009). The main threat to credibility is response bias. What people say when they are interviewed may reflect their own subjective realities; however, subjective reality is not necessarily true. Subjective reality may reflect the participant's perceptions of reality but is not necessarily the same as what they actually believe or do in practice (Merriam, 2009; Steinar, 1996). For the purposes of this study, the researcher assumed that the participants were truthful about their use of intuition in clinical practice. A few participants may have provided

biased responses regarding sensitive issues. The researcher attempted to reduce response bias by developing a rapport with participants, including further explaining open-ended questions as needed and encouraging responses from a nonjudgmental stance. Peer debriefing enhances the credibility of a qualitative study (Creswell, 1989). Peer debriefing is defined as, “a process of exposing oneself to a disinterested peer in a manner paralleling an analytical session and for the purpose of exploring aspects of the inquiry that might otherwise remain only implicit within the inquirer's mind” (Lincoln & Guba, 1985, p. 308).

Another threat to credibility is a distortion of results by the researcher. To prevent this, the researcher entered each unit of communication into the thematic analysis in full. The responses of participants were summarized, and responses that both supported and negated the themes were included (Creswell, 2009). The researcher did not intentionally give preference to voices of respondents whose views agreed with her own and/or the literature. The researcher did not intentionally eliminate any responses that were directly opposed to her own personal views, or information in the literature. Despite attempting to maintain a neutral stance, the researcher recognized that, like all human beings, she has personal prejudices, and these might contaminate the results of the study. The researcher was aware of the need for self-reflection, or reflexivity, meaning that she reflected personally upon the role she played in constructing knowledge, and she attempted to explain how and why she drew certain conclusions in preference to others (Holland, 1999).

Dependability

Lincoln and Guba (1985) defined dependability in terms of providing sufficient information for another researcher to repeat the data collection and analysis, if not necessarily to gain the same results. Dependability was established by maintaining detailed records of the research process, including a reflexive journal, to record assumptions, reflections, and propositions used to inform the thematic analysis. The dependability of the thematic analysis was enhanced by asking a member of the research committee to review and provide feedback on the results.

Transferability

Transferability is defined as the extent to which the findings can be transferred or have applicability in other groups or settings (Lincoln & Guba, 1985). The transferability of the study findings with respect to different contexts was established by : (a) providing thick descriptions that will allow readers to determine if findings are transferable to their own group or setting; and (b) relating the researcher's findings to the published findings of other researchers working on similar topics (e.g., by examining how the theory developed by the researcher supports or refutes other theories in the literature concerning the use of intuition by nurses and other professionals).

Authenticity

According to Lincoln and Guba (1985), authenticity includes considerations for fairness and ontological, educative, catalytic, and tactical authenticity. Fairness is established as an equal opportunity for research participation. The researcher established

fairness by using an open process involving consented participation by nurses and seeking advice of other researchers. Ontological authenticity includes expansion of the constructions that participants will bring to the social context, enabling them to improve the ways they experience the world around them. This was demonstrated by the analysis and presentation of the unedited interview transcripts. Educative authenticity is the extent to which the participants' understanding of and appreciation for the constructions of themes benefit other stakeholder groups. This was determined by interpretation of interview transcripts, and was specified as one of the aims of the research, to explore the value that staff nurses place on nursing intuition. Catalytic authenticity is the extent to which decisions and actions are facilitated by the expanded constructions of the participants. This was established by promoting the participants' willingness to discuss their development of knowledge to make clinical decisions, emerging from their learning experiences gained over a period of time.

Summary

The procedures used for the collection and treatment of data in this study focused on the purpose of the proposed qualitative study, which was to explore the experiences of staff nurses who use intuition in activating RRT for patients in medical-surgical and telemetry units. Methods were used that were congruent with the purposes of exploring the participants' use of intuition during the process of activating a RRT for patients in medical-surgical and telemetry units, using a GT research methodology. The setting, the sample, the protection of human subjects, the potential benefits, the procedures used for

data collection and analysis, and the requirements for credibility, dependability, and transferability all contributed to reliable outcomes.

The health care setting selected for this study was a private hospital in North Texas. The sample was purposive, implying that nurses from a pre-specified group were purposely sought out and selected to participate in face-to-face interviews with the researcher. The inclusion and exclusion criteria were defined. Saturation was achieved by means of zigzag sampling. It was expected that between 10 and 20 nurses would be interviewed for this study.

The study was conducted according to the guidelines of the Institutional Review Board. Confidentiality of the participants was protected to the extent allowed by law. The potential benefits of this study outweighed the potential risks.

A stepwise data collection plan, written according to the instructions for GT methodology, developed by Strauss and Corbin (1998), was followed. The researcher conducted an in-depth, face-to-face, semi-structured interview with each participant. Audio- recordings of interviews were transcribed verbatim. Units of communication were categorized into coded themes, or mutually exclusive units of meaning. The constant comparative method, whereby newly collected data are compared with previously collected data was applied. Open, axial, and selective coding were used as required for GT methodology.

The results of thematic analysis were reviewed by a member of the researcher's committee. The results of the thematic analysis were tabulated and described using

narrative summaries. The result of the thematic analysis was discussed, and the research question was addressed. A rich description, including verbatim quotations provided by the participants, was included. A discussion was presented to explain the way in which a theory grounded in data was developed to increase understanding of how staff nurses use intuition during the process of activating RRTs for patients in medical-surgical and telemetry units. The presentation of the findings of this study conforms to the need for credibility, confirmability, transferability, and authenticity.

CHAPTER IV

RESULTS

This chapter presents empirical evidence addressing the research question: What is the role of intuition in nurses who activate the rapid response team (RRT) for patients in medical-surgical and telemetry units? The ultimate outcome of this study is a theory grounded in data to increase understanding of the role of intuition in nurses who activate the RRT for patients in medical-surgical and telemetry units.

The first of 10 sections describes characteristics of the participants. The second section outlines the open and axial coding of the transcription of interview responses. The subsequent seven sections, based on the axial coding, describe the concepts integral to the theory, specifically (a) the types of patient assessment data that nurses collect prior to their decision to call the RRT; (b) the emotional reactions of nurses prior to their decision to call the RRT; (c) the physiological reactions of nurses prior to their decision to call the RRT; (d) how nurses collaborate with others before they call the RRT; (e) the role of the nurse's historical experience in the decision to call the RRT; (f) the role of nursing education in the decision to call the RRT; and (g) the associations between the frequencies of the axial codes and the gender, ethnicity, age, and experience of the nurses. The final section describes how the axial codes were integrated by selective coding to construct a theory proposing the role of intuition in the activation of the RRT.

Verbatim quotations, representing salient views of the participants, were extracted from the transcripts, and inserted into the text, to provide a rich description of the concepts.

Characteristics of the Participants

The 32 registered nurses who participated in this study were labeled P01 to P32 for analytical purposes. The individual responses of each participant to the Demographic Data Collection Tool (Appendix A) were collated in an Excel spreadsheet (Appendix E). The socio-demographic and educational characteristics of the participants are summarized in Table 1. The employment characteristics of the participants are summarized in Table 2. The frequencies of activation of the RRT reported by the participants are summarized in Table 3.

The majority of the participants were female ($n = 25$, 78.1%). The sample encompassed a wide age range, from 24 to 65 years with the average age being 41.7 years. One half of the participants ($n = 16$, 50.0%) were less than 40 years old. Most participants were White ($n=12$, 37.5%) and Asian ($n=12$, 37.5%); six identified themselves as African American (18.8%) and two Hispanic (6.35%). Most of the nurses ($n = 17$, 53.1%) had BSN level education, and over half ($n = 19$, 59.4%) had certifications. Their experience as RNs ranged widely from 1 to 32 years. About one third ($n = 12$, 37.5%) had been RNs for < 5 years, but the majority ($n = 20$, 62.5%) had been RNs for up to 15 years. Most of the nurses ($n = 27$, 84.4%) had worked 12 hour shifts in medical-surgery or telemetry units for 10 years or less, although two nurses had over 15 years of experience in their current units. More than half of the nurses ($n = 17$, 53.2%)

reported they had called the RRT up to 10 times, relatively few ($n = 4$, 12.5%) reported they called the RRT over 50 times. The majority ($n = 25$, 78.1%) had called the RRT up to 10 times in the last six months.

Table 1

Socio-demographic and Educational Characteristics of the Participants

Characteristic	Category	<i>f</i>	Percent
Gender	Female	25	78.1%
	Male	7	21.9%
Age (Years)	24-29	7	21.9%
	30-39	9	28.1%
	40-49	8	25.0%
	50-59	5	15.6%
	60-65	3	9.4%
Ethnicity	Asian	12	37.5%
	White	12	37.5%
	African American	6	18.8%
	Hispanic	2	6.3%
Education	Diploma	6	18.8%
	ADN	7	21.9%
	BSN	17	53.1%
	MSN	2	6.3%
Certifications	No	19	59.4%
	Yes	13	40.6%
Certificates	IV	2	6.3%
	CHEMOTHERAPY	1	3.1%
	CMSRN	1	3.1%

Note: ADN = Associate Degree in Nursing; BSN = Bachelor of Science in Nursing; CMSRN = Certificate of Medical Surgery; IV = Intravenous Therapy; MSN = Master of Science in Nursing.

Table 2

Employment Characteristics of the Participants

Characteristic	Category	<i>f</i>	Percent
Years as Registered Nurse	< 5	12	37.5%
	6-10	3	9.4%
	11-15	5	15.6%
	16-20	4	12.5%
	21-25	3	9.4%
	> 25	4	12.5%
	Not provided	1	3.1%
Years in current employment	< 5	14	43.8%
	6-10	13	40.6%
	11-15	3	9.4%
	16-20	1	3.1%
	>20	1	3.1%
Unit type	4MAIN	10	31.3
	4EAST	9	28.1
	TELEMETRY	5	15.6
	4WEST	3	9.4
	MEDSURG	3	9.4
	2EAST	1	3.1
	3WEST	1	3.1
Years in current Unit	< 5	17	53.1
	6-10	11	34.4
	11-15	2	6.3
	16-20	1	3.1
	>20	1	3.1
Shift (12 hours)	Nights	19	59.4
	Days	12	37.5
	Days and Nights	1	3.1

Table 3

Frequencies of Activation of RRT by the Participants

Number of times called RRT	Category	<i>f</i>	Percent
Total	< 5	7	21.9
	6-10	10	31.3
	11-20	4	12.5
	21-30	2	6.3
	31-50	3	9.4
	> 50	4	12.5
	Not provided	2	6.3
In last six months	0	1	3.1
	1-5	16	50.0
	6-10	8	25.0
	> 10	1	3.1
	Not provided	6	18.8

Coding of Units of Communication

The units of communication (i.e., the phrases or sentences extracted from the interview transcript) were stored in separate rows of an Excel spreadsheet. The units collected from each participant were, in turn, individually compared with all the units collected from the previous participants. A total of 295 units were open coded using the constant comparative method, until a total of 81 open codes emerged. The 295 coded units, following revision and refinement, in numerical order of the 32 participants, are recorded in Appendix F. Each participant provided between 6 and 15 open coded units.

The 81 open codes were collapsed by aggregation into 12 axial codes. All the coded data were exported from Excel into SPSS v. 20.0 to compute the frequency distributions of the codes and prepare tables. The frequencies of the open codes are tabulated in Appendix G. The names and conceptual definitions of the axial codes, and the frequencies of the units of communication that contributed to each axial code are presented in Table 4. Over half of the units of communication ($n = 163$, 55.2%) referred to the different ways that the nurses described how they assessed a patient's clinical condition. The remainder of the units described the physiological and emotional reactions that the nurses experienced following their assessment of the patient's condition ($n = 48$, 16.2%); their reporting of how collaboration with others informed their decision to call the RRT ($n = 13$, 4.4%); the nurse's understanding of the role that historical experience played in their decision to call the RRT ($n = 65$, 22.0%); and their perceptions concerning the benefits of education for nurses who call the RRT ($n = 6$, 2.0%).

Table 4
Axial Coding of 295 Units of Communication

Axial Code	Conceptual Definition	<i>f</i>	Percent
1 Assessment (Combined)	Nurses use a combination of processes to assess a patient's condition.	60	20.3%
2 Assessment (Objective)	Nurses use objective processes (e.g., vital signs) to assess a patient's condition	33	11.2%
3 Assessment (Subjective)	Nurses use subjective processes (e.g., feelings) to assess a patient's condition	47	15.9%
4 Assessment (Visual)	Nurses use visual observations (e.g., noticing that something does not look right) to assess a patient's condition	16	5.4%
5 Assessment (Interaction)	Nurses use verbal interactions (e.g., responsiveness to questions) to assess a patient's condition.	7	2.4%
6 Emotional Reaction	Nurses may experience emotional reactions (e.g., anxiety) after they have assessed a patient's condition	32	10.8%
7 Physiological Reaction	Nurses may experience physiological reactions (e.g., increased heart rate) after they have assessed a patient's condition	16	5.4%
8 Collaboration	Nurses may collaborate with others (e.g., a charge nurse) before they call the RRT	13	4.4%
9 Historical Experience (Confidence)	Nurses who are more experienced have more confidence to call the RRT	38	12.9%
10 Historical Experience (Trust in Feelings)	Nurses who are more experienced have more trust in their feelings to call the RRT	26	8.8%
11 Historical Experience (Not connected)	Calling the RRT is not related to a nurse's experience	1	0.3%
12 Education	Education is beneficial for nurses calling the RRT	6	2.0%
Total Units of Communication		295	100.0%

The progressive increase in the cumulative frequencies of axial codes with respect to a one-by-one increase in the number of participants (from P01 to P32) using the

comparative method is illustrated in Figure 2. Over half of the 12 axial codes emerged from the aggregation of open codes collected from the first participant. The cumulative frequencies of new axial codes increased from 7 to 11, with respect to the coding of the data from the first 15 participants. After the fifteenth participant, the axial coding became repetitive, until finally, a twelfth code emerged from the last participant.

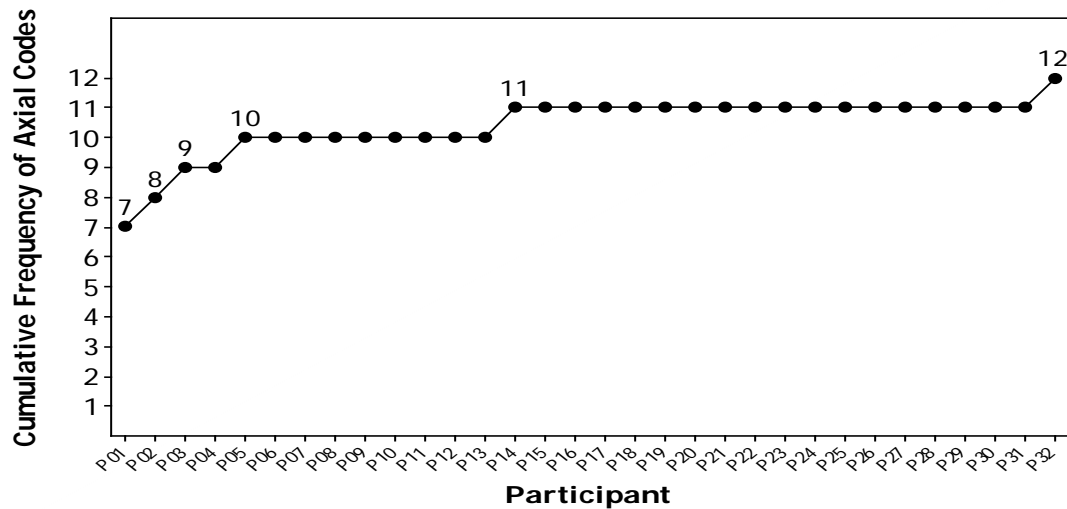


Figure 2. Saturation of axial coding among 32 participants

Research Questions

During the coding process questions developed, consistent with GT methodology, whereby new inquiries concerning the original research question, emerged inductively (Corbin & Strauss, 2008). Seven questions arose that were not originally conceived before the research began. The processes of asking questions facilitated the theorizing process, and were also useful in guiding the presentation of results discussed in this chapter. The final question concerned the development of the theory, which was the end

product of GT methodology. Consequently, the remainder of this chapter is organized into eight sections, each of which presents empirical evidence addressing eight research questions (see Table 5).

Table 5

Research Questions that Emerged During the Axial Coding of the Data

-
1. What types of patient assessment data do nurses collect prior to their decision to call the RRT?
 2. What are the emotional reactions of nurses prior to their decision to call the RRT?
 3. What are the physiological reactions of nurses prior to their decision to call the RRT?
 4. To what extent do nurses collaborate with others before they call the RRT?
 5. What is the role of the nurse's experience in the decision to call the RRT?
 6. What is the role of nursing education in the decision to call the RRT?
 7. Are there any significant associations between the frequencies of the axial codes and the gender, ethnicity, age, and experience of the nurses?
 8. How can the axial codes be integrated by selective coding to generate a theory?
-

1. What types of patient assessment data do nurses collect prior to their decision to call the RRT?

Five axial codes were used to classify five different types of patient assessment data that the nurses collected prior to their decision to call the RRT. These were defined as Combined, Objective, Subjective, Visual, and Interaction (see Table 1). The frequencies of the 14 open codes that were aggregated to create the axial code named Assessment (Collaborative) are listed in Table 6.

Table 6

Frequencies of Open Codes within the Assessment (Collaborative) Axial Code

Open Code	f	Percent
Objective + Subjective	32	53.3%
Objective + Subjective + Collaboration	7	11.7%
Objective + Collaboration	4	6.7%
Objective + Interaction	4	6.7%
Objective + Emotional Reaction + Collaboration	3	5.0%
Objective + Emotional Reaction	1	1.7%
Objective + Emotional Reaction + Experience	1	1.7%
Objective + Interaction + Collaboration	1	1.7%
Objective + Subjective + Emotional Reaction + Collaboration	1	1.7%
Objective + Subjective + Interaction	1	1.7%
Objective + Subjective + Visual	1	1.7%
Objective + Subjective + Visual + Interaction	1	1.7%
Objective + Visual	1	1.7%
Subjective + Collaboration	1	1.7%
Visual + Emotional Reaction + Collaboration	1	1.7%
Total	60	100.0

The most frequent units of communications ($n = 32, 53.3\%$) were open coded as "Objective + Subjective" meaning that the nurses used a combination of clinical evidence, historical experience, personal feelings, visual, and idiosyncratic data to make an assessment of the patient's condition, as described in the following examples (extracted from Appendix F).

- 9 4 P01 I guess part of it is my objective knowledge and looking at the patient, doing the full assessment, and analyzing what you are seeing. Lab results, etc., are part of that, too. When I have that feeling about a patient, it's like I go into fast mode—I have to get things done; I have to find things out.
- 47 2 P05 I think the assessment, the parameters, and the patient told me he got fluids and ended up in ICU. I get a feeling that the patient doesn't look right—even before we take the vital signs—I know the patient doesn't look right. Sometimes when the vital signs look ok, the patient doesn't look right.
- 57 2 P06 I assess the patient. My assessment and my vital signs..... And, sometimes, even when everything is stable, you know something is going wrong. Everything is stable – the vital signs, the oxygen. You can see from the patient's face that something is going wrong—I cannot point out what it is.
- 82 4 P08 I use my knowledge of what's normal and what's not normal. I use my nursing judgment how the patients look and act. Kind of that nursing intuition—how they (the patients) look and feel.
- 92 5 P09 Sometimes I have a feeling about the patient along with the assessment; I just call RRT.
- 96 2 P10 You have the diagnosis, you have the vitals, you have the report from the nurses...I think those are the reasons I decided to do it... But, there's something I feel is not right with this patient; I have a gut feeling about it.
- 217 2 P23 I use the assessment, the vital signs, the gut feeling...The objective assessment was fine. The subjective assessment is often what I go by.
- 261 5 P28 It's not just the vital signs but seeing their affect. Seeing the whole patient—not just the numbers or facts. Yes, but it is borne out of having experience with patients. It's like a patient with a low blood sugar. You might think they are crazy or sleepy; after being a nurse for a long time, you know that it's blood sugar. You just know the patient is in trouble.

