Parent Presence During Invasive Procedures: The Implementation of a Clinical Practice Guideline and Educational Initiative

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Parent Presence During Invasive Procedures:
The Implementation of a Clinical Practice Guideline and Educational Initiative

Amy Beth Ditzel, DNP
University of Connecticut, [2016]

Abstract

The purpose of this study was to evaluate the impact of a multifaceted intervention in the neonatal intensive care unit. The first research question was: Does the implementation of a Clinical Practice Guideline (CPG) promoting parent presence during invasive NICU procedures implemented through a multifaceted educational intervention increase healthcare provider comfort with parent presence? The second research question was: Is parent emotional experience associated with being present during invasive NICU procedures different after the implementation of a CPG? The theoretical framework used was the American Association of Critical-Care Nurses’ Synergy Model for Patient Care, which states that patient outcomes are optimized when patient characteristics and needs are in alignment with nurse competencies.

The study was a time series design that occurred over a six-month period. The intervention involved the dissemination of an existing CPG, an educational initiative, laminated clinician reminder pocket cards, and feedback of performance measurement and process of care data. The data collection tools included five surveys that were adapted from a 2012 study to be applicable to the specific study setting, which was a community based, level III NICU in the northeast.

Research questions number one and two were answered using the mixed model method of repeated measures ANOVA. Healthcare providers reported a significant increase in comfort with offering parent presence during invasive procedures (p<0.0001), and feelings of
preparedness related to 1) Preparing the parent to be present (p<0.0001), 2) Supporting the parent during a procedure (p<0.0001), and 3) Assisting the parent who is unable to tolerate evolving events (p<0.0001). Most parents (96.2%) who participated in the survey reported that they would like the option to be present for their child’s invasive procedure. Most (86.8%) who had stayed for the procedure stated that they would make the same choice for future procedures. Parent responses were similar before, during, and after the study intervention.

Study limitations included a single study site, a relatively small study sample, and weather-related circumstances decreasing participation in training sessions. The study design was such that parents were surveyed a single time, limiting the ability to compare experiences before and after the study intervention.
Parent Presence During Invasive Procedures:
The Implementation of a Clinical Practice Guideline and Educational Initiative

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at the
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Doctor of Nursing Practice Dissertation

Parent Presence During Invasive Procedures:
The Implementation of a Clinical Practice Guideline and Educational Initiative

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# Table of Contents

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter One</td>
<td>1</td>
</tr>
<tr>
<td>Chapter Two</td>
<td>13</td>
</tr>
<tr>
<td>Chapter Three</td>
<td>35</td>
</tr>
<tr>
<td>Chapter Four</td>
<td>52</td>
</tr>
<tr>
<td>Chapter Five</td>
<td>69</td>
</tr>
<tr>
<td>References</td>
<td>84</td>
</tr>
<tr>
<td>Appendix A</td>
<td>91</td>
</tr>
<tr>
<td>Appendix B</td>
<td>92</td>
</tr>
<tr>
<td>Appendix C</td>
<td>95</td>
</tr>
<tr>
<td>Appendix D</td>
<td>99</td>
</tr>
<tr>
<td>Appendix E</td>
<td>102</td>
</tr>
<tr>
<td>Appendix F</td>
<td>105</td>
</tr>
</tbody>
</table>
Chapter One

Introduction

Background

Having a baby is one of the most significant events in a person’s lifetime. It is a time that is often filled with joy and happiness. For parents of infants in the Neonatal Intensive Care Unit (NICU), however, that time can instead become filled with stress, anxiety, and fear. Infants who are born prematurely, or who have complications surrounding birth requiring a higher level of care than can be provided in a typical newborn nursery, are often admitted to a NICU. This disruption of the normal childbirth experience can contribute to difficulty for new parents in achieving comfort in their newfound role (Miles, Holditch-Davis, Burchinal, & Brunssen, 2011).