The frequencies of the seven open codes that were aggregated to create the axial code named Assessment (Objective) are listed in Table 7.

Table 7

Frequencies of Open Codes within the Assessment (Objective) Axial Code

Open Code	<i>f</i>	Percent
Vital signs	26	78.8%
Protocols	2	6.1%
Assessment skills	1	3.0%
Diagnosis	1	3.0%
Lab tests	1	3.0%
Respiration	1	3.0%
Thinking critically	1	3.0%
Total	33	100.0

Vital signs ($n = 26$, 78.8%) and protocols ($n = 2$, 6.1%) were the most frequently reported objective assessments as described in the following examples (extracted from Appendix F):

- 43 1 P05 His blood pressure is low and he is running fever and his heart rate is up-like maybe he is going into sepsis.
- 49 4 P05 I checked the blood pressure and knew that he had been running fever all night.
- 65 2 P07 The assessment, of course, I use that---lab work. The vital signs.
- 73 1 P08 Her oxygen sat was very low—like 78. We called a RRT on that because her oxygen sat was so low.
- 137 2 P14 Usually it's the vital signs.....When blood pressure gets to be too high and not controlled, we call RRT. If the patient complains of chest pain, we call RRT.
- 149 4 P15 If the patient is not breathing ok or the patient's heart rate goes low like 30 or 40 something. Or, if the blood pressure is below 90 going down to 80, you would call RRT.

168 2 P17 I use the protocols, the assessment.

189 1 P20 We started to notice that his heart rate dropped to 40. It would go to like 45 to 50 to 80 then drop down and go back up. I just stuck him on a pulse ox. I went ahead and called a rapid response.

The frequencies of the 10 open codes aggregated to create the axial code named Assessment (Subjective) are listed in Table 8.

Table 8

Frequencies of the Open Codes within the Assessment (Subjective) Axial Code

Open code	<i>f</i>	Percent
Something is wrong	22	46.8
Gut feeling	10	21.3
Change in patient	7	14.9
Instinct	2	4.3
Feeling at the back of your head	1	2.1
Not vital signs	1	2.1
Patient is just a little off	1	2.1
Patient is not normal	1	2.1
Something could happen	1	2.1
Something is different	1	2.1
Total	47	100.0

The most frequent units of communication ($n = 22$, 53.3%) were open coded as "Something is wrong", "Gut feeling" ($n = 10$, 21.3%) and "Change in patient" ($n = 7$, 14.9%) meaning that the nurses did not use hard clinical evidence, but used their personal feelings based on their sensory perception to make an assessment of the patient's condition. Less frequently reported subjective feelings included "Instinct"; "Feeling at

the back of your head"; "Patient is just a little off"; "Patient is not normal"; "Something could happen"; and "Something is different". The most frequent types of subjective assessment are described in the following examples (extracted from Appendix F).

- | | | | |
|-----|---|-----|---|
| 12 | 1 | P02 | I just had a feeling that the patient was not doing good. Somehow, just inside me, I think something is not right. Something in me kept saying, "No, this isn't right." |
| 13 | 1 | P02 | There is this intuition within me that says, "Something is not right." |
| 14 | 1 | P02 | I took care of that patient the day before. And, I said, "Something is not right here." |
| 44 | 1 | P05 | I have this feeling to me that something is not right. |
| 55 | 1 | P06 | I feel like I need to do something right now and I need help. I have the feeling something is going wrong. |
| 62 | 1 | P07 | I get the feeling something is wrong with the patient. |
| 71 | 4 | P07 | Just little things that were different neurologically caused me to call. I think that I just had a feeling about those patients, too, just from noticing those subtle changes that made me call RRT. |
| 93 | 1 | P10 | I saw the patient, and I thought, "Something is wrong. Something is wrong with this patient." |
| 105 | 1 | P11 | Sometimes I just get this feeling about a patient that something is wrong. I had this one patient that looked ok, but I just knew something was wrong. |
| 116 | 4 | P12 | I think that's where that gut feeling comes in. Even if we have interventions going, I think it's one of those things where gut feelings come in to call an RRT. Even if everything's OK, you just feel you need to call. |

- 111 1 P12 A lot of times, if you are speaking to a patient, it is apparent that something is different. If you have a patient for several days, for example, you learn how they respond to things. If that changes, you feel something is wrong.
- 181 4 P18 I think it was a level of consciousness change that alerted me to the patient I described. She started to get more confused.....
- 256 1 P28 I noticed this change and started exploring what was going on with him. Why he was different. Well, it was not his blood sugar. It was not his blood pressure. There was no obvious reason that I could find for him being that way. I needed more input, so I called RRT.

The frequencies of the three open codes that were aggregated to create the axial code named Assessment (Visual) referring to how the patient looks are listed in Table 9.

Table 9

Frequencies of the Open Codes within the Assessment (Visual) Axial Code

Open code	<i>f</i>	Percent
Patient does not look right	11	68.8%
Change in how the patient looks	4	25.0%
Patient does not look comfortable	1	6.3%
Total	16	100.0%

The most frequent units of communication ($n = 11$, 68.8%) were open coded as "Patient does not look right" and "Change in how the patient looks" ($n = 4$, 25.0%) as described in the following examples (extracted from Appendix F).

- 1 1 P01 She just looked uncomfortable. No matter what we did, she just didn't look right. She wasn't complaining of any pain - but, she just looked uncomfortable.

- 2 1 P01 The patient just didn't look right.
- 26 1 P03 The appearance or visual assessment is not right.
- 37 1 P04 Usually, I look at how the patient was the whole day—or, what the previous nurse told me
- 52 1 P06 The patient looked bad
- 75 1 P08 She was just really pale. She was breathing a little shallow—just not like she had been breathing before. She was pale and all, you know.
- 88 2 P09 I looked at the patient.
- 120 1 P13 First I look at the condition of the patient. I think that if I wait and call the doctor it will take longer and the patient has to wait, so I call RRT.
- 126 1 P13 Sometimes it's the way the patient lays on the bed; it's just the position that is not right; it is not the same. If the position is not right, the arms are up and the patient is not right in the bed, then you need to call RRT.

The frequencies of the six open codes that were aggregated to create the axial code named Assessment (Interaction) are listed in Table 10.

Table 10

Frequencies of Open Codes within the Assessment (Interaction) Axial Code

<i>Open Code</i>	<i>f</i>	<i>Percent</i>
Change in patient (quiet)	2	28.6%
Change in patient (insecure, desperate)	1	14.3%
Change in patient (less responsive)	1	14.3%
Change in patient (not answering questions)	1	14.3%
Change in patient (not talking)	1	14.3%
Change in patient (talking)	1	14.3%
Total	7	100.0

Several types of change in the patient's condition, not indicated by objective assessment, were revealed by the ways in which the patient interacted with the nurses, as indicated by the following examples (extracted from Appendix F):

- 265 1 P29 I really think the patient is telling us something is wrong. They keep calling us; they just have an insecure, desperate look in their eyes. But, when you leave, they find another excuse to call.
- 262 1 P29 After going to the room and make the initial evaluation, somewhere during the shift the patient changed, became less responsive, poor eye contact. Evasive—something is not the same.
- 255 1 P28 He was quiet and reserved and seemed very different
- 225 1 P24 I had a patient when all the vitals looked ok. But, I could tell she was not there that she was not absolutely fine. But, at the end of the day, she had sepsis. She was mainly kind of gazing out—not the same as when she came in.
- 163 1 P17 Maybe not answering my questions right.
- 146 1 P15 All of a sudden they are quiet, but everything was fine before and they were talking.

2. What are the emotional reactions of nurses prior to their decision to call the RRT?

The frequencies of the six open codes that were aggregated to create the axial code named Emotional Reaction are listed in Table 11.

Table 11

Frequencies of Open Codes within the Emotional Reaction Axial Code

Open Code	<i>f</i>	Percent
Feel anxious	14	43.8%
Feel concerned	7	21.9%
Feel preoccupied	6	18.8%
Feel not able to take care of patient	3	9.4%
Feel excitement	1	3.1%
Feel stress	1	3.1%
Total	32	100.0

Feeling anxious ($n = 14$, 43.8%), concerned ($n = 7$, 21.9%) or preoccupied ($n = 6$, 18.8%) were the most frequently reported emotional reactions of the nurses, experienced after the patient assessment, but before calling the RRT, as recorded in the following examples (extracted from Appendix F):

- 46 1 P05 I can't quit thinking about that person
- 63 1 P07 I feel concerned. It's more mental and emotional than physiological. I feel concern about the patient.
- 64 1 P07 The patient preoccupies my mind.
- 74 1 P08 There's probably like a little bit of anxiety when something like this happens—you know, like a "nurse radar" or something.
- 144 1 P15 It's a worry—like a mother hen over baby chicks.
- 167 1 P17 Feel scared, I feel anxiety, and sometimes I feel panic. I call for help.

3. What are the physiological reactions of nurses prior to their decision to call the RRT?

The frequencies of the seven open codes that were aggregated to create the axial code named Physiological Reaction are listed in Table 12.

Table 12

Frequencies of Open Codes within the Physiological Reaction Axial Code

Open Code	<i>f</i>	Percent
Heart rate increases	7	43.8%
Nervous stomach	3	18.8%
Blood pressure increases	2	12.5%
Difficulty breathing	1	6.3%
Fight or flight	1	6.3%
Hyperactivity	1	6.3%
Sweating	1	6.3%
Total	16	100.0

"Heart rate increases" ($n = 7$, 43.8%) , "Nervous stomach" ($n = 3$, 18.8%) and "Blood pressure increases" ($n = 2$, 12.5%), were the most frequently reported physiological reactions of the nurses prior to calling the RRT, as recorded in the following examples (extracted from Appendix F):

- 123 1 P13 I feel like my blood pressure is going up
- 30 1 P03 Sometimes there's a sense of clarity that comes, a knot in my stomach that drives me to act.
- 87 1 P09 I feel my heart racing a little.
- 175 1 P18 You kind of speed up in your actions. I have a knot in the pit of my stomach—something like that---a nervous stomach.
- 216 1 P23 I feel a "bellyache" with some patients....Sometimes I get butterflies in my stomach.

124 1 P13 Like my heart rate is going up.

4. To what extent do nurses collaborate with others before they call the RRT?

The frequencies of the four open codes that were aggregated to create the axial code named Collaboration are listed in Table 13.

Table 13

Frequencies of Open Codes within the Collaboration Axial Code

Open Code	<i>f</i>	Percent
Collaboration with experienced nurse	6	46.2%
Collaboration with God/Spirit	4	30.8%
Collaboration with family	2	15.4%
Collaboration with Techs and PCTs	1	7.7%
Total	13	100.0%

The most frequent collaboration was with an experienced nurse, but God, the patient's family, or Techs and PCPs may also be consulted prior to RRT activation, as recorded in the following examples (extracted from Appendix F):

130 3 P13 Sometimes new nurses call me to assess the patient before they call RRT.

179 3 P18 I sometimes call the charge nurse down to help assess,

274 2 P30 I call a nurse that I have confidence in that compliments the way I work. We both assess the patient and I ask her what she thinks.... Then we call RRT.

66 2 P07 The families can be helpful in noticing if something is different. I ask if that's how the patient acts normally. Families can notice something different, especially if I have not had that patient before.

- 67 2 P07 The Techs and PCTs can be helpful too, if they have had the patient before in the last few days, and I haven't and they notice something different.
- 10 4 P01 Spiritually, I feel like I am doing my job in what God has called me to do as a nurse.
- 15 1 P02 I am a spiritual person. I pray every day that God will help me do the right things for the patient, that I pick up on things to make a difference. I ask Him to make me know when something is wrong.

5. What is the role of the nurse's experience in the decision to call the RRT?

The frequencies of the eight open codes that were aggregated to create the axial code named Historical Experience (Confidence) are listed in Table 14.

Table 14

Frequencies of Open Codes within the Historical Experience (Confidence) Axial Code

Open Code	<i>f</i>	Percent
Confidence comes with experience	15	39.5%
Hesitant when inexperienced	7	18.4%
Feeling comfortable comes with experience	5	13.2%
Lack of confidence when inexperienced	5	13.2%
Assessment comes with experience	2	5.3%
Inexperienced nurses follow protocols	2	5.3%
Doubtful when inexperienced	1	2.6%
More proactive when experienced	1	2.6%
Total	38	100.0%

The most frequent open code was "Confidence comes with experience" ($n = 15$, 39.5%) as recorded in the following examples (extracted from Appendix F):

- 48 3 P05 My years of experience make me more confident in calling RRT.
- 58 3 P06 I have been a nurse 40 years; I think I am more confident in calling RRT than when I was a new nurse.
- 68 3 P07 You are confident, you have done it before, and you know what information is needed when the RRT team arrives. I think the confidence and experience make it easier to call.
- 80 3 P08 I have been a nurse about 2 and ½ years. I am definitely more confident in calling RRT now than when I was a new grad.
- 115 3 P12 I am more confident in calling a RRT now than when I was a new grad nurse.
- 138 3 P14 I think the more experience you have, the more easy it is to make decisions—especially when calling RRT.
- 169 3 P17 I have been a nurse 16 years. I have confidence in RRT and am ok to call.

The next most frequent open code was "Hesitant when inexperienced" ($n = 7$, 18.4%) as exemplified by the following quotations (extracted from Appendix F):

- 34 3 P03 I was more hesitant at first to call RRT.
- 97 3 P10 I was more hesitant as a new nurse to call RRT. Being a new nurse, I would take more time and waited for the next vitals.
- 129 3 P13 I think new nurses are hesitant to call RRT at first, but after a time or two of calling, they see how much it can help, so they call.
- 219 3 P23 When I was a new graduate...I always worried about making a false alarm.

"Feeling comfortable comes with experience" and "Lack of confidence when inexperienced" were also frequently coded ($n = 5$, 13.2%) indicated by the following examples (extracted from Appendix F):

- 77 2 P08 As I have more experience, I am more comfortable calling RRT.
- 90 3 P09 I have been a nurse 18 years; it is much easier now to call RRT
than when I was first in nursing. I feel more comfortable in
calling now.
- 128 3 P13 Since we started having the RRT, I feel more comfortable calling.
- 268 3 P29 When you are you young, you don't want to look stupid or be
wrong. Now, I don't care; I would rather be wrong and the
patient be OK.
- 286 3 P31 When RRT first started I wasn't sure about it.
- 79 3 P08 When you are new you don't want to call RRT because you are
thinking, "No, I don't want to call an RRT; I should know what
to do"

One unit of communication was coded Historical Experience (Not connected) revealing one nurse's perspective, which was not consistent with the other nurses:

- 293 3 P32 I think every RRT is different, so I don't think they are connected.

The frequencies of the nine open codes that were aggregated to create the axial code named Historical Experience (Trust in Feelings) are listed in Table 15.

Table 15

Frequencies of Open Codes within the Historical Experience (Trust in Feelings) Axial Code

Open Code	<i>f</i>	Percent
Knowing something is wrong comes with experience	9	34.6%
Trust in feelings comes with experience	9	34.6%
No gut feeling when inexperienced	2	7.7%
Assessment comes with experience	1	3.8%
Experience comes from working in small hospital	1	3.8%
Gut feeling comes with experience	1	3.8%
Inexperienced nurses do not trust feelings	1	3.8%
Inexperienced nurses have feelings	1	3.8%
Intuition comes with experience	1	3.8%
Total	26	100.0

The most frequent open codes were “Knowing something is wrong comes with experience” ($n = 9$, 34.6%) and “Trust in feelings comes with experience” ($n = 9$, 34.6%) as exemplified by the following quotations (extracted from Appendix F):

- 32 3 P03 Previous experience allowed me to see what the “normal” of patients were like and to recognize the differences between normal and abnormal on admission.
- 186 3 P19 You learn what to look for and you become better at noticing subtle changes with the patient.
- 239 3 P25 To some degree it is based on previous experience.
- 245 3 P26 I have really long years’ experience in nursing. I know when the patient has something wrong.
- 7 3 P01 It takes some time to get that confidence to listen to that feeling that something could be wrong.
- 33 3 P03 I think more experience will allow me to make better decisions about calling RRT. I can identify that gut feeling.

139 3 P14 I feel that my gut feeling is stronger now than when I was a new nurse. I pay more attention to gut feelings now than I did when I first started.

6. What is the role of nursing education in the decision to call the RRT?

The frequencies of the five open codes that were aggregated to create the axial code named Education are listed in Table 16.

Table 16

Frequencies of Open Codes within the Education Axial Code

Open Code	f	Percent
New nurses should acknowledge feelings	2	33.3
Education is beneficial	1	16.7
New nurses need education	1	16.7
New nurses need training	1	16.7
Tells new nurses should acknowledge feelings	1	16.7
Total	6	100.0

The six quotations endorsing opinions about the need for nurses to receive more education about responding to their intuitive feelings before calling the RRT were as follows (extracted from Appendix F):

279 3 P30 I have oriented new nurses—some pick up on things better than others. For some it is learned, for others it is intuitive.

140 3 P14 New nurses should be educated more about calling RRT.

148 3 P15 I think new nurses should be trained to recognize their gut feelings; they should learn that even though the vital signs are OK, there can still be something wrong. I was encouraged in school not to look at the machines but to look at the patient.

180 3 P18 I think new nurses should be encouraged to acknowledge their feelings
211 3 P22 I think it's important for new nurses to be encouraged to listen to their
feelings about patients....
158 3 P16 I would definitely tell my new grads.

7. Are there any relationships between the frequencies of the axial codes and the gender, ethnicity, age, and experience of the nurses?

Chi-square tests were conducted on cross-tabulated data to determine if there were any significant statistical associations or dependencies between the frequencies of the axial codes and the gender, ethnicity, age, and experience of the nurses. The cross-tabulation of the frequencies of the axial codes vs. the gender of participants is presented in Table 17. No significant association between the axial codes and gender was indicated by $p > .05$ for the Chi-Square statistic ($\chi^2 (N = 295, 11) = 7.05, p = .795$). The statistical evidence indicated that the codes were not dependent on whether the nurses were male or female.

Table 17

Cross-Tabulation of Frequencies of Axial Codes vs. Gender of Participants

Axial Code	<i>f</i>		Total
	Female	Male	
Assessment (Combined)	46	14	60
Assessment (Interaction)	6	1	7
Assessment (Objective)	27	6	33
Assessment (Subjective)	37	10	47
Assessment (Visual)	11	5	16
Collaboration	9	4	13
Education	5	1	6
Emotional Reaction	25	7	32
Historical Experience (Confidence)	29	9	38
Historical Experience (Not connected)	0	1	1
Historical Experience (Trust Feelings)	20	6	26
Physiological Reaction	10	6	16
Total	225	70	295

The cross-tabulation of the frequencies of the axial codes vs. the race of participants is presented in Table 18 .Race was collapsed into White and Not White (Asian, African-American, or Hispanic) to ensure that at least 50% of the cells in the cross-tabulation contained frequencies > 5 , which is a sample size condition of the Chi-Square test (Agresti, 2007). No significant association between the axial codes and race was indicated by $p > .05$ for the Chi-Square statistic ($\chi^2 (N = 295, 11) = 7.07, p = .794$). The statistical evidence indicated that the frequencies of the codes were not dependent on the race of the nurses.

Table 18

Cross-Tabulation of Frequencies of Axial Codes vs. Race of Participants

Axial Code	Race		Total
	Not White	White	
Assessment (Combined)	37	23	60
Assessment (Interaction)	4	3	7
Assessment (Objective)	23	10	33
Assessment (Subjective)	29	18	47
Assessment (Visual)	8	8	16
Collaboration	6	7	13
Education	3	3	6
Emotional Reaction	22	10	32
Historical Experience (Confidence)	24	14	38
Historical Experience (Not connected)	0	1	1
Historical Experience (Trust Feelings)	16	10	26
Physiological Reaction	12	4	16
Total	184	111	295

The cross-tabulation of the frequencies of the axial codes vs. the age of participants is presented in Table 19. Age was collapsed into three groups to comply with the sample size condition. No significant association between the axial codes and age was indicated by $p > .05$ for the Chi-Square statistic ($\chi^2 (N = 295, 22) = 25.00, p = .297$). The evidence indicated that the frequencies of the codes were not dependent on the ages of the nurses.

Table 19

Cross-Tabulation of Frequencies of Axial Codes vs. Age of Participants

Axial Codes	Age (Years)			Total
	< 30	30-50	> 50	
Assessment (Combined)	15	32	13	60
Assessment (Interaction)	0	3	4	7
Assessment (Objective)	8	16	9	33
Assessment (Subjective)	7	23	17	47
Assessment (Visual)	4	10	2	16
Collaboration	1	9	3	13
Education	0	3	3	6
Emotional Reaction	4	21	7	32
Historical Experience (Confidence)	13	20	5	38
Historical Experience (Not connected)	0	1	0	1
Historical Experience (Trust Feelings)	5	15	6	26
Physiological Reaction	2	11	3	16
Total	59	164	72	295

The cross-tabulation of the frequencies of the axial codes vs. the years of experience of the participants as registered nurses is presented in Table 20. Years of experience were collapsed into three groups to comply with the sample size condition. The number of units of communication was reduced to 289 because one nurse did not provide data on years of experience. No significant association between the axial codes and the years as a RN was indicated by $p > .05$ for the Chi-Square statistic (χ^2 ($N = 289$,

20) = 12.43, $p = .901$). The evidence indicated that the frequencies of the codes were not dependent on the years of experience of the participants as registered nurses.

Table 20

Cross-Tabulation of Frequencies of Axial Codes vs. Experience of Participants as RNs

Axial Codes	Years as RN			Total
	1-2	3-10	>10	
Assessment (Combined)	17	15	26	58
Assessment (Interaction)	1	1	5	7
Assessment (Objective)	10	4	19	33
Assessment (Subjective)	9	7	29	45
Assessment (Visual)	1	4	10	15
Collaboration	2	4	7	13
Education	0	1	5	6
Emotional Reaction	6	5	21	32
Historical Experience (Confidence)	10	13	15	38
Historical Experience (Trust Feelings)	7	6	13	26
Physiological Reaction	5	1	10	16
Total	68	61	160	289

The cross-tabulation of the frequencies of the axial codes vs. the experience of the participants calling the RRT is presented in Table 21. The total number of RRT calls was collapsed into three groups to comply with the sample size condition. The number of units of communication was reduced to 279 because not all nurses provided data on their total number of RRT calls. A significant association between the axial codes and the total number of RRT calls was indicated by $p < .05$ for the Chi-Square statistic ($\chi^2 (N = 279, 20) = 31.83, p = .045$). The statistical evidence indicated that the frequencies of the codes were dependent on the relative levels of experience of the participants in calling the RRT.

Table 21

<i>Cross-Tabulation of Frequencies of Axial Codes vs. Experience in Calling RRT</i>				
Axial Code	Total Number of RRT Calls			Total
	1-10	11-50	>50	
Assessment (Combined)	16	31	10	57
Assessment (Interaction)	4	0	3	7
Assessment (Objective)	8	12	11	31
Assessment (Subjective)	3	31	9	43
Assessment (Visual)	2	11	2	15
Collaboration	1	9	3	13
Education	1	3	1	5
Emotional Reaction	8	12	11	31
Historical Experience (Confidence)	6	19	12	37
Historical Experience (Trust Feelings)	5	15	5	25
Physiological Reaction	3	10	2	15
Total	57	153	69	279

The statistically significant association in the cross-tabulation arose because relatively higher proportions of the experienced nurses who reported that they had made > 10 RRT calls also reported that they made more subjective assessments, experienced more emotional and physiological reactions, felt more confident, and trusted more in their feelings before calling the RRT, compared to the less experienced nurses who made < 10 RRT calls. Consequently, it appeared to be the participants' experience in calling the RRT, and not necessarily their age or years of experience as RNs, that was most closely associated with the frequency distributions of the axial codes.

8. How can the axial codes be integrated by selective coding to construct a theory explaining the role of nursing intuition in the decision to activate the RRT?

A theory was generated by selective coding of the axial codes following GT methodology (Appendix H). This theory, outlined by means of a schematic diagram in

Figure 3, integrated the axial codes into one theme. The theory attempted to explain how nursing intuition was the root of several processes associated with the decision to call the RRT, with subsequent feedback, in terms of a beneficial patient outcome. This theory addresses the research question— What is the role of intuition in nurses who activate the RRT for patients in medical-surgical and telemetry units? The fundamental proposition of this theory is that nursing intuition acts as a critical bridge at the interface between the patient (depicted on the left hand side of the diagram) and the nurse (depicted on the right hand side of the diagram) to bring about a beneficial patient outcome.

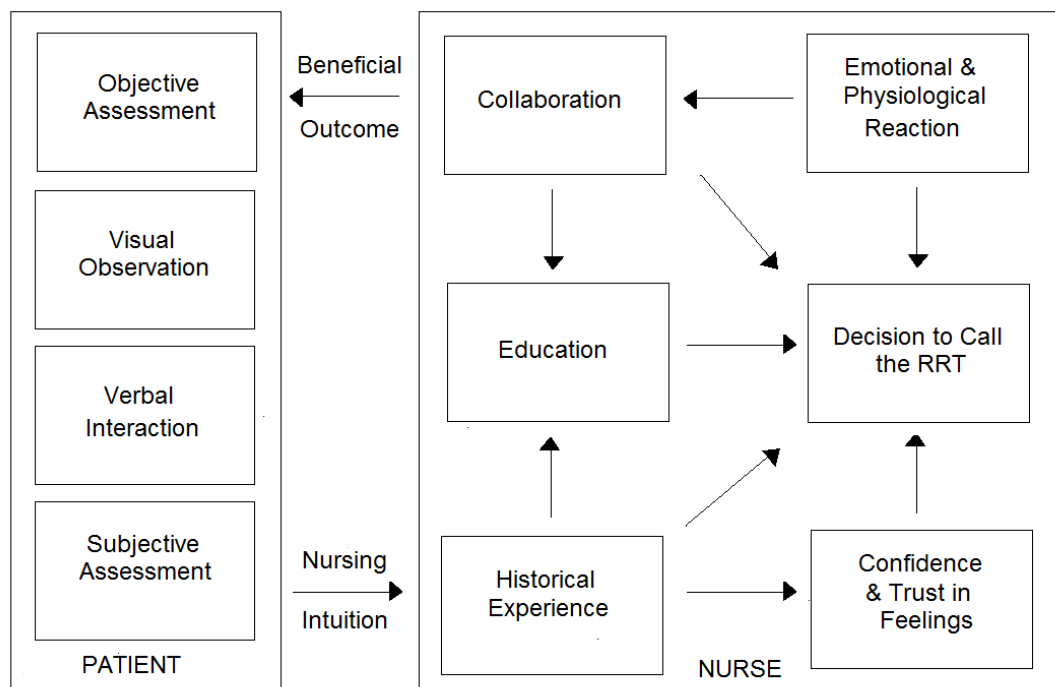


Figure 3. Theory to propose the role of nursing intuition in the decision to call the RRT

The theory proposes that nursing intuition is rooted in the recognition of patterns among a complex combination of factual information and subjective inferences collected

from the patient. The components of these patterns are classified for the purposes of the theory as objective assessment, visual observation, verbal interaction, and subjective assessment. Objective assessment includes hard clinical evidence, including the medical history, diagnosis, symptoms, vital signs, lab tests, and charts of the patient.

The other three types of patient assessment are not necessarily related to the objective assessment. Subjective assessment includes the nurse's feelings about whether something is wrong. Visual assessment is based on the nurse's interpretation of how the patient looks; verbal interaction includes the responsiveness of the patient to the nurse.

According to this theory, nursing intuition cannot be defined in terms of a linear process of reasoning. There is no pathway of critical analytical thought along a step-by-step progression, in which a response to each successive step is elicited before another step is taken. There is no logical succession of processes, whereby a nurse (a) analyzes and reflects upon factual information, based on the objective assessment of a patient; (b) identifies a problem (c) establishes the goal, and (d) takes remedial action. The theory posits that, ultimately, the decision-making process to activate the RRT does not follow an objective process of analysis and reflection, but is drawn from an intuitive synthesis of patient assessment data. Having collected and intuitively interpreted the assessment data, the decision to activate the RRT is moderated by emotional and physiological reactions, collaboration with others, education, and historical experience. These moderating factors help to enhance a nurse's ability to trust in his or her feelings and inspire confidence to call the RRT without hesitation, leading not only to a beneficial patient outcome, but also

to the development and acquisition of the nurse's knowledge. The more beneficial outcomes a nurse experiences after activating the RRT, then the more he or she will depend on processes involving nursing intuition to call the RRT.

Summary

The thematic analysis of the interview responses of $N = 32$ nurses using GT methodology generated 12 axial codes that were integrated into a theory to explain the role of intuition in nurses who activate the rapid response team in medical-surgical and telemetry units. Further details about the construction, classification, implications, and applications of this model are discussed in chapter five.

CHAPTER V

DISCUSSION

This chapter presents a discussion, based on the empirical evidence collected in this study, to address the research question: What is the role of intuition in nurses who activate the RRT for patients in medical-surgical and telemetry units? The process of using intuition in the activation of RRT for patients and the value that nurses place on intuition in the activation of RRTs is considered with reference to the literature. The first section considers the process of data collection and analysis and its trustworthiness. The second section will logically classify the theory that was generated in this study. The subsequent six sections discuss the concepts and propositions that constituted the theory, classified as (a) Patient Assessment; (b) Emotional and Physiological Reactions; (c) Historical Experience; (d) Confidence and Trust in Feelings; (e) Collaboration; and (d) Education. The next three sections outline recommendations for action and further research, followed by the final conclusions.

Data Collection and Analysis

The primary data for this qualitative study were collected through in-depth, face-to-face interviews ranging from 45 to 60 minutes in duration. The interviews were semi-structured and open-ended to explore the phenomenon of nursing intuition in activating the RRT. Following the requirements of GT methodology (Strauss & Corbin, 1998), the sample of participants recruited for this study was purposive. The participants were

purposely selected because of their knowledge of activating the RRT. The sample of $N = 32$ adult registered nurses currently worked full time with 12 hour shifts in adult medical-surgical, and telemetry units. The majority were female and White or Asian. A wide range of nursing experience, in terms of years of working as a RN (1 to 32 years), and activating the RRT (< 5 to > 50 times) was represented

The sample size for grounded theory is determined by focusing on the quality of data saturation (Strauss & Corbin, 1998). According to Hunter et al. (2009), “sample size is deemed to be satisfactory only when the key concepts that have been identified from the collected data have reached saturation point, in other words, when no new data emerges” (p.60). A total of 12 key concepts (i.e., axial codes) emerged from the thematic analysis of the 295 units of communication (i.e., phrases or sentences) extracted from the interview data collected in this study. All but one of the 12 concepts had emerged after the transcripts from 15 participants had been analyzed. The last concept was provided by participant number 32. Because it seemed unlikely that more than 12 axial codes would emerge if more than 32 participants were interviewed, the researcher concluded that the analysis of the interview data achieved saturation.

The ultimate aim of this study was the integration of the axial codes extracted from the analysis of the interview data to generate a theory to help explain the role of intuition among nurses who activate the RRT for patients in medical-surgical and telemetry units. Consequently, the Strauss and Corbin (1998) approach to GT was justified as the research methodology; however, the researcher being a nurse posed a

threat to the integrity of the theory, because she assumed an active, intellectual role in the development of the integral concepts. These threats were minimized through standard methods of establishing the trustworthiness of qualitative findings (Lincoln & Guba, 1985). In addition, the researcher was aware of the need for self-reflection, or reflexivity, meaning that she reflected personally upon what role she played in constructing knowledge, and the need to provide an explanation of how and why she drew certain conclusions in preference to others (Holland, 1999). The researcher was aware that the trustworthiness of the theory generated in this study depended on her integrity to record and interpret factual information consistently and accurately, and so it was essential for her to be self-critical and implement a protocol that avoided researcher bias. When interpreting a transcription of interview responses, some researchers tend to interject their own assertions, or present their own personal value judgments, without exact qualification of the evidence, based upon the manifest or latent meaning of what was said by the participants (Steinar, 1996). Consequently, it is sometimes difficult to determine the trustworthiness of the researcher's conclusions, because they may be corrupted by biased opinions. Finlay (2002) called this problem "negotiating the swamp" (p. 209). For the purposes of this study, the researcher attempted to interpret the responses of the participants without bias, so that her own personal opinions about the role of nursing intuition in clinical practice did not distort the conclusions. She tried to use a non-judgmental orientation and refrained from using personal value judgments. Preference was not given to the voices of the participants who agreed with the researcher's personal

opinions, nor were any responses excluded that were directly opposed to the researcher's opinions.

Classification of the Theory

According to Lingard et al. (2008), the main purpose of GT methodology is to "generate theories regarding social phenomena" (p. 460). The question of what type of theory was generated in this study needs to be considered. Stam (2010) suggested that there is a wide range of definitions of the term theory, related mainly to the need of researchers to describe and explain a wide range of complex phenomena, as well as the different ways in which diverse research methodologies have been formulated and dispersed. Stam(2010) proposed his own theory about theories, classifying them into distinct groups, including (a) reductionism, meaning an attempt to condense all the parts of a phenomenon into simpler observable entities, encompassing (b) determinism, or predicting that for one set of conditions there is only one possible outcome; (c) instrumentalism, meaning idealistic prescriptions of how people should do things; (d) realism, meaning statements about the relationships between events or processes that exist in reality, even though they cannot necessarily be observed, encompassing (e) functionalism, meaning that although a researcher may not be able to describe exactly what a phenomenon actually is in reality, he/she can still devise a theory to explain the processes that characterize the structure and function of the phenomenon. The theory that emerged from this study was reductionist, because it condensed all the collected data into a series of simpler observable concepts, and it was functionalistic, implying that although

nursing intuition may not be an easy phenomenon to explain, it has a structure and function, which could be described using empirical data. According to the theory developed in this study, the structure of nursing intuition consists of the recognition of patterns among a set of patient assessment data. Its function is to elicit a series of appropriate responses in order to endorse the activation of the RRT

The theory emerging from this study was consistent with the definition of a theory in the context of nursing as "concepts and a set of propositions that form a logically integrated system" (Polit & Beck, 2012, p. 195). Concepts are mental ideas or vehicles of thought that can be perceived, named, classified, and used by researchers to communicate with each other, whereas propositions are statements that are offered to the scientific community to suggest the existence of meaningful patterns and relationships among two or more specified concepts (Corley & Gioia, 2011). A theory brings concepts together in a systematic way. The structure of a theory may be represented in the form of : (a) a conceptual model, meaning that it can be represented schematically as a flow diagram, in which the concepts are symbolized by boxes and the proposed linkages between them by arrows; or (b) a statistical model, meaning that it consists of mathematical equations describing the relationships between variables (i.e., concepts that can be directly measured, and have more than one value) or constructs (i.e., concepts that cannot be directly measured, but can be inferred). The utility of conceptual and statistical models is that they both explain reality in a simplistic way, and they can both be generalized so that they apply to a wide range of situations (Stam, 2010). The theory that emerged from this

study was a schematic conceptual model, represented in the form of a flow diagram (see Figure 3).

In the context of nursing research, a distinction has been made between grand theories and lesser theories. A grand theory of nursing consists of a global conceptual framework that defines broad perspectives for nursing practice, and proposes diverse ways of viewing nursing practice based on these perspectives (Polit & Beck, 2012). Although not a grand theory, because it focuses mainly on only one aspect of nursing practice (i.e., the activation of the RRT among nurses in medical-surgery and telemetry units) the theory developed in this study encompassed several global concepts familiar to nurses. These were classified as (a) Patient Assessment; (b) Emotional and Physiological Reactions; (c) Historical Experience; (d) Confidence and Trust in Feelings; (e) Collaboration; and (d) Education. As categories, conditions, and linkages were developed between the concepts, a basic social process (i.e., unifying theme) was identified explaining the phases and transitions associated with RRT activation based on nursing intuition. The basic social process underpinning the theory was nurses who seek help to care for potentially high risk patients. How each of these concepts was integrated to construct the conceptual model outlined by means of a schematic diagram (see Figure 3) is now discussed, with reference to the literature.

Patient Assessment

Patient assessment was identified in this study as a combination of processes that the nurses reported they used to assess a patient's clinical condition, including objective

processes (e.g., vital signs); subjective processes (e.g., feelings); visual observations (e.g., noticing that something does not look right) and verbal interactions (e.g., the responsiveness of a patient to questions). The theory posits that the decision to call the RRT is rooted in a nurse's personal knowledge of a patient, based on his/her critical assessment of the patient's perceived condition. Routine objective assessment based on empirical knowledge (e.g., diagnosis, clinical history, symptoms, lab tests, and vital signs) appeared to be insufficient on its own to activate the RRT. In combination with empirical knowledge, most of the nurses who participated in this study applied intuitive knowledge, or cognition without evident rational thought and inference. This finding is consistent with Benner and Tanner's (1987) assertion that intuition in nursing goes beyond data gathered from technology, tests, and records and extends to an immediate grasp of the importance of ambiguous patterns of data leading to action. Benner's theory was based on the recognition that nurses use many different sources of knowledge, including intuition, to gain a holistic perspective of a patient's health condition, to guide decision-making, and to initiate prompt and effective action. Findings of the current study support Benner's theory. The participants articulated how they often used objective assessment in combination with: (a) visual observations (e.g., the patient "does not look right"; (b) verbal interactions with the patient (e.g., the patient is "quiet" or "less responsive"; and /or (c) subjective assessments of the patient (e.g., a subtle "change" and/or a feeling that "something is wrong". Some nurses also felt that they were "unable to take care" of a patient, and required immediate further assistance. The theory generated

in this study conceptualizes nursing intuition as a cognitive reflection upon a synthesis of evidence based on patient assessment data, classified into four categories, specifically objective, visual, interaction, and subjective. This synthesis is equivalent to pattern recognition, or an ability to find relationships between multiple data elements (Benner & Tanner, 1987; Gobet & Chassy, 2008) and is analogous to what Green (2012) termed sensory perception. Pattern recognition or sensory perception appear to enhance a nurse's depth of inquiry, inspiring action that is beneficial to a patient, even if the perceived evidence is vague, intangible, subjective, and not necessarily supported by objective patient assessment data. Banning (2008) reviewed the literature on the application of theory to clinical practice and proposed a multidimensional model that contained patient-specific elements that are necessary for pattern recognition, supporting the concept of Patient Assessment that was integral to the theory generated in this study. The theory generated in this study was also consistent with the suggestion that a combination of analytical reasoning with intuitive ability can directly affect patient safety (Bureaux et al. 2005). It is also supported by previous studies reporting that nurses cite intuitive processes when recognizing patient deterioration and activating the rapid response emergency team (Odell et al. 2009)

Emotional and Physiological Reactions

The theory constructed in this study, posits that nursing intuition is associated with both emotional and physiological reactions. The emotional reactions reported by some of the nurses who participated in this study, after they had assessed a patient, but

before they called the RRT, included feelings of "concern", "worry", "anxiety", "stress", and "excitement", as well as preoccupation with the patient, indicated by "not being able to think about anything else", and "repeatedly returning to check the patient's condition". The physiological reactions reported by the nurses in this study before they called the RRT included "fight or flight (adrenalin)"; "knot in stomach"; "increase in heart rate"; "increase in blood pressure", "difficulty breathing", "sweating", and "hyperactivity". Previous studies have not reported any emotional or physiological reactions associated with nursing intuition. Although they cannot be described as intuitive processes, because they do not necessarily induce a cognitive coming to knowledge without reasoning or inference, these emotional and physiological reactions are nevertheless linked to intuition, acting as triggers in the transition process to elicit immediate further action, leading to the activation of the RRT.