There was a time where separating a hospitalized child from their parents was the societal norm. In the early 20th century, mothers were routinely separated from their newborns as they recovered from childbirth due to scientific research at this time that demonstrated decreased rate of infection and neonatal deaths through separation. However, there was little regard for the emotional impact this separation would have upon the patients as well as their families (Gooding et al, 2011).

Childbirth was only one of many circumstances where a hospitalized child was separated from his or her parents. In the 1900’s, hospitalized pediatric patients were routinely separated from their parents for extended periods of time. At that time, illnesses could cause prolonged hospitalizations, and even young children were routinely prevented from seeing their families during their hospitalizations. These separations caused significant emotional trauma that the patients reported even as they aged into their geriatric years (Jolley & Shields, 2009). There was a shift around the middle of the century when the role of the parent began to be recognized as
incredibly important for pediatric patients. This was the beginning of the concept of family centered care (Gooding et al., 2011; Jolley & Shields, 2009).

Family centered care has since been recognized as being essential to patient care. The Institute of Medicine identified it as one of the attributes of quality healthcare (O’Malley, Brown, & Krug, 2008). Allowing parents to be present at all times is one of the hallmarks of family centered care in the pediatric setting. There are no set visiting hours and parents are even welcome to stay during their child’s invasive procedures (Eichner et al., 2012; Gooding et al., 2011; Kamerling, Lawler, Lynch, & Schwartz, 2008).

Despite the recognition of the importance of family centered care, along with the notion that parent presence during procedures is part of family centered care, resistance to these recommended practices among healthcare providers remains (Duran et al., 2007). Although parent presence during resuscitation is becoming more widely accepted (Baumhover and Hughes, 2009), resistance to parent presence during otherwise routine invasive procedures on the part of healthcare providers continues. There are a variety of reasons for the discomfort that caregivers feel with the concept of parent presence during invasive procedures. Commonly cited are concerns that the family will be traumatized by the stress or graphicness of the experience; that the family will interfere with the care of the child; the family will not understand the experience; and that the ability of the healthcare provider to deliver quality care will be impeded due to increased stress upon the healthcare provider (Beal, Decker, & Gibson-Young, 2012).

However, there have been multiple studies that have revealed these fears to be unfounded. An extensive review of the literature found that most parents desired the option to be present during their child’s invasive procedure; and of those that did stay very few regretted that decision (Dingeman et al., 2007; Duran et al., 2007; Mangurten et al., 2006). Parents felt that
their children were helped by having a parent present during an invasive procedure, and the parents themselves experienced less anxiety related to their child’s invasive procedure when they were present (Dingeman et al., 2007).

Despite the reported concerns healthcare providers have regarding parent presence during invasive procedures, those who have experience with the clinical practice seemed to benefit from parent presence during invasive procedures (Dingeman et al., 2007; Mangurten et al., 2006). They reported feeling that parent presence during invasive procedures helped to develop stronger relationships with the parents and contributed to parent education. They also felt that the parents contributed to the medical team during the invasive procedures by providing pertinent medical information about the child and helping to calm or restrain the child when necessary (Dingeman et al., 2007).

**Significance**

When an infant is admitted to the NICU, they frequently undergo multiple invasive procedures including venipuncture, IV placement, nasogastric tube placement, intubation, and lumbar puncture, among other procedures. These procedures are stressful not only for the infant, but for the parents as well.

Staff nurses provide a significant amount of care to the fragile neonates that populate NICUs. These nurses also perform the majority of the most common procedures, such as venipuncture, peripheral IV placement, and nasogastric tube insertion. Even if they are not the ones directly performing the procedure, the staff nurse is also involved in assisting with many more invasive procedures, such as intubation, chest tube insertion, lumbar puncture, and central intravenous line placement, among many others.
Invasive procedures are stressful by nature. In the NICU setting, an infant undergoing an invasive procedure is already in a compromised state of health, which is stressful for the patient as well as for the family members. The discomfort associated with many invasive procedures increases this stress. The staff nurses are the ones who primarily support stressed patients and family members.

The need to manage such stress presents an opportunity to provide significant support and education. By giving the staff nurses the tools necessary to increase their comfort level with handling these stressful situations, they will be better equipped not only to help patients and family members cope with the stress associated with invasive procedures, but also to cope with the stressful situation better themselves.