Historical Experience

An intuitive understanding of the patterns in the patient's assessment data, together with a series of emotional and physiological reactions, led many of the nurses in this study toward calling the RRT; however, this critical decision appeared to be moderated by historical experience, particularly the number of previous times the nurse has activated the RRT. A moderator in the context of research in the social sciences is defined as a factor that alters the strength of the relationship between two or more other factors (Baron & Kenny, 1986). The implications are that a high level of historical experience of a nurse, manifested by multiple calls to the RRT, is not necessarily an

integral part of intuition, but is a factor that may strengthen the decision to call the RRT. In contrast, limited experience may weaken the role of intuition. Benner and Tanner (1987) proposed that the complexity of nursing practice environment requires novice nurses to develop intuitive skills over a long period of time, and so the use of intuition distinguishes expert from non-expert nurses. Expert nurses depend more on intuitive processes for critical thinking to initiate action. Conversely, novice nurses tend to view decision-making as responding to patients by depending on formal protocols or documented care plans, and they frequently focus on simple tasks rather than solving complex problems due to their limited knowledge and experience in the profession. The results of this study supported that proposition.

Confidence and Trust in Feelings

Statistical analysis of themes and demographic data indicated that historical experience (specifically a large number of previous RRT activations, rather than age, or length of time as a registered nurse) was associated with the development of a nurse's confidence and trust in feelings rooted subjectively in intuition. The more experienced the nurse, the more likely he/she would trust in feelings, and decide to activate the RRT immediately, with confidence. Nurses who had limited experience did not appear to trust their feelings so much. They reported that they lacked confidence, so they were more hesitant to activate the RRT, and they also feared retribution, because they thought that the RRT call might not be necessary. Messmer et al. (2004) also suggested that novice nurses lack confidence in the clinical setting. The expert nurse, conversely, performs

better because he/she has more confidence in identifying problems in clinical settings and is able to provide solutions based on a vision of what is possible (Tanner, 2006; English, 2008).

Collaboration

Some of the nurses in this study, especially those who were relatively inexperienced, collaborated with other more experienced colleagues (e.g., a charge nurse) to obtain advice about whether or not to activate the RRT. This finding confirms the suggestion of Messmer et al. (2004) that novice nurses may rely excessively on more experienced nurses and avoid situations that require them to make decisions. Some nurses may also consult the family of the patient to confirm deleterious changes in the patient's condition. For those nurses who believe in God, then collaboration with others may involve a spiritual dimension, to pray for help; however, only two nurses in this study reported their dependence on a spiritual dimension.

Education

This study revealed that collaboration with others, and reliance on historical experience, contributes to a learning process among nurses. The acquisition and development of knowledge and understanding of how they can apply a combination of objective and subjective processes, including patient assessments, emotional and physiological reactions, moderated by collaboration and historical experience, before they activate the RRT, and bring about beneficial outcomes in their patients, is an instrumental component of the theory, leading to recommendations for action.

Recommendations for Action

The inclusion of education as an instrumental component of the theory generated in this study leads to the recommendation that novice nurses should learn more from experienced nurses about the benefits of applying nursing intuition in clinical practice, particularly with respect to calling the RRT. This may be achieved informally, by mentors, through consultation with charge nurses, or formally, through the introduction of the benefits of intuition into the curriculum of formal educational programs in nursing schools, such as the BSN.

Recommendations for Further Research

Gelso (2006) suggested that theories should not only also serve to describe and explain a phenomenon; they should also be testable, and highly generative to stimulate further investigation. Theories should serve as springboards for generating hypotheses, defined as claims that have not yet been tested concerning the potential existence of specified patterns (e.g., differences, associations, relationships, causes, and effects) among observed sets of data (Creswell, 2009). Because nursing intuition is intangible and often perceived as irrational (Traynor et al. 2010) or unethical (Davis, 2007) and may still be regarded with skepticism as a decision making process in clinical settings (Thompson & Yang, 2009), further research to test the hypothesis that optimal thought processes and decisions in clinical settings are best achieved using a combination of intuition and analytical thinking needs to be answered. Based on reviews of qualitative studies, De Vries et al. (2013) proposed that patients may be better served by combining

both deliberative and intuitive processes, and Pearson (2013) similarly proposed that intuition should ideally be used in conjunction with evidence-based practice to achieve the best patient outcomes; however definitive research based evidence to generalize this proposal to all clinical settings is difficult to obtain. In order to confirm the existence of a relationship between a hypothetical cause (e.g., nursing intuition) and a hypothetical effect (e.g., a beneficial patient outcome) then a different research design to that applied in all previous studies on nursing intuition is essential.

The most valid and reliable form of scientific evidence in the hierarchy of evidence that influences healthcare policy and practice must be provided to test the hypothesis that optimal thought processes and decisions in clinical settings are best achieved using a combination of intuition and analytical thinking. A randomized controlled trial (RCT) is universally recognized as the gold standard for testing the efficacy of various types of clinical intervention (Matthews, 2006). For this reason, the results of RCTs are often combined in systematic reviews which are increasingly being used in the conduct of evidence-based medicine (Hemingway & Brereton, 2009). The characteristic feature of a RCT is that the patients, after assessment of eligibility and recruitment, but before a clinical intervention is implemented, is randomly allocated to receive one or other of the alternative treatments under study. Ideally, both the patients and the clinicians participating in the study are blinded, meaning that they do not know whether they have been allocated to the experimental group, involving a potentially beneficial intervention (e.g., a prescribed treatment or therapy) or the control group,

involving the prescription of an alternative and possibly ineffective intervention (e.g., a placebo). The advantage of a RCT is that it eliminates sampling bias in treatment assignment and permits the use of probability theory to determine if the likelihood of any differences in outcome between the control and the experiment group merely indicate chance findings. A RCT also permits an estimation of clinical significance, implying that the trial data reflect measurable effects, which have sensible and realistic implications. Clinical significance implies the existence of substantive systematic patterns among a set of data that were not just caused by coincidence, or an accident of sampling (Bhargava, 2008).

Consequently, the recommendation for further research emerging from this study is that the feasibility issues associated with the use of a RCT to test the hypothesis that optimal thought processes and decisions in clinical settings are best achieved using a combination of intuition and analytical thinking needs to be explored. A RCT with definitive conclusions indicating a clinically significant difference in patient outcomes between nurses who use both intuition and analytical thinking for decision making processes, and those who do not, is perhaps the only type of research that will ultimately convince the skeptics.

Final Conclusions

The final conclusions of this study are outlined as follows:

(a) The specific aims of the study were to determine: (1) the process of using intuition in the activation of RRT for patients and (2) the value staff nurses place on

intuition in the activation of RRTs for patients, were realized using grounded theory methodology.

(b) Open, axial, and selective coding of 295 units of communication elicited from 32 registered nurses working in medical-surgery and telemetry units resulted ultimately in the generation of a theory grounded in data to increase understanding of the role of intuition in nurses who activate the RRT for patients in medical-surgical and telemetry units.

(c) According to this theory, nursing intuition cannot be defined in terms of a linear process of reasoning. The theory proposes that nursing intuition is rooted in the recognition of patterns among a complex combination of factual information and subjective inferences collected from the patient. The components of these patterns are classified for the purposes of the theory as objective assessment, visual observation, verbal interaction, and subjective assessment.

(d) Having collected and interpreted the assessment data, the decision to activate the RRT is moderated by emotional and physiological reactions, collaboration with others, education, and historical experience. These moderating factors help to enhance a nurse's ability to trust in his or her feelings and inspire confidence to call the RRT, leading to a beneficial patient outcome, as well as the development and acquisition of the nurse's knowledge. The more beneficial outcomes a nurse experiences after activating the RRT, then the more he or she will depend on processes involving nursing intuition to call the RRT.

(e) The inclusion of education as an instrumental component of the theory generated in this study leads to the recommendation that novice nurses should learn more from experienced nurses about the benefits of applying nursing intuition in clinical practice, particularly with respect to calling the RRT.

(f) The recommendation for further research emerging from this study is that the feasibility issues associated with the use of a randomized controlled trial to test the hypothesis that optimal thought processes and decisions in clinical settings are best achieved using a combination of intuition and analytical thinking needs to be explored.

(g) Finally, as a consequence of the often difficult journey described in this dissertation, the researcher believes that she has become a more confident nurse and researcher, with new information about nursing intuition to contribute to the literature and to benefit clinical practice.

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Appendix A

Demographic Data Collection Tool

Demographic Data Tool

Please complete the following questions:

Age: _____

Gender: Male: _____ Female: _____

Ethnicity (Circle one please):

- Caucasian (white)
- African American
- Hispanic
- Asian
- Other (Specify) _____
- I do not wish to include this information

Education:

- Diploma _____
- BSN _____
- ADN _____
- MSN _____
- Other Educational Degrees _____

Do you hold any certifications? _____

If yes, which one(s)?

How long have you been a registered nurse? _____

How long have you worked in your current place of employment? _____

On which unit do you work? _____

How long have you worked on your current unit?

What shift do you work?

- Nights _____
- Days _____
- Other _____

How many hours per shift do you work? _____

How many times have you called the Rapid Response Team independently*?

Number of times you called the RRT in the last 6 months: _____

Appendix B
Interview Guide

Interview Guide

The semi-structured, one-on-one interviews will begin with general demographic questions and progress to specific questions about nursing intuition and activating RRT. Follow-up questions will be used to clarify participant responses. Guiding questions include the following:

1. Tell me what contributed to your decision to call RRT for your patient. How did you decide to call RRT? Could you explain to me why you did this?
2. Tell me what information you used to help you with this decision to call a RRT.
3. Tell me how your previous experiences inform or influence your actions with regard to activating RRT.
4. Tell me how you found out the patient had a problem and you needed to activate RRT.
5. Tell me what methods you used to reach the decision you made.

Appendix C

Algorithm for Activation of a Rapid Response Team

Algorithm for Activation of a Rapid Response Team

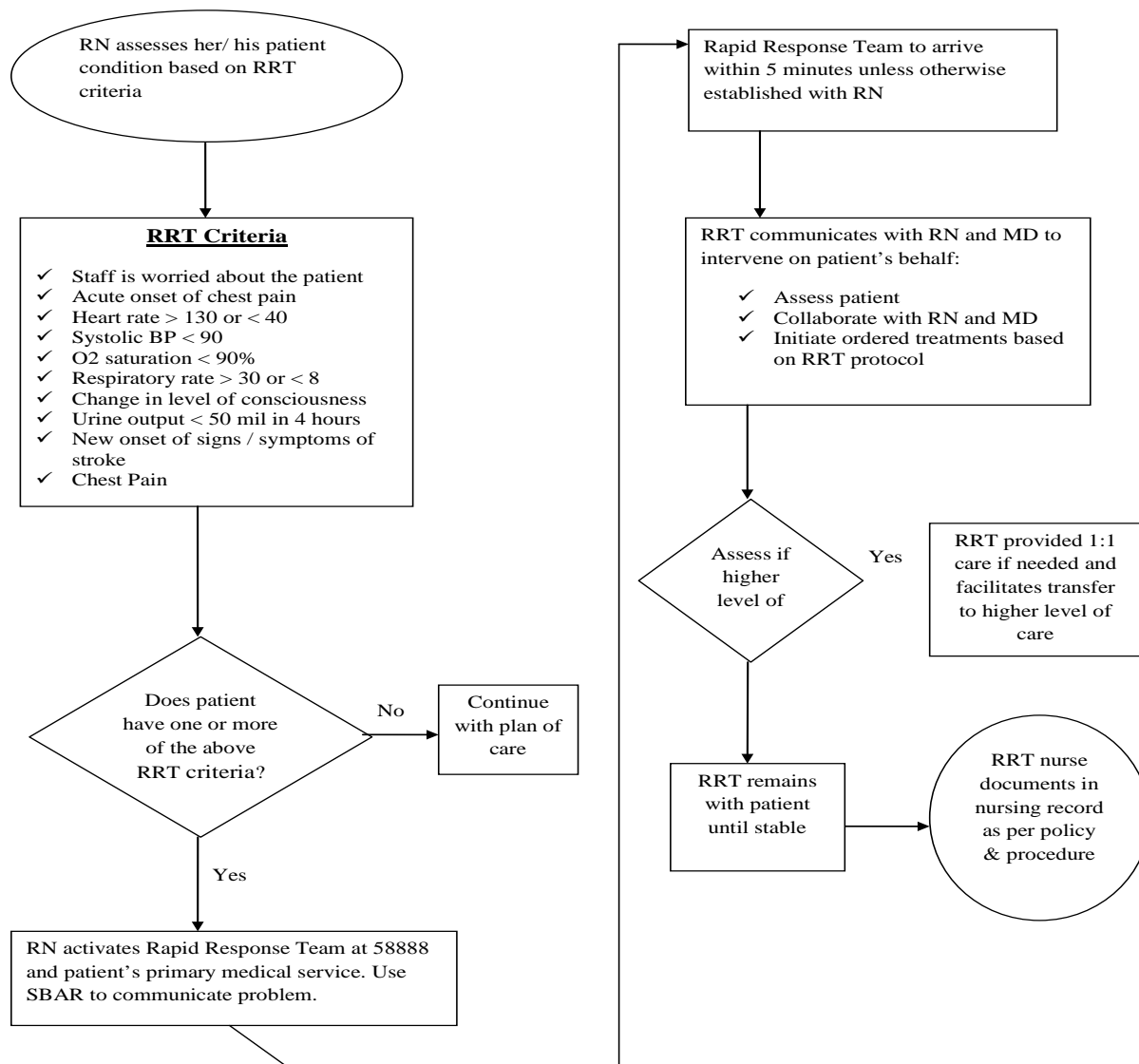


Figure 1: Algorithm of activation of the Rapid Response Team (RRT). RN indicates Registered Nurse; MD, Medical Doctor; and SBAR, Situation, Background, Assessment, Recommendation (Adapted from McFarlan & Hensley, 2007 with permission).

Appendix D
Review of Literature

	Author/ Year & Title	Design/ Type of Study	Setting	Sample size	Notable weaknesses / Limitations	Major findings/Relationship to Study
1.	Banning, M. (2008). A review of clinical decision making: Models and current research. <i>Journal of Clinical Nursing</i> , 17(2), 187-195.	Literature Review	Evaluation of the literature generated from MEDLINE, CINAHL, OVID, PUBMED and EBESCO systems and the Internet from 1980 to November 2005.	NA	The assessment of a limited number of research studies that focused on the clinical decision-making skills of inexperienced nurses in pseudo clinical settings.	The characteristics of the three models of decision making were identified and the related research discussed. The most recent addition to the clinical decision making is a theoretical, multidimensional model which was developed through an evaluation of current literature. The components of this model and the relative merits to clinical practice are discussed.

2.	Barrett, E.A. (1992). Innovative imagery: A health patterning modality for nursing practice. <i>Journal of Holistic Nursing</i> , 10(2), 154-166.	A Case Study	Private Practice	NA	<p>This case study method eliminates it's usefulness as an indicator of cause and effect since the variables in the study are uncontrolled. This case study can only be used as a means of insight into life with the illness, thoughts of the</p> <p>patient; and the formation of hypothesis on behavior, treatments, and further research on the issue at hand.</p>	<p>Intuition was found to : (a) facilitate the depth of nurse-client relationships; (b) lead to a deeper understanding and connection with client patterns; (c) be acknowledged as a professional risk; (d) emphasize the</p> <p>significant influence of autonomy, independence, and assertiveness in nursing practice; and (e) contribute to excellence in nursing care” (p. 158).</p>
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3.	<p>Bjørk, I., & Hamilton, G. A. (2011). Clinical decision making of nurses working in hospital settings. <i>Nursing Research and Practice</i> 2011, 524918. Retrieved from http://www.hindawi.com/journals/nrp/2011/524918/ doi: 10.1155/2011/524918</p>	<p>This study analyzed nurses' perceptions of clinical decision making (CDM) in their clinical practice and compared differences in decision making related to nurse demographic and contextual variables..</p>	<p>Hospital</p>	<p>A cross-sectional survey was carried out with 2095 nurses in four hospitals in Norway. Data were analyzed with descriptive frequencies, t-tests, Chi-Square test, and linear regression. A 24-item Nursing Decision Making Instrument based on cognitive continuum theory was used to explore how nurses perceived their CDM when meeting an elective patient for the first time</p>	<p>Although the sample in this study was large, a survey method has limitations as answers to a questionnaire may not represent nurses' actual decision making. Self-reported data may potentially bias the association being investigated.</p>	<p>Most nurses reported the use of quasi-rational models during CDM thereby supporting the tenet that cognition most often includes properties of both analysis and intuition. Increased use of intuitive-interpretive models of CDM was associated with years in present job, further education, male gender, higher age, and working in predominantly surgical units.</p>
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4.	Buckingham, C. D., & Adams, A. (2000). Classifying clinical decision making: Interpreting nursing intuition, heuristics, and medical diagnosis. <i>Journal of Advanced Nursing</i> , 32(4), 990-998.	A systemic review of clinical decision making theories.	None	The clinical decision by theories is compared to classification behavior to draw out their similarities and differences.	This review has argued that the micro-research programs engaged in by proponents of different theories of clinical decision making have generated terms and interpretations of evidence which have obscured linkages to a common psychological structure. It is therefore difficult to see how results generated by one theoretical approach affect those generated by another, thereby fragmenting our understanding of clinical decision making.	This paper focused on enhanced clinical and organizational effectiveness, improved ability to work in partnership with patients, better protection against litigation, and facilitation of quality management. For nurses themselves, the key benefit is in strengthening their position within the multidisciplinary health care team
5.	Chan, P., Khalid, A., Longmore, L., Berg, R., Kosiborod, M., & Spertus, J. (2008). Hospital-wide code rates and mortality before and after implementation of a rapid response	A prospective cohort design of adult inpatients admitted	Hospital	A total of 24,193 patient admissions	N/A	RRT has a positive impact on hospital code rates for implementation.