**Purpose of Practice Change**

Multiple organizations support parent presence during invasive procedures, including the American Academy of Pediatrics, the American Heart Association, the Emergency Nurses Association, the American College of Emergency Physicians, and the Society of Critical Care Medicine, among others (Dingeman et al., 2007). However, there remains a significant degree of discomfort amongst healthcare providers regarding the concept of having parents present during an invasive procedure, despite evidence that it may be beneficial to all parties involved (Dingeman et al., 2007; Mangurten et al., 2006). Despite the discomfort felt by healthcare providers, remaining present for their child’s invasive procedure has been shown to be beneficial to parents. Studies have found that being present for their child’s invasive procedure has increased parents’ understanding of their child’s condition and enabled them to provide comfort to their child (Dingeman et al., 2007; Duran et al., 2007; Mangurten et al., 2006). The tension
PARENT PRESENCE DURING INVASIVE PROCEDURES

between what is best for patients and family members and what is best for healthcare providers requires attention.

The goal of this study was to implement a multifaceted intervention. The intervention included the dissemination of a newly developed clinical practice guideline (CPG) regarding parent presence during invasive procedures in a NICU. The intervention also included an educational intervention designed to increase healthcare provider comfort with parent presence during invasive procedures. The educational intervention also aimed to train healthcare providers to provide parents with education and support during their child’s invasive procedure. Outcomes that were evaluated included whether healthcare provider comfort with parent presence during invasive procedures was impacted by the intervention and whether parental emotional experience of their presence during their child’s invasive procedure was altered after the intervention.

Theoretical Framework

The Synergy Model for Patient Care guided the development of the study. Developed by the American Association of Critical-Care Nurses in the early 1990s, the Synergy Model emphasizes the importance of the needs of the patient and their family. It is these needs that should drive the competencies of the nurse. The Synergy Model states that when patient and family characteristics align with the nurse’s competencies, patient outcomes are optimized (Hardin & Kaplow, 2005). For example, if a nurse is working with a patient of a certain cultural background, and is completely unfamiliar with the cultural norms and values that are important to that patient, it will be quite difficult for that nurse to meet the needs of the patient. Additionally, the patient may be offended or embarrassed by breaches of their cultural taboos. Another example would be a nurse who is working with a patient but is unfamiliar or lacks
sufficient clinical experience with the particular diagnosis for which the patient is being treated. This lack of knowledge and experience could delay the identification of clinical decompensation, placing the patient at risk for harm. The diagram below depicts the relationships between the nurse, the patient, and outside influences (Curley, 1998; p.69, reprinted with permission, see appendix A).

There are eight characteristics associated with patients, families, and systems in the Synergy Model for Patient Care. These characteristics include: resiliency, vulnerability, stability, complexity, resource availability, participation in care, participation in decision-making, and predictability. Resiliency refers to one’s ability to recover from a negative experience using coping mechanisms. Vulnerability refers to the fragility of the patient, family, or system. Stability refers to how labile the patient, family, or system is. How adept are they at maintaining equilibrium? Complexity refers to both the patient-family dynamics, as well as the medical complexities of the patient. Resource availability refers to knowledge and skills, psychological support, and the more commonly thought of financial resources. Participation in
care and participation in decision-making refer to the patient’s as well as the family’s participation in care and decision-making. Predictability usually refers to the patient’s illness, in terms of whether or not it is following its expected course. The characteristics are evaluated using a 5 level scale, with level 1 demonstrating a low amount of the quality, and level 5 demonstrating a high amount of the quality (Hardin & Kaplow, 2005).

The nurse’s competencies are also evaluated on a five level scale, with level 1 demonstrating competency and level 5 demonstrating expertise. The nursing competencies included in the Synergy Model for Patient Care are: clinical judgment, advocacy and moral agency, caring practices, collaboration, systems thinking, response to diversity, facilitation of learning, and clinical inquiry (Hardin & Kaplow, 2005).