	team. <i>JAMA</i> , 300, (21) 2506-2516.	between academic hospitals.		were evaluated prior to the intervention		
6.	Cioffi, J. (2000). Nurses' experiences of making decisions to call emergency assistance to their patients. <i>Journal of Advanced Nursing</i> , 32(1), 108-114.	A descriptive study	Hospital	A total of 32 female nurses	Only female nurses were the focus. Fewer details about patient deterioration and its early recognition were included in this study.	The nurses recognized patient deterioration from feelings they had that something was wrong. However, they were not able 'to put their finger on it'. Knowing the patient and past experiences were involved in the recognition of deterioration. Their heavy reliance on subjective data before searching for objective data as outlined in the emergency calling criteria suggests that it is essential that nurses do not devalue or ignore concerns they may have about patients.
7.	Daffurn, K., Lee, A., Hillman, K. M., Bishop, G. F., & Bauman, A. (1994). Do nurses know when to summon emergency assistance? <i>Intensive Critical Care Nursing</i> , 10(2), 115-120.	Survey	Hospital	141 nurses in non-ICU units	Limited time for completion of survey at shift change.	Supports the need for further study to educate nurses on the benefits of early intervention with

						deteriorating patients.
8.	Demir, Y., Denat, Y., Khorshid, L., & Eser, I. (2012). Cultural validation of the "use of intuition by nursing student's scale— <i>Turkish version.</i> " <i>Journal of Transcultural Nursing</i> , 2(4), 369-376.	Methodological research	University Nursing College	The sample group of the study consisted of 250 second-, third-, and fourth-year nursing students, who had at least 1 year clinical practice experience and were registered at Ege University Nursing College or Celal Bayar University Health High School located in western Turkey in the academic year 2008-2009.	This reliability and validity study conducted with the UINSS can be used as a guide for the development of new instruments that can more adequately measure the use of intuition by nursing students in our culture since it was a translated tool from Turkish. This scale might need to be further evaluated both in different regions of Turkey and in diverse populations. Once a valid and reliable scale is ready to be used, it can be used to measure outcomes in an intervention study and, as	This study was conducted to test the validity and reliability of the Turkish version of the UINSS, an instrument to measure how nursing students experience intuition.

					mentioned above, be tested in different cultures.	
9.	DeVita, M. A., Bellomo, R., Hillman, K., Kellum, J., Rotondi, A., Teres, D., Auerbach A., Chen W. J., Harvey, & Galhotra, S. (2006). Findings of the first consensus conference on medical emergency teams. <i>Critical Care Medicine</i> , 34, 2463-2478.	Retrospective analysis	Hospital	3269 RRT responses and 1220 cardiopulmonary arrests	N/A	Supports the positive impact of RRT on the number of cardiopulmonary arrests in the hospital setting.
10.	Farr-Wharton, R., Brunetto, Y., & Shacklock, K. (2011). The impact of intuition and supervisor-nurse relationships on empowerment and affective commitment by generation. <i>Journal of Advanced Nursing</i> , 68, 1391-1401.	A self-report survey was used to gather data. Generational cohort and leader-member exchange theoretical frameworks-guided study.	Private hospitals across Hospital	Data were obtained from 900 Baby Boomer and Generations X and Y nurses, randomly chosen from seven private hospitals across Australia	N/A	Nurse relationships upon all three generations' use of intuition. The findings add new knowledge about the differing importance of using intuition for Generation X, Generation Y and Baby Boomer
11.	Galhotra, S., Scholle, C.C., Dew, M.A., Mininni, N.C., Clermont, G., & DeVita, M. A. (2006). Medical emergency teams: A strategy for improving patient care and nursing work environments. <i>Journal of Advanced Nursing</i> , 55, 180-187.	Survey	University of Pittsburgh Medical Center Presbyterian Hospital, a tertiary care teaching facility	300 staff nurses	Weak inclusion/exclusion criteria for participation.	Supports positive nursing attitudes toward utilization of RRT in the hospital setting. Reiterates the need for further study regarding early intervention through activation of RRT.

12	Green, C. (2012). Nursing intuition: A valid form of knowledge. <i>Nursing Philosophy</i> , 13, 98-111.	A scientific study	This scientific study accounts from philosophy and neuro-physiology to argue that intuition, specifically nursing intuition, a valid form of knowledge.	None	None specified	This paper argues that nursing intuition, a kind of practical intuition, is composed of four distinct aspects that include: (1) embodied knowledge rather like that knowledge we have when we have learned to ride a bicycle; (2) well-trained sensory perceptions attentive to subtle details of complex, often rapidly changing situations; (3) a significant store of pertinent conceptual knowledge; and (4) a history of habitual actions intentionally directed towards achieving the best outcomes for our patients.
13	Gobet, F., & Chassy, P. (2008). Towards an alternative to Benner's theory of expert intuition in nursing: A discussion paper. <i>International Journal of Nursing Studies</i> , 45(1), 129–139.	A systematic review	This has briefly reviewed evidence on intuition in nursing	None	The approach, which continues the tradition of "standard" research on expertise started	In this review, a detailed discussion of Benner's theory, which leads to the conclusion that the theory is too simple

			practice, and then discussed Benner's (1984) influential theory. This review also considers Gobet and Simon's (2000) theory of expertise as an alternative explanatory framework.		by De Groot, is based on the natural sciences; Benner's approach, continuing the work of Dreyfus and Dreyfus, is based on phenomenology. While the different scientific philosophies make it hard for the two sides to communicate, need a new research questions and methods.	to account for the complex pattern of phenomena that recent research on expert intuition has uncovered. A new theory of expert intuition in nursing, which provides mechanisms for explaining how intuitive, perceptual decision-making is linked to more analytical problem solving. The suggestion that standard research on expertise (mostly based on the natural sciences) and that on nursing expertise (often based on phenomenology) should start a constructive dialogue.
14	James, D.C., Simpson, K.R., & Knox, G.E. (2003). How do expert labor nurses view their role? <i>JOGNN</i> , 32(6), 814–823.	Descriptive	Hospital	54 labor and delivery nurses with \geq 5 years of experience	Limited to experienced labor and delivery nurses; not representative.	Supports the notion that intuition can be highly-developed in experienced nurses.
15	Jones, L., King, L., & Wilson, C. (2009). A literature review: Factors that impact nurses'	Literature Review	Hospital	Comprehensive thematic	N/A	Supports positive impact of RRT on

	effective use of the medical emergency team (MET). <i>Journal of Clinical Nursing</i> , 18, 3379-3390.			literature review. Fifteen primary research reports.		nursing practice.
16	Kenny, C. (1994). Nursing intuition: Can it be researched? <i>British Journal of Nursing</i> . 3(22), 1191-1195.	Phenomenology	Hospitals in England, labor and delivery.	11 nurses with ≥ 5 years' experience	Limited to experienced nurses only, not representative, as novices are not included.	Supports that the use of nursing intuition in decision-making may be related to years of experience.
17	King, L., & Clark, J. M. (2002). Intuition and development of expertise in surgical ward and intensive care nurses. <i>Journal of Advanced Nursing</i> , 37(4), 322-329.	A constructivist qualitative study	Hospital Setting	Sixty-one registered general nurses were purposively sampled: 30 worked in four specialty surgical wards and 31 in two intensive care units (ITUs) across three hospitals in England.	These findings are based on a snapshot of these nurses' expertise and use of intuition in decision-making within their current held of practice and therefore is limited to the time and place in which they took place. The potential to explore each nurse's expertise and use of intuition over time is restricted by this process and the study	The findings of this study clearly demonstrate that intuitive and analytical elements are apparent in nurses' clinical decision-making from advanced beginner to expert level. The difference between expert and non-expert decision-making appeared to lie not in the presence or absence of intuition, but rather in the expert's ability to use intuition much more skilfully and effectively.

					might have benefited from a more longitudinal research approach.	
18	Kosowski, M. & Robert, V. (2003). When protocols are not enough: Intuitive decision-making by novice nurse practitioners. <i>Journal of Holistic Nursing</i> . 21(1), 52–72.	Interpretive phenomenological	Educational Setting.	10 novice nurse practitioners	Small sample in educational setting.	Notes the impact of nursing intuition in education and practice should be studied.
19	Leners, D. W. (1992). Intuition in nursing practice: Deep connections. <i>Journal of Holistic Nursing</i> , 10(2), 137–153.	Ethnography	Regional Medical Center, Colorado.	40 nurses	Limited to hospital and home setting.	Underscores the need to further explore the phenomenon of intuition in the hospital setting.
20	McCormack, B. (1993). Intuition: Concept analysis and application to curriculum development. <i>Journal of Clinical Nursing</i> , 2, 11–17.	A case study approach	Nursing Education setting	The study consisted of 10 student nurses who had completed 18 months of nurse education, on a 'traditional' Course.	The study underscores the importance of nursing faculty encouraging the recognition and use of intuition in nursing as students move into practice.	The study addressed the ways in which nurse educators can learn to value the concept of intuition and integrate it into curriculum, ultimately facilitating the use of intuition in their students' nursing practice.

21 .	McCutcheon, H. (2001). Intuition: An important tool in the practice of nursing. <i>Journal of Advanced Nursing</i> , 35(3), 342–348.	Qualitative, Grounded Theory	Nursing School & Health Agencies, Australia	262 registered nurses	Utilized volunteers. Weak inclusion/exclusion criteria. Conducted across multiple settings with inconsistent characteristics. Not generalizable.	Intuition is an important tool in the practice of nursing; further research is needed to refine and facilitate the use of nursing intuition, providing support to the proposed study.
22 .	Miller, V, G. (1995). Characteristics of intuitive nurses. <i>West Journal Nursing Research</i> , 17(3), 305–316.	Qualitative, Methodological	Community , Texas	228 registered nurses	Addresses characteristics rather than interventions.	Notes the importance of further exploration of characteristics of nurses utilizing intervention in patient decision-making.
23 .	Miller, V.G. (1993). Measurement of self-perception of intuitiveness. <i>West Journal Nursing Research</i> , 15(5), 595–606.	Qualitative, Methodological	Community , Texas	228 registered nurses	Did not specifically address intuition as it relates to interventions for patients.	Underscores the need to further explore nurses' experiences with use of intuition in patient assessment and intervention. Intuition can be

						studied, measured and described.
24	Minick, P. (2003). The early recognition of patient problems among medical-surgical nurses. <i>Medsurg Nursing</i> , 12(5), 291–297.	Qualitative, Phenomenology	Urban Hospital	14 registered nurses	Small sample size.	Supports the validity of early recognition of patient problems to promote effective, timely interventions.
25	Nyatanga, B., & Vocht, H. (2008). Intuition in clinical decision making: A psychological penumbra. <i>International Journal of Palliative Nursing</i> , 14(10), 492-496.	Scientific experiment method	Two scientific experiments psychological research studies relating to intuition.	No sample but two key psychological Research studies relating to intuition were discussed. These two studies demonstrated (a). role of unconscious thought in intuitive decision-making; (b). physiological basis of intuition.	None specified	Intuition has traceable cognitive and physiological bases that help us understand how we use it as a basis for making complex clinical decisions. Experts, especially those working in acute and palliative care, where there are difficult ethical as well as clinical patients' situations, can benefit from using intuitive ideas to arrive at complex decisions.
26	Pyles, S., & Stern, P. (1983). Discovery of nursing gestalt in critical care nursing: The importance of the gray gorilla syndrome. Image. <i>The Journal of NursingScholarship</i> , 15, 51-57.	Descriptive	Emergency Room	10 emergency room nurses	Small sample size. Not generalizable to other settings.	Recognizes the use of intuition can positively impact patient safety. Supports the

						examination and development of theory to support nursing practice.
27	Ray, E. M., Smith, R., Massie, S., Erickson, J., Hanson, C., & Harris, B. (2009). Family alert: Implementing direct family activation of a pediatric rapid response team. <i>Joint Commission Journal on Quality & Patient Safety</i> , 35, 575-580.	Randomized clinical trials and prospective studies	Hospital	18 studies from 17 publications were identified.	Not applicable to adult populations.	Supports the positive impact of RRT on patient care in the hospital setting.
28	Rew, L. (1988). Nurses' intuition. <i>Applied Nursing Research</i> , 1(1), 27-31.	Qualitative, Descriptive	Community	37 registered nurses	Limited to critical care and home settings.	Recognizes intuitive experiences and evidences the consequences of intuition in communication and decision-making in clinical practice.
29	Ruth-Sahd, L. A., Hendy, H. M. (2005). Predictors of novice nurses' use of intuition to guide patient care decisions. <i>Journal of Nursing Education</i> , 44(10), 450-458.	Delphi Survey	Nursing School	323 student nurses	Limited to student nurses, novices in the profession. Not representative, as experienced nurses are not included.	Recognizes the relationship between experience and use of intuition as well as the importance of facilitating use of intuition with novice nurses.
30	Salamonson, Y., Van, H. B., Everett, B., & Davidson, P. (2006). Voices from the floor: Nurses' perceptions of the medical emergency team. <i>Intensive and Critical Care Nursing</i> , 22, 138-143.	Survey with descriptive statistics, content analysis	Hospital	73 floor nurses	May not be generalizable to other settings. Not representative of all nurses.	Supports exploration of nurses' satisfaction with RRT, perceived benefits and suggestions for improvement. Examines the

						characteristics of nurses who were more likely to activate the RRT. Supports more experienced nurses are more likely to use intuition in activating RRT.
31 .	Smith, A. J., Thurkettle, M. A., & De La Cruz, F. A. (2004). Use of intuition by nursing students: Instrument development and testing. <i>Journal of Advanced Nursing</i> , 47(6), 614-622.	Instrument development consisted of concept clarification, item development, and psychometric testing	Nursing Programs	A computer-generated random sample of 500 senior BSN students and 500 associate degree (AD) students was used, giving a total of 1000 senior nursing students who were members of the National Student Nurse Association (NSNA).	The use of confirmatory factor analysis would further verify the conceptual underpinnings of the instrument and contribute to the development of a theory of intuition use by students	The intuition measure developed for use with students showed evidence of construct validity and reliability. With an instrument available to measure students' use of intuition, curricular strategies can be implemented to foster and assess its development and use. Finally, the exploratory nature of this tool development provides the stimulus for additional psychometric testing of the revised intuition instrument.
32 .	Stockhausen, L. M. (2006). Revealing reflection—in-action in everyday practice.	Ethnography	3 Universities	11 RNs and 40 students	Limited to preceptor	Recognizes an intangible

	<i>Nurse Educator Today</i> , 26(1), 54–62.		Acute Care Wards, Australia		interaction with students.	phenomenon contributing to nursing decision-making; indicates the need for further research to study the phenomenon.
33 .	Young, C. E. (1987). Intuition and nursing process. <i>Holistic Nursing Practice</i> , 1(3), 52–62.	Qualitative, Grounded Theory	7 healthcare agencies	39 RNs and 2 non-nurses	The study was conducted across settings and did not specifically focus on patients with acute concerns or needs.	Nursing decisions result from both deliberate actions and intuition.

Appendix E
Demographic Data

Demographic Data

	Age	Gender	Ethnicity	Education	ACLS	BLS	CMSRN	RNC	CPR	CHEMOTHERAPY	IV	Registered Nurse (Years)	Employment (Years)
P01	29	F	White	BSN	1				CPR			4	4
P02	38	F	AfricanAmerican	BSN								13	14
P03	30	M	White	BSN	1	1						1	1
P04	25	F	Asian	BSN								3	3
P05	44	F	Asian	Diploma								22	7
P06	40	F	Asian	Diploma								14	4
P07	36	F	White	BSN								14	9
P08	27	F	White	BSN	1	1						3	1
P09	46	F	Asian	Diploma								18	6
P10	36	F	AfricanAmerican	BSN								9	9
P11	51	F	White	ADN	1	1						2	2
P12	26	F	White	BSN								2	2
P13	48	M	Asian	BSN								18	17
P14	58	F	Asian	MSN								32	8
P15	52	F	White	AND								11	4
P16	40	F	Asian	BSN								13	7
P17	61	F	Asian	Diploma								30	15
P18	48	M	White	A DN								4	4
P19	28	F	Hispanic	A DN								1	2
P20	24	F	Hispanic	BSN								1	1
P21	42	F	AfricanAmerican	BSN								22	7
P22	38	F	Asian	BSN			1					18	3
P23	36	M	AfricanAmerican	MSN								2	1
P24	38	M	AfricanAmerican	BSN	1							1	4
P25	54	F	Asian	BSN				1				27	21
P26	27	F	Asian	ADN		1						2	7
P27	38	F	AfricanAmerican	BSN		1				1		6	6
P28	37	F	Asian	Diploma	1							8	8
P29	65	F	White	ADN	1							26	8
P30	63	F	White	BSN							1	22	5
P31	56	M	White	ADN							1	20	11
P32	47	M	White	Diploma								No answer	6

Demographic Data

	Unit1	Unit2	Unit (Years)	Shift	Shift (Hours)	RRT(Total)	RRT (6months)
P01	4MAIN		4	Days	12	25+	7
P02	MEDSURG		13	Days	36?	5	0
P03	4WEST		1	Days/Nights	12	4	3
P04	TELEMETRY		3	Days	12	10+	4
P05	MEDSURG		7	Days	12	100+	10
P06	TELEMETRY		4	Days	12	9	2
P07	4MAIN		9	Days	12	30+	3
P08	4EAST		1	Days	12	30+	3
P09	4MAIN		6	Days	36?	25+	12
P10	TELEMETRY		9	Nights	12	75	2
P11	4MAIN		2	Nights	12	20	10
P12	4MAIN		2	Nights	12	15	10
P13	2EAST		17	Nights	12	5	3
P14	TELEMETRY	4MAIN	8	Nights	12	No answer	No answer
P15	4MAIN		3	Nights	13	50	6
P16	TELEMETRY		7	Nights	36?	6	6
P17	4EAST		15	Nights	36?	50+	6
P18	4EAST		4	Nights	12	10+	2
P19	4EAST		1	Nights	12	4	2
P20	4EAST		1	Nights	12	6	2
P21	MEDSURG	ONCOLOGY	1	Nights	12	50+	10
P22	4WEST		3	Nights	12	2	2
P23	4WEST		1	Nights	12	6	3
P24	3WEST		1	Nights	12	2	1
P25	4EAST		21	Days	40?	5	No answer
P26	4EAST		7	Days	12	6	3
P27	4EAST		4	Days	12	3	No answer
P28	4MAIN		8	Nights	12	2	No answer
P29	4MAIN		8	Nights	16	3	No answer
P30	4EAST		5	Nights	12	10	No answer
P31	4MAIN		8	Days	36?	6	6
P32	4MAIN		6	Days	36?	No answer	3

Appendix F
Coding of Units of Communication

Coding of Units of Communication

	Q	P	Unit of Communication	Axial	Open
1	1	P01	She just looked uncomfortable. No matter what we did, she just didn't look right. She wasn't complaining of any pain - but , she just looked uncomfortable.	Assessment (Visual)	Patient does not look comfortable
2	1	P01	The patient just didn't look right.	Assessment (Visual)	Patient does not look right
3	1	P01	I just felt like something was really wrong.	Assessment (Subjective)	Something is wrong
4	1	P01	I called the RRT nurse and discussed a few the lab results with her.	Assessment (Objective)	Lab tests
5	2	P01	My assessment and just how she looked.....and, I talked with the RRT nurse. I felt like she may have had a cardiac issue going on as well. I just looked at her and felt like we should check out her cardiac status.	Assessment (Combined)	Objective + Interaction + Collaboration
6	3	P01	I have been a nurse four years. I can't say that, in the beginning, I would have had that feeling.	Historical Experience (Trust Feelings)	No gut feeling when inexperienced
7	3	P01	It takes some time to get that confidence to listen to that feeling that something could be wrong.	Historical Experience (Trust Feelings)	Trust in feelings comes with experience
8	3	P01	In the beginning, I was hesitant to call	Historical Experience (Confidence)	Lack of confidence when inexperienced
9	4	P01	I guess part of it is my objective knowledge and looking at the patient, doing the full assessment, and analyzing what you are seeing. Lab results, etc., are part of that, too. When I have that feeling about a patient, it's like I go into fast mode—I have to get things done; I have to find things out. I have to do my best for the patient to get them the level of care they need.	Assessment (Combined)	Objective + Subjective

10	4	P01	Spiritually, I feel like I am doing my job in what God has called me to do as a nurse.	Collaboration	Collaboration with God/Spirit
11	5	P01	First I look at the patient, I assess the patient so I have that in my mind. I call the RRT nurse and get a second opinion. I just feel like I need to speed up; I need to get cooperation going, I need to get communication going-I need to do something. I need to get a higher level of care for the patient. I want to do the best I can as quick as I can for that patient. It's part of my internal drive, my call to be a nurse, and my nursing experience, I think, that cause me to act for the patient	Assessment (Combined)	Visual + Emotional Reaction + Collaboration
12	1	P02	I just had a feeling that the patient was not doing good. Somehow, just inside me, I think something is not right. Something in me kept saying, "No, this isn't right."	Assessment (Subjective)	Something is wrong
13	1	P02	There is this intuition within me that says, "Something is not right."	Assessment (Subjective)	Something is wrong
14	1	P02	I took care of that patient the day before. And, I said, "Something is not right here."	Assessment (Subjective)	Something is wrong
15	1	P02	I am a spiritual person. I pray every day that God will help me do the right things for the patient, that I pick up on things to make a difference. I ask Him to make me know when something is wrong.	Collaboration	Collaboration with God/Spirit
16	1	P02	There is something in me when I feel this that won't settle until I do something for the patient.	Emotional Reaction	Feel concerned

17	2	P02	Sometimes I feel like that, being a nurse for over 10 years, I know that this is not really normal. So, I think I need to do something else. I will call the doctor and let him know. When I was a new nurse, I would doubt what I was seeing. Now, I know when something is not right, I act confidently.	Assessment (Subjective)	Change in patient
18	2	P02	And, the doctor may be seeing another patient that is more critical. So, I go ahead and do what is needed for my patient—I call RRT.	Emotional Reaction	Feel not able to take care of patient
19	2	P02	The patient had a cardiac history. Finding the gaps like this in the history, help me make the decision. We couldn't get hold of the doctor right then, but she needed attention, so we called RRT.	Assessment (Objective)	Diagnosis
20	3	P02	Sometimes I feel like that, being a nurse for over 10 years, I know that this is not really normal.	Historical Experience (Trust Feelings)	Knowing something is wrong comes with experience
21	3	P02	When I was a new nurse, I would doubt what I was seeing.	Historical Experience (Confidence)	Lack of confidence when inexperienced
22	3	P02	Now, I know when something is not right, I act confidently	Historical Experience (Confidence)	Confidence comes with experience
23	4	P02	I just feel like some patients need to be monitored more like a patient that might be going into heart failure. I called the doctor to tell him. The heart rate dropped every once in a while, though everything else was OK.	Assessment (Combined)	Objective + Subjective
24	5	P02	I talk to the other nurses and my	Assessment	Subjective +

			charge nurse to tell them my feelings about the patient and see what they think about it. Do they think we should call RRT? I think if we have the feeling that something is not right with a patient, we should call RRT;	(Combined)	Collaboration
25	1	P03	Typically, when I decide to call RRT it's that initial alarm that you feel when you take vital signs	Emotional Reaction	Feel anxious
26	1	P03The appearance or visual assessment is not right.	Assessment (Visual)	Patient does not look right
27	1	P03	Typically, when I decide to call RRT it's that initial alarm that you feel....The gut feeling is there, too.....you can't really pick up on what comes first.	Assessment (Subjective)	Gut feeling
28	1	P03	It's a sense of urgency that the patient isn't safe or needs urgent attention. It is an unsettled feeling.	Emotional Reaction	Feel anxious
29	1	P03	Your adrenalin "fight or flight" kicks in and makes you take action immediately	Physiological Reaction	Fight or flight
30	1	P03	Sometimes there's a sense of clarity that comes, a knot in my stomach, that drives me to act.	Physiological Reaction	Knot in stomach
31	2	P03	It depends on the type of situation..... Like if it's the patient's vitals change or the patient's response has changed, I know if I need to call the doctor.	Assessment (Combined)	Objective + Subjective
32	3	P03	Previous experience allowed me to see what the "normal" of patients were like and to recognize the differences between normal and abnormal on admission.	Historical Experience (Trust Feelings)	Knowing something is wrong comes with experience

33	3	P03	The gut feeling and previous experiences definitely drive the decision and help me recognize what is right. I think more experience will allow me to make better decisions about calling RRT. I can identify that gut feeling.	Historical Experience (Trust Feelings)	Trust in feelings comes with experience
34	3	P03	I was more hesitant at first to call RRT. As time has gone by, I am more confident.	Historical Experience (Confidence)	Hesitant when inexperienced
35	4	P03	It was during shift-change report that I first had a thought there was a problem. We do bedside report. That was when I first discovered this patient had a problem.	Assessment (Objective)	Vital signs
36	5	P03	There was the visual assessment, pulse oximetry, and the vital signs.....Then, there was the gut feeling. All of those things led me to call the RRT. I collaborated with others on the shift and some on the night shift, but it was ultimately my decision.	Assessment (Combined)	Objective + Subjective + Collaboration
37	1	P04	Usually, I look at how the patient was the whole day—or, what the previous nurse told me	Assessment (Visual)	Patient does not look right
38	2	P04	If I feel the patient needs to be at another place, if I am not able to take care of that person on my unit, if they need more supervision---then, I would call RRT.	Emotional Reaction	Feel not able to take care of patient
39	3	P04	I feel like I can handle it more now—I wait until they (the patients) are more critical to call RRT. If I know we can treat the patient on the floor, I try to do that now. I have more confidence.	Historical Experience (Confidence)	Confidence comes with experience
40	3	P04	I used to call RRT more often as a new grad. I would go to my other nurses on the floor, but I would call RRT just in case. I don't do it as often now;	Historical Experience (Confidence)	Lack of confidence when inexperienced

41	4	P04	Just from having the patient for 2 to 3 days....he was different. Like he could follow commands when he first came in; later he couldn't - things like that changed.	Assessment (Subjective)	Change in patient
42	5	P04	Worrying of what was going on with him and wanting to find out what else can be done for him---if anything needs to be changed or improved---if something needs to be checked more closely. That led to calling RRT.	Assessment (Combined)	Objective + Emotional Reaction
43	1	P05	His blood pressure is low and he is running fever and his heart rate is up-like maybe he is going into sepsis.	Assessment (Objective)	Vital signs
44	1	P05	I have this feeling to me that something is not right.	Assessment (Subjective)	Something is wrong
45	1	P05	It is like a concerned worry-I was concerned about the patient. I feel concerned	Emotional Reaction	Feel concerned
46	1	P05	I can't quit thinking about that person	Emotional Reaction	Feel preoccupied
47	2	P05	I think the assessment, the parameters, and the patient told me he got fluids and ended up in ICU. I get a feeling that the patient doesn't look right—even before we take the vital signs—I know the patient doesn't look right. Sometimes when the vital signs look ok, the patient doesn't look right.	Assessment (Combined)	Objective + Subjective
48	3	P05	My years of experience make me more confident in calling RRT.	Historical Experience (Confidence)	Confidence comes with experience
49	4	P05	I checked the blood pressure and knew that he had been running fever all night.	Assessment (Objective)	Vital signs
50	4	P05	I talked to the patient and got more information from him... Then, we called RRT	Assessment (Interaction)	Change in patient (talking)

51	5	P05	I think it's my assessment and my feelings mostly. Sometimes there is other information. But, mostly it's my assessment and my feelings. Maybe the patient isn't looking right—their face, maybe they are confused, maybe they are too lethargic—sometimes the blood pressure drops---sweating, any unusual symptoms. You get that feeling to save the patient. You feel that something is going to happen—fear and worry. Nurses should be encouraged to call RRT when they have these feelings.	Assessment (Combined)	Objective + Subjective + Interaction
52	1	P06	The patient looked bad	Assessment (Visual)	Patient does not look right
53	1	P06	I feel something could happen; something could happen.	Assessment (Subjective)	Something could happen
54	1	P06	My heart rate goes up; my adrenalin goes up, I guess.	Physiological Reaction	Heart rate increases
55	1	P06	I feel like I need to do something right now and I need help. I have the feeling something is going wrong.	Assessment (Subjective)	Something is wrong
56	1	P06	I am so worried.	Emotional Reaction	Feel anxious
57	2	P06	I assess the patient. My assessment and my vital signs..... And, sometimes, even when everything is stable, you know something is going wrong. Everything is stable – the vital signs, the oxygen. You can see from the patient's face that something is going wrong—I cannot point out what it is	Assessment (Combined)	Objective + Subjective
58	3	P06	I have been a nurse 40 years; I think I am more confident in calling RRT than when I was a new nurse.	Historical Experience (Confidence)	Confidence comes with experience

59	4	P06	She became very pale and didn't have the same look as when she transferred from the stretcher. She was really declining. I checked the vital signs. And, I checked the oxygen and it was going to 84, 83. I called RRT.	Assessment (Combined)	Objective + Subjective
60	5	P06	It is feelings and assessment-both together. Those are the main reasons to call RRT. I think it depends on the experience of the nurse also.	Historical Experience (Trust Feelings)	Assessment comes with experience
61	1	P07	It's just little things that are different.... I see that they are not acting the same neurologically or just physical.... Especially if I have taken care of them more than one day.	Assessment (Visual)	Change in how the patient looks
62	1	P07	I get the feeling something is wrong with the patient.	Assessment (Subjective)	Something is wrong
63	1	P07	I feel concerned. It's more mental and emotional than physiological. I feel concern about the patient.	Emotional Reaction	Feel concerned
64	1	P07	The patient preoccupies my mind.	Emotional Reaction	Feel preoccupied
65	2	P07	The assessment, of course, I use that--lab work. The vital signs	Assessment (Objective)	Vital signs
66	2	P07	The families can be helpful in noticing if something is different. I ask if that's how the patient acts normally. Families can notice something different, especially if I have not had that patient before.	Collaboration	Collaboration with family
67	2	P07	The Techs and PCPs can be helpful too, if they have had the patient before in the last few days, and I haven't and they notice something different.	Collaboration	Collaboration with Techs and PCPs

68	3	P07	You are confident, you have done it before, and you know what information is needed when the RRT team arrives. I think the confidence and experience make it easier to call.	Historical Experience (Confidence)	Confidence comes with experience
69	3	P07	I am definitely more confident in calling RRT now than when I was a new nurse 14 years ago;	Historical Experience (Confidence)	Lack of confidence when inexperienced
70	3	P07	A lot of new nurses have feelings about their patients, too; they may just not be as confident.	Historical Experience (Trust Feelings)	Inexperienced nurses do not trust feelings
71	4	P07	Just little things that were different neurologically caused me to call. I think that I just had a feeling about those patients, too, just from noticing those subtle changes that made me call RRT.	Assessment (Subjective)	Change in patient
72	5	P07	Are there any changes that I have noticed? Does the family have concerns or noticed something that isn't right? Compare the patient past and previous shifts' assessments to see if there are changes. Also, the techs....I ask them a lot if they noticed something yesterday....if there are nurses that had the patient previously, I ask them, too. I think in every instance, there was something, even if very small, that made me activate RRT---it's wasn't necessarily the numbers. The numbers were not affected---it was just something different. I felt the patient just wasn't right---that something was different. I felt uneasy. I don't notice anything physiological---there's just something not right with the patient.	Assessment (Combined)	Objective + Subjective + Collaboration

73	1	P08	Her oxygen sat was very low—like 78. We called an RRT on that because her oxygen sat was so low.	Assessment (Objective)	Vital signs
74	1	P08	There's probably like a little bit of anxiety when something like this happens—you know, like a “nurse radar” or something.	Emotional Reaction	Feel anxious
75	1	P08	She was just really pale. She was breathing a little shallow—just not like she had been breathing before. She was pale and all, you know.	Assessment (Visual)	Patient does not look right
76	2	P08	I am more familiar with signs and symptoms now, so I can call RRT before the patient is crashing—just by getting on board early	Historical Experience (Confidence)	Assessment comes with experience
77	2	P08	As I have more experience, I am more comfortable calling RRT.	Historical Experience (Confidence)	Feeling comfortable comes with experience
78	2	P08	I would rather have those people who are more experienced there in the room with me	Emotional Reaction	Feel not able to take care of patient
79	3	P08	When you are new you don't want to call RRT because you are thinking, “No, I don't want to call an RRT; I should know what to do”	Historical Experience (Confidence)	Lack of confidence when inexperienced
80	3	P08	I have been a nurse about 2 and ½ years. I am definitely more confident in calling RRT now than when I was a new grad.	Historical Experience (Confidence)	Confidence comes with experience
81	3	P08	As I have more experience, I am more comfortable calling RRT.	Historical Experience (Confidence)	Feeling comfortable comes with experience

82	4	P08	I use my knowledge of what's normal and what's not normal. I use my nursing judgment how the patient's look and act. Kind of that nursing intuition—how they (the patients) look and feel.	Assessment (Combined)	Objective + Subjective
83		P08	I use my knowledge of what's normal and what's not normal. I use my nursing judgment how the patient's look and act. Kind of that nursing intuition—how they (the patients) look and feel. And, I use my fellow nurses. I think the RRT's are great. My charge is right there. The doctors are coming. The nurses are right there. A lot of people come at once. I think it's a good process. Nursing intuition, hmmmI think I feel a little anxious—kind of that anxiety. I feel a little dizzy and tingly. I have a little adrenalin—like “you need to get going.” Like when that guy you know had chest pain---like I am ready to run—a little adrenalin. With some patients I don't have that feeling—but, others, you know, I just feel like I need to do something.	Assessment (Combined)	Objective + Subjective + Collaboration
84	1	P09	Any change of condition. The patient doesn't feel good. You see the patient in the morning and then they are changed when you see them later and you think, “I need to call RRT right now”	Assessment (Visual)	Change in how the patient looks
85	1	P09	I saw this one patient, and everything was good; but, something wasn't right. I felt worried, concerned---concerned for the patient.	Emotional Reaction	Feel concerned

86	1	P09	I have a hard time breathing.	Physiological Reaction	Difficulty breathing
87	1	P09	I feel my heart racing a little.	Physiological Reaction	Heart rate increases
88	2	P09	I looked at the patient.	Assessment (Visual)	Patient does not look right
89	2	P09	I talked with the charge nurse. We decided to call RRT.	Collaboration	Collaboration with experienced nurse
90	3	P09	I have been a nurse 18 years; it is much easier now to call RRT than when I was first in nursing. I feel more comfortable in calling now.	Historical Experience (Confidence)	Feeling comfortable comes with experience
91	4	P09	I usually call RRT when the condition changes with the patient or there is something that happens that meets the protocols to call RRT. Then, I call them.	Assessment (Objective)	Protocols
92	5	P09	Sometimes I have a feeling about the patient along with the assessment; I just call RRT.	Assessment (Combined)	Objective + Subjective
93	1	P10	I saw the patient, and I thought, "Something is wrong. Something is wrong with this patient."	Assessment (Subjective)	Something is wrong
94	1	P10	Then, after a few hours you just feel something inside you that something is not right. The vitals are OK; but, something is not right. I think it's a little bit of everything.....you just feel it inside you. You just feel it in your gut.	Assessment (Subjective)	Gut feeling
95	1	P10	I think it's a concern.	Emotional Reaction	Feel concerned

96	2	P10	You have the diagnosis, you have the vitals, you have the report from the nurses.....I think those are the reasons we decided to do it... But, there's something I feel is not right with this patient; I have a gut feeling about it. So, they come over....just to look and see what is needed.	Assessment (Combined)	Objective + Subjective
97	3	P10	I was more hesitant as a new nurse to call RRT. Being a new nurse, I would take more time and waited for the next vitals.	Historical Experience (Confidence)	Hesitant when inexperienced
98	3	P10	I don't think I had the gut feeling before when I was new.	Historical Experience (Trust Feelings)	No gut feeling when inexperienced
99	3	P10	Right now, I am more proactive from the experience—I can look ahead.	Historical Experience (Confidence)	More proactive when experienced
100	3	P10	I am more glad to trust my gut now.	Historical Experience (Trust Feelings)	Trust in feelings comes with experience
101	3	P10	My confidence is better now too.	Historical Experience (Confidence)	Confidence comes with experience
102	3	P10	Experience is a factor.....I have been a nurse for nine years. But, it is not always a factor, because I have seen the new nurses and the new techs do the same. They will do the vitals and they'll go to the patient's room. And, they will come out and say to the nurse that something is not right with the patient.	Historical Experience (Trust Feelings)	Inexperienced nurses have feelings
103	4	P10	You have the assessment, the vitals, the previous reports from the other nurses---and, just what's going on with the patient. Urine output—all that information is with you. And, you have the feelings that you have...	Assessment (Combined)	Objective + Subjective

104	5	P10	You have the assessment, the vitals, the previous reports from the other nurses---and, just what's going on with the patient. Urine output—all that information is with you. And, you have the feelings that you have..... I always reach to my charge nurse. It's not just me...I call the other next to me to get another opinion. It's always teamwork before the RRT. We try to change position, we try other things before we call RRT. It's always teamwork.	Assessment (Combined)	Objective + Subjective + Collaboration
105	1	P11	Sometimes I just get this feeling about a patient that something is wrong. I had this one patient that looked ok, but I just knew something was wrong.	Assessment (Subjective)	Something is wrong
106	1	P11	It's kind of just this trigger or instinct.	Assessment (Subjective)	Instinct
107	2	P11	A change in baseline based on lab values. A change in the patient's demeanor, personality or affect. I don't know how else to explain it. You just look at somebody and just know that's not how they usually are. It doesn't take long to get to know somebody. Or, you know, it doesn't match up with what I heard in report. The way they look doesn't line up with perfect vitals or perfect labs.....something's wrong. When you look in their eyes you can tell.	Assessment (Combined)	Objective + Subjective
108	3	P11	I think going when other nurses call RRT is a good experience for me. If I get there to help, that helps me learn when to call RRT for my patients. I watch what happens and carry that over to my own practice.	Collaboration	Collaboration with experienced nurse