Clinical judgment refers to the nurse’s ability to synthesize data and critically think. For example, level 1 of clinical judgment would be a nurse who adheres to protocols, but cannot interpret complex data. Advocacy and moral agency refers to the nurse’s ability to be an advocate for their patient and the patient’s family, as well as the ability to resolve ethical dilemmas. Caring practices refers to the nurse’s ability to enhance the environment through vigilance and responsiveness, among other attributes. Collaboration represents the ability to work effectively with other people, including the patient themselves, their family, and other healthcare providers. “Systems thinking” refers, in part, to the nurse’s ability to take advantage of the resources available for the patient and their family. Response to diversity is the ability of the nurse to acknowledge and respect differences in patients and their families. Facilitation of learning refers not only to patient and family education, but also to facilitating learning opportunities for other members of the healthcare team. Clinical inquiry refers to the initiative of the nurse to look for opportunity to improve practice (Hardin & Kaplow, 2005).
The Synergy Model for Patient Care has been applied to numerous facets of nursing care. It has been the basis for management topics such as patient cohorting, as described in a 2009 article that found that nurses perceived that cohorting pediatric ICU patients with cardiac disease was beneficial to the patients. However, those nurses also reported feeling they lacked sufficient knowledge of cardiology in the pediatric population to provide optimal patient care. These nurses were using the needs of the patient population, pediatric cardiac ICU patients, to dictate their competencies (Kane and Preze, 2009). The Synergy Model has also been applied to nurse education and training, such as training experienced critical care nurses in tele-medicine, so as to meet the needs of patients who do not have physical access to the care they require (Davis et al, 2012). A 2011 study used the Synergy Model to develop a performance assessment for advanced practice nurses, using the nursing competencies as a framework for assessment (Scarpa & Connelly, 2011). The Model is also applied to direct patient care such as practice improvement. A 2008 article encourages the critical care nurse to embrace the Synergy Model’s tenet of clinical inquiry to seek out best practices (Kuriakose, 2008). The model is also applied when providing a holistic approach to patient care by supporting the spirituality of the individual patient as well as their family members (Smith, 2006).

To apply the Synergy Model to the idea of parent presence during invasive procedures, one must look at each of the characteristics of neonatal patients. The infants in the NICU are nonverbal and therefore unable to express their needs effectively. It becomes the responsibility of the parent or healthcare provider to interpret a cry or change in vital sign as an indication of stress or discomfort. These sometimes subtle indicators may be difficult for new parents to interpret. Also, in the case of many NICU patients who are extremely ill or premature, the
majority of the care is provided by the healthcare providers, with parents providing little to no hands on care initially, due to the fragility of their infant’s health.

The resiliency of this patient population is highly variable. However, the parents are most likely to know which coping mechanism works best for the child. The neonatal population is arguably the most vulnerable of patients. The characteristics of stability, complexity, and predictability vary among patients, however most hospitalizations require invasive procedures. Resource availability also varies, however in terms of psychological support; the parents are the most common resource.

Nursing competencies should be driven by patient needs and characteristics. In the context of parent presence during invasive procedures, the nursing competencies discussed in the Synergy Model for Patient Care can certainly be applied. Clinical judgment discusses integrating evidence based practice guidelines, such as the CPG to be implemented in the conduct of this study. The nurse should advocate for her patient’s family to have the option to stay during invasive procedures, as this practice has been endorsed by multiple professional organizations as described previously (Dingeman et al, 2007). The nurse should use caring practices to engage the family to support the patient during invasive procedures. The nurse can collaborate with the patient’s family and the healthcare team to ensure the parent has the option to stay during invasive procedures. By using systems thinking, the nurse can help the family understand the invasive procedure by seeking out alternative educational resources. Response to diversity is extremely important, as each family unit responds to situations differently. The nurse must be able to understand the perspective of the family, even when it differs from his or her own. Facilitation of learning is a role the nurse can fulfill during many invasive procedures. The nurse can help to explain the procedure and intervention to the family when they are present.
during an invasive procedure. Clinical inquiry is the competency that would allow the nurse to facilitate the practice change necessary to begin routinely allowing parents to remain present during invasive procedures.