109	4	P11	There was just this change from baseline and the patient just didn't look right.	Assessment (Combined)	Objective + Subjective
110	5	P11	I use the information from report, the feedback from the patient, the assessment and labs, and I use my gut feeling. .	Assessment (Combined)	Objective + Subjective
111	1	P12	A lot of times, if you are speaking to a patient, it is apparent that something is different. If you have a patient for several days, for example, you learn how they respond to things. If that changes, you feel something is wrong.	Assessment (Subjective)	Change in patient
112	1	P12	I try to think critically. I look at all aspects of a patient.	Assessment (Objective)	Thinking critically
113	1	P12	I have only been a nurse for two years, so I don't always feel that or trust it yet.	Historical Experience (Trust Feelings)	Trust in feelings comes with experience
114	2	P12	A lot of my RRT's are for shortness of breath and volume overload—real tachypneic and in overload. If they are diabetic we look at the blood sugar. That's probably the main RRT's that I call. I collaborate with others on calling an RRT. Most of the time if I have a patient that doesn't look right, I call my charge nurse and have her look. And, I'll ask what she thinks.	Assessment (Combined)	Objective + Collaboration
115	3	P12	I am more confident in calling an RRT now than when I was a new grad nurse.	Historical Experience (Confidence)	Confidence comes with experience
116	4	P12	I think that's where that gut feeling comes in. Even if we have interventions going, I think it's one of those things where gut feelings come in to call an RRT. Even if everything's OK, you just feel you need to call.	Assessment (Subjective)	Something is wrong

117	5	P12	Sometimes I get a call from the monitor tech. I go in and sure enough the patient looks short of breath. The ones that worry me are the ones that are so short of breath they can't call; those are the ones I call an RRT for and where gut instinct comes in. When the patient is clearly symptomatic and their life is in danger, you need to have RRT come.	Assessment (Combined)	Objective + Collaboration
118	1	P13	I think I am starting to develop a gut feeling about patients, but I am not there yet.	Historical Experience (Trust Feelings)	Gut feeling comes with experience
119	1	P13	I rely more on my assessment skills than a gut feeling	Assessment (Objective)	Assessment skills
120	1	P13	First I look at the condition of the patient. I think that if I wait and call the doctor it will take longer and the patient has to wait, so I call RRT.	Assessment (Visual)	Patient does not look right
121	1	P13	Sometimes, you know, with some patients, all the vital signs are fine, the heart rate is fine, there is no change on the EKG, but you just have this feeling that something is wrong.	Assessment (Subjective)	Something is wrong
122	1	P13	You don't see anything wrong with the patient, but you have this gut feeling that something is off	Assessment (Subjective)	Gut feeling
123	1	P13	I feel like my blood pressure is going up	Physiological Reaction	Blood pressure increases
124	1	P13	Like my heart rate is going up.	Physiological Reaction	Heart rate increases
125	1	P13	It is like a stress feeling, like you want to help this person, you have to ask for help.	Emotional Reaction	Feel stress

126	1	P13	Sometimes it's the way the patient lays on the bed; it's just the position that is not right; it is not the same. If the position is not right, the arms are up and the patient is not right in the bed, then you need to call RRT.	Assessment (Visual)	Patient does not look right
127	2	P13	You look at the patient and assess them. You check the vital signs, you check the blood pressure. You ask them what is going on. You think about calling the doctor, but, you have to have all the information to be able to call.	Assessment (Combined)	Objective + Interaction
128	3	P13	Since we started having the RRT, I feel more comfortable calling. Sometimes if you call the doctor it is a long time before they call back and the patient needs to get help. RRT does that.	Historical Experience (Confidence)	Feeling comfortable comes with experience
129	3	P13	I think new nurses are hesitant to call RRT at first, but after a time or two of calling, they see how much it can help, so they call.	Historical Experience (Confidence)	Hesitant when inexperienced
130	3	P13	Sometimes new nurses call me to assess the patient before they call RRT.	Collaboration	Collaboration with experienced nurse
131	4	P13	Sometimes, since I am working the charts, the other nurses come to get me to assess the patient to see if we need to call RRT. I think they have the gut feeling, but they ask me to come and look.	Assessment (Combined)	Objective + Subjective
132	5	P13	Sometimes if the vital signs are fine but we don't think the patient is doing good, we call the RRT to prevent the code and save their life.	Assessment (Combined)	Objective + Subjective + Collaboration

133	1	P14	I had a feeling something was really wrong. I think it's probably knowledge I have had from working with patients for years—you can just tell something is wrong.	Assessment (Subjective)	Something is wrong
134	1	P14	It is a gut feeling.	Assessment (Subjective)	Gut feeling
135	1	P14	My heart rate goes up—some adrenaline.	Physiological Reaction	Heart rate increases
136	1	P14	And, then you just panic and you go for it.	Emotional Reaction	Feel anxious
137	2	P14	Usually it's the vital signs.....When blood pressure gets to be too high and not controlled, we call RRT. If the patient complains of chest pain, we call RRT.	Assessment (Objective)	Vital signs
138	3	P14	I have been in nursing a long time. I have always been confident in calling RRT. I think the more experience you have, the more easy it is to make decisions—especially when calling RRT.	Historical Experience (Confidence)	Confidence comes with experience
139	3	P14	I feel that my gut feeling is stronger now than when I was a new nurse. I pay more attention to gut feelings now than I did when I first started.	Historical Experience (Trust Feelings)	Trust in feelings comes with experience
140	3	P14	New nurses should be educated more about calling RRT.	Education	New nurses need education
141	4	P14	The last time I called RRT, I saw the patient and assessed him—and then I called.	Assessment (Objective)	Vital signs
142	5	P14	Vital signs, when the patient complains about something, and how the patient looks. Sometimes it's the opinion of colleagues—or my gut feeling. I get restless, your heart rate goes up—and, you can't rest. You just have to do something.	Assessment (Combined)	Objective + Subjective + Collaboration

143	1	P15	It's just a gut feeling that you want to be certain that they are ok.	Assessment (Subjective)	Gut feeling
144	1	P15	It's a worry—like a mother hen over baby chicks.	Emotional Reaction	Feel concerned
145	1	P15	I think my heart rate might go up—I am not sure.	Physiological Reaction	Heart rate increases
146	1	P15	All of a sudden they are quiet, but everything was fine before and they were talking.	Assessment (Interaction)	Change in patient (quiet)
147	2	P15	Sometimes we try other interventions, like breathing treatments, first...vital signs being off. Respiratory has already been with them.....The worst feeling is the panicky feeling of not being able to breathe.	Assessment (Objective)	Respiration
148	3	P15	I think new nurses should be trained to recognize their gut feelings; they should learn that even though the vital signs are OK, there can still be something wrong. I was encouraged in school not to look at the machines but to look at the patient.	Education	New nurses need training
149	4	P15	If the patient is not breathing ok or the patient's heart rate goes low like 30 or 40 something. Or, if the blood pressure is below 90 going down to 80, you would call RRT.	Assessment (Objective)	Vital signs
150	5	P15	I guess what I already said—the vital signs. If everything is ok, but the patient isn't the same—we call. If they don't get relief from the pain medicine and the doctor won't order anything else, you call. It's a good process to have. I just feel worried....I don't know how else to describe it. I might get anxious. If the patient gets anxious, I get anxious.	Assessment (Combined)	Objective + Emotional Reaction + Collaboration

151	1	P16	If I see a patient who's not the same as before, like if there is change in the assessment. Sometimes we cannot really see change in their vital signs but I can see their altered level of conscience.	Assessment (Visual)	Change in how the patient looks
152	1	P16	His wife said he's not acting right, he's not the same, he's fidgeting, I listened to her, watched over him and then I realized the same thing an hour later, I am so glad I called an RRT	Assessment (Visual)	Change in how the patient looks
153	1	P16	I get very hyper when I see my patient not doing well.	Physiological Reaction	Hyperactivity
154	1	P16	I keep thinking about that situation, but I did call an RRT, I did everything I could.	Emotional Reaction	Feel preoccupied
155	1	P16	I was very upset at the beginning of my shift, and I couldn't really voice that because I don't really have anything to go by at that time.	Emotional Reaction	Feel anxious
156	1	P16	I was really worried about him like something is not right but I can't tell because they have done everything looking at the numbers.	Assessment (Subjective)	Something is wrong
157	3	P16	Gut feeling comes from knowing your patient, if you've been taking care of them, and if you can't pinpoint the numbers but know something is different, something is not right about this patient	Historical Experience (Trust Feelings)	Trust in feelings comes with experience
158	3	P16	I would definitely tell my new grads that definitely.	Education	Tells new nurses should acknowledge feelings

159	3	P16	[Question: Thinking back on your experience in nursing, how did those experiences influence your actions with regard to calling an RRT?] Response: I think so yes.	Historical Experience (Trust Feelings)	Trust in feelings comes with experience
160	4	P16	There maybe not a lot for me to say. I can call sometimes because we go by vital signs per se but I can say there is not something right about this patient	Assessment (Combined)	Objective + Subjective
161	5	P16	Well basically, all along the nurses are doing my assessments, I was looking and comparing his vital signs and all day long it was lurking in this low number. He's a big guy are we really confusing his organs. I mean what's going on.	Assessment (Combined)	Objective + Collaboration
162	1	P17	Worried. I was worried.	Emotional Reaction	Feel anxious
163	1	P17	Maybe not answering my questions right.	Assessment (Interaction)	Change in patient (not answering questions)
164	1	P17	I think I feel it is not good for the patient, that something is very wrong	Assessment (Subjective)	Something is wrong
165	1	P17	I start sweating,	Physiological Reaction	Sweating
166	1	P17	I can't do anything but think about that patient.	Emotional Reaction	Feel preoccupied
167	1	P17	Feel scared, I feel anxiety, and sometimes I feel panic. I call for help.	Emotional Reaction	Feel anxious
168	2	P17	I use the protocols, the assessment.	Assessment (Objective)	Vital signs
169	3	P17	I have been a nurse 16 years. I have confidence in RRT and am ok to call.	Historical Experience (Confidence)	Confidence comes with experience
170	3	P17	I think when you are new that it's best to call the charge nurse to get help	Collaboration	Collaboration with experienced nurse

171	4	P17	You must follow the protocols for calling RRT to get them to come and help. The patient was not doing good. I call the operator and call RRT to the room.	Assessment (Objective)	Protocols
172	5	P17	After RRT nurse comes, we tell the RRT the patient history. Then we call the doctor.	Assessment (Combined)	Objective + Collaboration
173	1	P18	You sometimes get a gut feeling and the vital signs may be right, but you just know something's going on	Assessment (Subjective)	Gut feeling
174	1	P18	You have a questioning feeling, a little bit of anxiety....but you can't put your finger on it. You want to call the doctor but you don't really have anything to report specifically. It's just kind of a gnawing anxiety.	Emotional Reaction	Feel anxious
175	1	P18	You kind of speed up in your actions. I have a knot in the pit of my stomach—something like that---a nervous stomach.	Physiological Reaction	Knot in stomach
176	2	P18	I see something that wasn't there before—or, the family members notice something; that's a telltale sign.	Collaboration	Collaboration with family
177	2	P18	Maybe a change in vital signs or the way the patient is responding, change in level of consciousness, more anxiety with the patient that increases vital signs.	Assessment (Combined)	Objective + Interaction
178	3	P18	I have been in nursing for 4 years. I feel a little more confident now in calling RRT.	Historical Experience (Confidence)	Confidence comes with experience
179	3	P18	I sometimes call the charge nurse down to help assess,	Collaboration	Collaboration with experienced nurse
180	3	P18	I think new nurses should be encouraged to acknowledge their feelings	Education	New nurses should acknowledge feelings

181	4	P18	I think it was a level of consciousness change that alerted me to the patient I described. She started to get more confused.....	Assessment (Subjective)	Change in patient
182	5	P18	I look at what has changed from before and listen to the family. Sometimes I call the charge nurse if I need another set of eyes. Sometimes it is just a feeling that something is wrong.	Assessment (Combined)	Objective + Subjective + Collaboration
183	1	P19	I assess the patient, take the vital signs and take the information from report and compare it to what I am seeing with the patient. If the patient starts to decline or there's something different about the patient than what I got in report or what I saw in my initial assessment, then, I call RRT.	Assessment (Objective)	Vital signs
184	2	P19	My assessment, the vital signs, and just how the patient looks. Sometimes you just get this feeling about the patient; they are just different somehow.....It's so hard to explain.....	Assessment (Combined)	Objective + Subjective + Visual
185	3	P19	I think as you get more experience you are more confident in calling RRT.	Historical Experience (Confidence)	Confidence comes with experience
186	3	P19	You learn what to look for and you become better at noticing subtle changes with the patient.	Historical Experience (Trust Feelings)	Knowing something is wrong comes with experience
187	4	P19	I think the vital signs and just the changes I see in the patient. And, I get a feeling that something is wrong with them—just from the way they are acting or the change in how they are responding to me. Sometimes the patient just looks different and you know you need to do something.	Assessment (Combined)	Objective + Subjective

188	5	P19	The assessment and the vital signs, and just changes in how they look and how they are responding are the things I look at. I just get a feeling about them, too, from all this that something is wrong and I need to call RRT. I just know that something bad will happen if I don't act, so I go ahead and call.	Assessment (Combined)	Objective + Subjective
189	1	P20	We started to notice that his heart rate dropped to 40. It would go to like 45 to 50 to 80 then drop down and go back up. I just stuck him on a pulse ox. I went ahead and called a rapid response.	Assessment (Objective)	Vital signs
190	1	P20	Everything was right. Then, just something.... I just didn't feel right. And, respiratory came and listened to her, and they said, "You can call an RRT if you want."	Assessment (Subjective)	Something is wrong
191	1	P20	I had kind of a unsettling feeling, like I am on edge and I just don't know if something was wrong, but I knew something was going to happen.	Emotional Reaction	Feel anxious
192	1	P20	Normally, I just feel it in my gut, like a knot or butterflies kind of.	Assessment (Subjective)	Gut feeling
193	1	P20	Once I call RRT, my heart stays racing,	Physiological Reaction	Heart rate increases
194	1	P20	My blood pressure goes up—the endorphins kick in and I have to get my patient ready and check everything	Physiological Reaction	Blood pressure increases
195	2	P20	The physical signs and symptoms—just listening to that one patient and noticing things that were different from when he first came in. Noticing the subtle changes challenged me. I noticed that this patient was getting more agitated. He would get more agitated then more lethargic.....things like that.	Assessment (Combined)	Objective + Interaction

196	3	P20	As a new nurse you question yourself and you wonder whether you should call RRT or not.	Historical Experience (Confidence)	Doubtful when inexperienced
197	4	P20	I saw my patient sitting straight up in the bed and her pupils were all black. It was a gut wrenching feeling I had. She was staring out the windows. I guess it was more of a feeling....When I first start taking care of my patients, I am very personal with them and get to know them very well—there's a connection. I am very active with them and talk with them about their families. So when they start responding a little differently-like their tone of voice changes—or their mannerisms or actions---I guess that way I am able to tell.	Assessment (Subjective)	Change in patient
198	5	P20	When I take report, when I first come in, I am noticing what the last nurse said and looking at my patient. That way I can use my baseline assessment and make decisions later if their conditions changes.	Assessment (Objective)	Vital signs
199	1	P21	Well I just notice the patient condition is deteriorating. If vital sign is not within the normal range or the patient is obvious of shortness of breath. You know when things are not going right, the way it should, that would trigger me to call RRT	Assessment (Objective)	Vital signs
200	1	P21	Nothing seemed wrong with the patient, but I just had this gut feeling that something was not right. So I told the nurse and said, "Let's call RRT". And I'm so glad I did because the patient was transferred to Tele because she was really having issues.	Assessment (Subjective)	Gut feeling

201	2	P21	Looking at a patient, assessment, when you compare the previous ones and it's not the same with what is going on. It might have been happening, maybe not recorded but at that particular time in what you have seen the data that has been collected it is normal range and what you see now is a totally different thing.	Assessment (Objective)	Vital signs
202	3	P21	Yeah, sometimes it does... Sometimes if you are...relying on the machine or the vital signs that might give the wrong impression.	Historical Experience (Trust Feelings)	Knowing something is wrong comes with experience
203	4	P21	Well I think something is not right, nothing serious, because I just think it is not right, if it is going steady we will know that it is okay. If it was caught on the cardiac monitor or something like that but if fluctuation in patient numbers are significant then you have to quickly jump into action.	Assessment (Subjective)	Something is wrong
204	5	P21	At first I will assess the patient and look at the previous labs/ vital signs that has been recorded on this patient. For my own assessment I will compare the two to see any difference or if everything is okay or is everything alright. So if the progress is different from normal from what you know and then. Then you know something is definitely coming from somewhere.	Assessment (Objective)	Vital signs
205	1	P22	If you are taking care of the patient, you know the normal for that patient. You notice when something is different. I need to know what is going on; I check the vital signs. Maybe I check the blood sugar---I check for possible causes.	Assessment (Objective)	Vital signs

206	1	P22	I have an anxiety; what if something happens with this patient. I call the RRT nurse and talk with them, even if I don't call RRT right then	Emotional Reaction	Feel anxious
207	1	P22	I feel excitement—not really excitement—like happy---but excitement about what you need to do.	Emotional Reaction	Feel excitement
208	1	P22	The heart rate increases---and, you think what it is you have to do quickly.	Physiological Reaction	Heart rate increases
209	1	P22	I worry about the patient; I cannot feel comfortable. I think it's how I look at the patient. If I sense that something is going on---even if the vital signs are ok—I just know. I feel scared—really I need to call RRT.	Emotional Reaction	Feel anxious
210	3	P22	Yes. I am more comfortable calling RRT now than when I first was in nursing. I have been in nursing for about 18 years.	Historical Experience (Confidence)	Feeling comfortable comes with experience
211	3	P22	I think it's important for new nurses to be encouraged to listen to their feelings about patients....	Education	New nurses should acknowledge feelings
212	4	P22	Well, we just need to check the patient.....airway, breathing, the vital signs. If the patient complains of weakness; he is having a hard time moving---something is wrong. We call the RRT. If the patient's health condition has changed, it is right to call the RRT.	Assessment (Combined)	Objective + Subjective
213	5	P22	I use the objective and subjective assessment. Both are important. I use my gut feeling, too, because I have always been right. I think experience and having the body of knowledge helps. But, sometimes you get this feeling that something is not right.	Assessment (Combined)	Objective + Subjective

214	1	P23	Based on the vital signs and the objective assessment, he was fine. But, suddenly his face started drooping, so he was rushed down to the ED. It was good I listened to my gut feeling or something would have gone wrong.	Assessment (Subjective)	Gut feeling
215	1	P23	I could not concentrate, I could not focus on other patients—something just kept telling me to go back to this patient. I just had this feeling about going back to that patient; it was very disturbing because I could not focus on anything else.	Emotional Reaction	Feel preoccupied
216	1	P23	I feel a “bellyache” with some patients....Sometimes I get butterflies in my stomach.	Physiological Reaction	Knot in stomach
217	2	P23	I use the assessment, the vital signs, the gut feeling.....I was alone with the patient. The objective assessment was fine. The subjective assessment is often what I go by. Like this patient was clutching his chest....I just had this feeling to go back after report.	Assessment (Combined)	Objective + Subjective
218	3	P23	Previous experience has really helped me a lot to be more confident in calling RRT	Historical Experience (Confidence)	Confidence comes with experience
219	3	P23	When I was a new graduate...I always worried about making a false alarm.	Historical Experience (Confidence)	Hesitant when inexperienced
220	3	P23	My experience taught me to look at the objective and subjective assessment carefully—I don’t take that for granted. I think that my previous experience has helped me a lot.	Historical Experience (Confidence)	Assessment comes with experience