**Study Questions:**

Questions addressed during the conduct of the study were:

1. Does the implementation of a clinical practice guideline (CPG) and an educational initiative regarding parent presence during invasive procedures in a Neonatal Intensive Care Unit (NICU) increase healthcare provider comfort with parent presence during invasive procedures?

2. Are parental emotional experiences of their presence during invasive procedures different after the implementation of a CPG and an educational initiative regarding parent presence during invasive procedures in a NICU?

**Definition of Variables**

**Independent variables.**

Conceptual Definition: The Institute of Medicine defines a CPG as “systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances” (Graham et al, 2011; p.16).

Operational Definition: The CPG implemented provided “information about making the decision to offer parent presence, preparing the parent to be present, determining whether a parent facilitator would be needed, and team and family debriefing” (Curley et al, 2012; 1134).

Conceptual Definition: The educational initiative to be implemented is the Program to Enhance Relational and Communication Skills (PERCS program), which is defined by
PARENT PRESENCE DURING INVASIVE PROCEDURES

Curley et al as a “parent facilitator training workshop, employing high-realism simulation with pediatric mannequins and professional actors portraying parents” (Curley et al, 2012, p 1134).

Conceptual Definition: An Invasive Procedure is defined as “a procedure requiring insertion of an instrument or device into the body through the skin or a body orifice for diagnosis or treatment” (Stedman’s Medical Dictionary, 2000).

Operational Definition: Invasive Procedures involved in this study include: peripheral IV placement, central venous or arterial catheter placement or removal, venipuncture, nasogastric tube placement, urinary catheterization, intubation, extubation, chest tube placement or removal, thoracentesis, lumbar puncture, circumcision, or other procedures that may induce pain or stress for the infant or child.

Dependent variables.

Conceptual Definition: Healthcare provider comfort with parent presence during invasive procedures is defined as, “clinicians’ sense of comfort in providing parents with the option to be present during their children’s invasive procedures” (Curley et al, 2012, p. 1134).

Operational definition: For the purposes of this study, healthcare provider comfort with parent presence during invasive procedures was measured using provider responses to the Pre-Intervention and Post-Intervention Perception Surveys.

Conceptual Definition: Parental emotional experience of being present during invasive procedures is defined as whether the parents felt they were provided “with the information they needed to support their children through procedures” as well as if they felt that their presence during the child’s invasive procedure was beneficial to the child or the parent (Curley et al, 2012).
Operational definition: For the purposes of this study, **parental emotional experiences of being present during invasive procedures** were measured using linked Parent, Facilitator, and Healthcare Provider Invasive Procedure Surveys. The Facilitator and Healthcare Provider Invasive Procedure Surveys were administered concurrently with the Parent Invasive Procedure Surveys in order to correct for possible single responder dominance.

**Conclusion**

In the past, parents were prevented from being with their children during hospital stays or invasive procedures. Over time, the medical community has become more accepting of parents being present during resuscitation. However, hesitation remains at the notion of parents being present during invasive procedures.

Family centered care has been identified as critical to quality patient care. One of the aspects of family centered care is not limiting parent presence, including during invasive procedures. Healthcare providers cite concerns of impaired quality of care, parent stress, and parental interference during invasive procedures as potential reasons for their lack of comfort with parent presence during invasive procedures.