221	3	P23	90% of the time my gut feeling is right....You must follow that gut feeling.	Historical Experience (Trust Feelings)	Trust in feelings comes with experience
222	4	P23	I just listened to my gut, and, while everything, the vital signs and numbers were ok, I just have this feeling that something was wrong. I just felt it in my gut. And, I have always been right.	Assessment (Combined)	Objective + Subjective
223	5	P23	I believe in the spiritual realm. I think the spiritual is more real than the physical. My spirit knows something is wrong. I tend to follow my gut every day of my life. I take care of the patient and his life is in my hands. We all have this spirit within us. It helps me every day of my life. I listen to my spirit. It is a gift that we can all develop.	Collaboration	Collaboration with God/Spirit
224	1	P24	One reason is low blood pressure, irregular heart rate, low heart rate.....low respiration	Assessment (Objective)	Vital signs
225	1	P24	I had a patient when all the vitals looked ok. But, I could tell she was not there that she was not absolutely fine. But, at the end of the day, she had sepsis. She was mainly kind of gazing out—not the same as when she came in. Her mood was different—she was not the same. She was not talking—she was not herself at that point in time.	Assessment (Interaction)	Change in patient (not talking)
226	1	P24	I had a concern—like something was going on with this person.	Emotional Reaction	Feel concerned
227	1	P24	It's like I feel worried... thinking, well, she might die. I am worried about the situation.	Emotional Reaction	Feel anxious

228	2	P24	For that one patient, we called RRT after a while because her blood pressure started dropping.	Assessment (Objective)	Vital signs
229	3	P24	I am more confident now in calling RRT than when I was a graduate nurse.	Historical Experience (Confidence)	Confidence comes with experience
230	3	P24	My gut feeling is getting stronger and better now.	Historical Experience (Trust Feelings)	Trust in feelings comes with experience
231	4	P24	If the patient is not breathing ok or the patient's heart rate goes low like 30 or 40 something. Or, if the blood pressure is below 90 going down to 80, you would call RRT.	Assessment (Objective)	Vital signs
232	5	P24	I follow the protocols and sometimes my gut feeling.....When you are worried about something, you begin to sweat and have a small panic attack. I get more worried and I think about something happened to this patient and they might die. I find myself sweating and feeling shaky when this happens.	Assessment (Combined)	Objective + Subjective
233	1	P25	The patient says she is fine, but I just have a gut feeling that something is wrong.	Assessment (Subjective)	Gut feeling
234	1	P25	It's like a feeling at the back of your head that this is not your typical patient.	Assessment (Subjective)	Feeling at the back of your head
235	1	P25	Vital signs and everything are ok, but I just know that something is wrong.	Assessment (Subjective)	Something is wrong
236	2	P25	You have been with that patient; nobody is able to say that something is wrong except you.	Assessment (Subjective)	Something is wrong
237	2	P25	When you see a patient he is not the textbook case	Assessment (Subjective)	Patient is not normal
238	3	P25	You get that patient that is just a "little off" You know to intervene, to get	Assessment (Subjective)	Patient is just a little off

			somebody else.		
239	3	P25	You have been with that patient; nobody is able to say that something is wrong except you. To some degree it is based on previous experience.	Historical Experience (Trust Feelings)	Knowing something is wrong comes with experience
240	4	P25	She was excited in the morning to walk, but now she has no energy to do it. She was sweaty, but vital signs were fine. I don't know what is going on because she is voiding and everything. But, she was not following the usual course. Well, I just feel like something else could be going on and I don't know what it is. So, then we call RRT	Assessment (Combined)	Objective + Subjective
241	5	P25	For example, they might say, "This patient is tachycardic and need to move to telemetry" But the doctor doesn't want to do it. It gives another advocate for the patient. I think this is good. To me, that feeling, those chills you get....It's like, what do you call it, the fight or flight. To me, it's like, "This needs to be done....quicker than I can think of it." As a nurse, it's like, "I need RRT. I need one NOW!"	Assessment (Combined)	Objective + Emotional Reaction + Collaboration
242	1	P26	If the patient looks different than in report. I check vital signs. If during the shift I see changes and they are different from my assessment. If I want a second opinion, I call RRT.	Assessment (Objective)	Vital signs
243	2	P26	I assess the patient. I check vital signs. I check oxygen level. I look at the labs. If the vital signs look different than earlier—or different from report. But mostly I feel when something is wrong.	Assessment (Combined)	Objective + Subjective

244	2	P26	I saw an earlier blood pressure that was taken in the early morning and it was low. I called RRT; medication was placed on hold. Fluid was given. I called the doctor.	Assessment (Objective)	Vital signs
245	3	P26	I have really long years' experience in nursing. I know when the patient has something wrong.	Historical Experience (Trust Feelings)	Knowing something is wrong comes with experience
246	3	P26	New nurses don't know that; they just follow with the blood pressure or other protocols	Historical Experience (Confidence)	Inexperienced nurses follow protocols
247	4	P26	My assessment.....If they are different when I make my rounds. I can feel they don't look good. Their vital signs look OK, but I feel something is wrong	Assessment (Combined)	Objective + Subjective
248	5	P26	Feeling is the most important thing for me. I can feel when something is wrong with my patient. I can see it. When I saw the color change with the patient, I know, I have a feeling.... I just knew something was wrong.....I could just tell. If HR is low, BP is dropping, potassium is off, etc.-- everybody knows this. But, after you have experience, you have a "gut feeling" about your patient and you know they are not good and you know to call RRT before these things happen.	Assessment (Combined)	Objective + Subjective
249	5	P26	As you gain more experience, you know more, so you want to act more independently. You don't need to get someone else to come look. You know you need to do something. You go ahead and get things started to help your patient.	Historical Experience (Confidence)	Confidence comes with experience

250	1	P27	The patient's vitals begin to drop. Her oxygen sat went to 84% on 2L and the patient was restrained. Patient was responding but very confused. That's the reason I called the RRT.	Assessment (Objective)	Vital signs
251	2	P27	I increased the oxygen level, but it did not come above 85%. The protocol is to call RRT when this happens. I called the doctor and the doctor agreed with calling RRT.	Assessment (Objective)	Vital signs
252	3	P27	The protocols help you make decisions and act quickly. I work strictly from the protocol. I make my interventions based upon the protocol.	Historical Experience (Confidence)	Inexperienced nurses follow protocols
253	4	P27	We have protocols. We look at the vital signs. We may not have an order for telemetry, but we call the doctor and get an order. I sometimes have a feeling that something is wrong with the patient. But, I check the vital signs and look for medical causes to see what might be wrong. If there is a change of condition, I call RRT.	Assessment (Combined)	Objective + Subjective
254	5	P27	There was a change in condition, I called RRT right away to get quick action for the patient. Vital signs OK, heart rate OK. I never really had that feeling before about a patient...The morning when he had a problem, I call RRT to save him.	Assessment (Combined)	Objective + Subjective
255	1	P28	He was quiet and reserved and seemed very different	Assessment (Interaction)	Change in patient (quiet)
256	1	P28	I noticed this change and started exploring what was going on with him. Why he was different. Well, it was not his blood sugar. It was not his blood pressure. There was no obvious reason that I could find for him being that way. I needed more input, so I called RRT.	Assessment (Subjective)	Change in patient

257	1	P28	I have a religious nature to my nursing. I feel like that sometimes the Lord helps me determine what action to take. I feel the Lord called me to nursing as a mission, so that's the way I see it. I pray before I come to work. I don't walk in the patient's room and stop and pray. I think He allows me to be aware of what patient's needs are. I don't think it's a mystical thing. I just see the patient as a whole person. It's not just giving pills and taking vital signs.	Collaboration	Collaboration with God/Spirit
258	2	P28	I kind of eliminated some things He was diabetic, so I checked his blood sugar and it was OK. I increased his oxygen flow a little bit, and it didn't bring his oxygen sat up much. It was a little low, but not enough to result in what was going on. So, I called RRT to get some help with him.	Assessment (Combined)	Objective + Visual
259	3	P28	Having nursed a thousand years, I pick up on things like low blood sugar, and I know when to call RRT.	Historical Experience (Trust Feelings)	Knowing something is wrong comes with experience
260	4	P28	I noticed that he looked different. I think I called in RT (respiratory therapy) to take a look at him because the oxygen saturation was low. But, mostly, it was just because he looked so different and I couldn't put my finger on what was going on with him.	Assessment (Combined)	Objective + Subjective

261	5	P28	It's knowing the patient. It's not just the vital signs but seeing their affect. Seeing the whole patient—not just the numbers or fact. Yes, but it is borne out of having experience with patients. It's like a patient with a low blood sugar. You might think they are crazy or sleepy; after being a nurse for a long time, you know that it's blood sugar. You just know the patient is in trouble. Having the impression or thinking that something is a certain way. I don't think so. I don't notice anything. I might get a little anxious. I don't want to miss anything. I might get a little on edge, but nothing else.	Assessment (Combined)	Objective + Emotional Reaction + Experience
262	1	P29	After going to the room and make the initial evaluation, somewhere during the shift the patient changed, became less responsive, poor eye contact. Evasive—something is not the same.	Assessment (Interaction)	Change in patient (less responsive)
263	1	P29	It has nothing to do with the physical or parameters for calling RRT.	Assessment (Subjective)	Not vital signs
264	1	P29	You just know something is not right. It's not something you can really put your finger on...It makes you think about them all the time	Emotional Reaction	Feel preoccupied
265	1	P29	I really think the patient is telling us something is wrong. They keep calling us; they just have an insecure, desperate look in their eyes. But, when you leave, they find another excuse to call. You can almost track it.	Assessment (Interaction)	Change in patient (insecure, desperate)

266	2	P29	He had a high blood pressure and I had a PRN and gave it, but nothing helped. And, he kept saying he was having a terrible pain in the back of the head. We called the doctor, and she ordered to give the blood pressure med again—the pressure was climbing, climbing and climbing. Finally, the third time, we called RRT. Sometimes, it's not just a number with the pressure—there's something else going on. I didn't like the way I felt.	Assessment (Combined)	Objective + Subjective
267	3	P29	As you get more experience, you look back and see where you could have intervened.	Historical Experience (Trust Feelings)	Knowing something is wrong comes with experience
268	3	P29	When you are you young, you don't want to look stupid or be wrong. Now, I don't care; I would rather be wrong and the patient be OK.	Historical Experience (Confidence)	Hesitant when inexperienced
269	4	P29	I just always remember that feeling when I saw his eyes. It was like somebody drowning—you can see right to their soul. You don't want to leave them, you don't want to take your eyes off them—not that it's going to help. You just know that you need more than one brain going to solve the problem.	Assessment (Visual)	Patient does not look right
270	5	P29	You just dip into that patient's room a little more often. Just check on them a little more often. You just know. It just keeps bugging you. You are not going to be able to concentrate on your charting. You are going to be in another patient's room and think that you need to go by and see that patient again; you just get a knot in your stomach. Because, they are just not right	Assessment (Combined)	Objective + Subjective

271	1	P30	So, you just go through everything trying to determine what is wrong. You check the blood sugar, neuro checks, trying to find the underlying cause. You might see a slight decline in vital signs or trends.	Assessment (Objective)	Vital signs
272	1	P30	Maybe the patient is declining. It's like something you are feeling, but you don't have solid proof of it.	Assessment (Subjective)	Something is wrong
273	1	P30	Sometimes I feel like an anxious feeling- like I need to stay with that patient like an anxiety type thing that I need to stay with that patient. I feel like I am missing something	Emotional Reaction	Feel anxious
274	2	P30	I call a nurse that I have confidence in that compliments the way I work. We both assess the patient and I ask her what she thinks.... Then we call RRT.	Collaboration	Collaboration with experienced nurse
275	2	P30	We look back at trends in vital signs to see if there's something we have missed.	Assessment (Objective)	Vital signs
276	3	P30	I think that working as an ER nurse in a small hospital contributed to my experience.	Historical Experience (Trust Feelings)	Experience comes from working in small hospital
277	3	P30	I think for me personally intuition has a part in it.	Historical Experience (Trust Feelings)	Intuition comes with experience
278	3	P30	I was lost as a new nurse until I worked a lot with patients.	Historical Experience (Confidence)	Hesitant when inexperienced
279	3	P30	I have oriented new nurses—some pick up on things better than others. For some it is learned, for others it is intuitive.	Education	Education is beneficial

280	4	P30	If it's intuitive, it's a nagging anxiety that something is going on. Many RRT's nurses act like they are harassed. They want to see a blood pressure or an oxygen sat. One said, "Why did you call this, there's nothing going on." They want to see something. Even if you say, "I feel like something is wrong with this patient," they want something specific.	Assessment (Subjective)	Something is wrong
281	5	P30	I feel like an anxiety—like a chest discomfort. I just feel anxious. I feel sweaty palms. I get palpitations. Like I am missing something....I think that's what causes it. Most of the time, if we have something like that going on, the other nurses will pitch in and you can call on them to check that patient to help see what is going on. I will call the charge nurse and say will you check this patient for me? I will just go on and call RRT and get another set of eyes on them. I get this feeling in my gut that something is wrong. I take it very seriously. I don't know where it comes from, but, as you work with people you start to sense this.	Assessment (Combined)	Objective + Emotional Reaction + Collaboration
282	1	P31	A lot of times it is change in objective situation—vital signs, level of consciousness.	Assessment (Objective)	Vital signs
283	1	P31	Sometimes the patient just doesn't look right—and I feel there's something wrong. There's a change in their appearance. I just notice they are a little different.	Assessment (Visual)	Patient does not look right

284	2	P31	I would say the objective picture is the main thing; however, it's not everything. It can just be a change in how the person looks. It could just be the "feel of the room." I am looking at the patient and the situation seems more dire. Objective situation, vital signs, telemetry strips, patient verbalizations are the main things that prompt me to call RRT.	Assessment (Combined)	Objective + Subjective + Visual + Interaction
285	3	P31	If I think the patient is in danger, I will call RRT. I don't want to let the patient down. There are times I look at a patient and think I should call	Historical Experience (Trust Feelings)	Knowing something is wrong comes with experience
286	3	P31	When RRT first started I wasn't sure about it.	Historical Experience (Confidence)	Hesitant when inexperienced
287	4	P31	I called about a low blood pressure. But, the real reason I called was because I walked in the room and something felt wrong. So, I went ahead and called the RRT.	Assessment (Subjective)	Something is wrong
288	4	P31	It was just that feeling that something was different, just that laser focus.	Assessment (Subjective)	Something is different
289	5	P31	The only reason I got the blood pressure was because something was different...Like the fist fight, I was taking action....laser focus, hyper-awareness. Just kind of a feeling of needing to do something, to take action. I don't ignore it any more. I just go ahead and deal with it.	Assessment (Combined)	Objective + Subjective
290	1	P32	My instinct was the most important contribution. I mean nursing instinct.	Assessment (Subjective)	Instinct

291	1	P32	You can tell right away that something is wrong with the patient when you look at them. I can't explain it; but you know right away something is wrong with the patient. I think that mostly why I call RRT. You look at the patient and the vitals are OK. But, you can look at them and you can tell...there's just this look on their (the patient's) face.	Assessment (Visual)	Patient does not look right
292	2	P32	Patient's verbalization of what they feel is first. Then, usually if it's vital signs, pain, location of pain, oxygen saturation that are problematic, we call RRT.	Assessment (Combined)	Objective + Interaction
293	3	P32	I think every RRT is different, so I don't think they are connected.	Historical Experience (Not connected)	Experience is not connected
294	4	P32	Mostly, it's just that I felt something was wrong. I just had a bad feeling about the patient even though vitals were OK. Sometimes my assessment, vitals, oxygen saturation, labs or techs report something wrong that make you think to call, but sometimes everything checks out ok; and, I just think I need to call.	Assessment (Subjective)	Something is wrong
295	5	P32	Patient's condition, also, medical history. Sometimes we get a lot of patients who don't get a good history or lab results. When they get to the floor from the ER, we review everything. It's part of my experience. The family input is important; they are allowed to call RRT, too. My heart rate is different. It beats faster. There's a lot going on in my mind. I cannot explain it, but I know something is wrong. It's hard to explain; you are getting scared because you don't know if it's right or wrong. It's just a kind of weird feeling—you just know something is wrong. When RRT comes I can relax.	Assessment (Combined)	Objective + Subjective + Emotional Reaction + Collaboration

Appendix G

Frequencies of 81 Open Codes

Frequencies of 81 Open Codes

Open Code	Frequency	Percent
Objective + Subjective	32	10.8
Vital signs	26	8.8
Something is wrong	22	7.5
Confidence comes with experience	15	5.1
Feel anxious	14	4.7
Patient does not look right	11	3.7
Gut feeling	10	3.4
Knowing something is wrong comes with experience	9	3.1
Trust in feelings comes with experience	9	3.1
Change in patient	7	2.4
Feel concerned	7	2.4
Heart rate increases	7	2.4
Hesitant when inexperienced	7	2.4
Objective + Subjective + Collaboration	7	2.4
Collaboration with experienced nurse	6	2.0
Feel preoccupied	6	2.0
Feeling comfortable comes with experience	5	1.7
Lack of confidence when inexperienced	5	1.7
Change in how the patient looks	4	1.4

Collaboration with God/Spirit	4	1.4
Objective + Collaboration	4	1.4
Objective + Interaction	4	1.4
Assessment comes with experience	3	1.0
Feel not able to take care of patient	3	1.0
Knot in stomach	3	1.0
Objective + Emotional Reaction + Collaboration	3	1.0
Blood pressure increases	2	0.7
Change in patient (quiet)	2	0.7
Collaboration with family	2	0.7
Inexperienced nurses follow protocols	2	0.7
Instinct	2	0.7
New nurses should acknowledge feelings	2	0.7
No gut feeling when inexperienced	2	0.7
Protocols	2	0.7
Assessment skills	1	0.3
Change in patient (insecure, desperate)	1	0.3
Change in patient (less responsive)	1	0.3
Change in patient (not answering questions)	1	0.3
Change in patient (not talking)	1	0.3
Change in patient (talking)	1	0.3
Collaboration with Techs and PCPs	1	0.3

Diagnosis	1	0.3
Difficulty breathing	1	0.3
Doubtful when inexperienced	1	0.3
Education is beneficial	1	0.3
Experience comes from working in small hospital	1	0.3
Experience is not connected	1	0.3
Feel excitement	1	0.3
Feel stress	1	0.3
Feeling at the back of your head	1	0.3
Fight or flight	1	0.3
Gut feeling comes with experience	1	0.3
Hyperactivity	1	0.3
Inexperienced nurses do not trust feelings	1	0.3
Inexperienced nurses have feelings	1	0.3
Intuition comes with experience	1	0.3
Lab tests	1	0.3
More proactive when experienced	1	0.3
New nurses need education	1	0.3
New nurses need training	1	0.3
Not vital signs	1	0.3
Objective + Emotional Reaction	1	0.3
Objective + Emotional Reaction + Experience	1	0.3

Objective + Interaction + Collaboration	1	0.3
Objective + Subjective + Emotional Reaction + Collaboration	1	0.3
Objective + Subjective + Interaction	1	0.3
Objective + Subjective + Visual	1	0.3
Objective + Subjective + Visual + Interaction	1	0.3
Objective + Visual	1	0.3
Patient does not look comfortable	1	0.3
Patient is just a little off	1	0.3
Patient is not normal	1	0.3
Respiration	1	0.3
Something could happen	1	0.3
Something is different	1	0.3
Subjective + Collaboration	1	0.3
Sweating	1	0.3
Tells new nurses should acknowledge feelings	1	0.3
Thinking critically	1	0.3
Visual + Emotional Reaction + Collaboration	1	0.3
Total	295	100.0

Appendix H:
Theoretical Model