The goals of this study were to determine whether the implementation of a multifaceted intervention will alter healthcare provider comfort with parent presence during invasive procedures, and to evaluate the impact of the multifaceted intervention on parental emotional experience of their presence during their infant’s invasive procedures. The study involved implementing a multifaceted intervention which involves: 1) the dissemination of a CPG; 2) providing healthcare provider education and training focused on communication with parents during stressful events; 3) laminated clinician reminder pocket cards; and 4) feedback of performance measurement and process of care data. The measurement tools surveyed healthcare
PARENT PRESENCE DURING INVASIVE PROCEDURES

provider comfort with parent presence during invasive procedures, and paired healthcare provider/parental emotional experiences of parent presence during invasive procedures.
Chapter Two

Literature Review

Introduction

Parent presence during invasive procedures continues to be a topic of intense discussion in healthcare. The purpose of this clinical practice dissertation is to implement a clinical practice guideline (CPG) regarding parent presence during invasive procedures in the Neonatal Intensive Care Unit. Following the implementation of a CPG as part of a multifaceted intervention, the study evaluated changes in healthcare provider comfort with parent presence during invasive procedures and changes in parental emotional experiences as a result of their presence during an invasive procedure of their infant.

A review of the literature was performed in an effort to gain insight into the current state of the science regarding the variables included in the study. The databases searched included Cinahl and PubMed. The terms searched included “parent presence during invasive procedures,” “family presence during invasive procedures,” “family centered care,” and “Synergy Model.” Exclusion criteria included any articles published prior to 2006. The concept areas explored were the Synergy Model for Patient Care, healthcare provider comfort with parent presence during invasive procedures, the impact of CPGs, and parent perception of parent presence during invasive procedures.

Theoretical Literature

The Synergy Model for Patient Care was developed by a panel of experts appointed by the American Association of Critical Care Nurses in the early 1990s. The model describes characteristics that are found in all patients in varying degrees, as well as competencies that are present in all nurses in varying degrees. The model postulates that patient outcomes are
optimized when patient characteristics are in alignment with nursing competency, meaning that the strengths of the staff nurse are appropriate for the patient population with whom they are working. For example, a nurse who works with a highly vulnerable population, such as infants or children, will likely be required to act as an advocate on behalf of the patient, since they would be unable to do so. The patient characteristic of vulnerability requires the strength of the nursing characteristic of advocacy (Hardin & Kaplow, 2005).

One interesting aspect of the Synergy Model is that its development was the result of a committee rather than the work of an individual. The model’s content is reflective of the collective wisdom of the committee. The content has been validated by multiple studies (Brewer et al., 2007; Hook, Ware, Siler, & Packard, 2012; Kohr, Hickey, & A., 2012; Marino & Marino, 2000; Siow, Wypij, Berry, Hickey, & Curley, 2013; Tejero, 2012).

The Model describes eight characteristics that are present to varying degrees in all patients, and are what should be driving nursing competencies, according to the Synergy Model. These characteristics are:

- Resiliency- a patient’s ability to use their coping mechanisms to recover from an issue or difficulty.
- Vulnerability- a patient’s susceptibility to threats to their well-being.
- Stability- a patient’s ability to maintain a balance, physiologic or psychological.
- Complexity- reference to medical, social, or environmental difficulties.
- Resource Availability- reference to “technical, fiscal, personal, psychological, social, or supportive” resources available to the patient, family, or community (Hardin & Kaplow, 2005, p5).
PARENT PRESENCE DURING INVASIVE PROCEDURES

- Participation in care- how engaged the patient and their family is in providing necessary care.

- Participation in Decision Making- the ability or inclination of a patient or family member to understand the information provided and then make informed decisions regarding the care of the patient.

- Predictability- the degree to which a patient follows the expected course.

  (Hardin & Kaplow, 2005).

Once the patient characteristics were identified and described, a study was performed by the AACN to evaluate the construct validity of the patient characteristics. In 1997, a survey was sent to 3,557 registered nurses, 871 of whom responded, for a return rate of 24%. The survey collected data regarding the patient characteristics that applied to the respondents’ patients in their work setting. Using a multivariate analysis of variance, the researchers found a strong correlation between patient acuity and six of the eight patient characteristics (all except resource availability and participation in care) (Curley, 2007).

Another extensive study was conducted in 2007 to evaluate the internal consistency reliability and construct validity of the patient characteristics (Brewer et al., 2007). The study was performed in two phases, the first of which involved a panel of eleven expert nurses reviewing the records of 481 patients who ranged in age from 1 to 95 years old. The second phase involved 116 “naïve” nurses rating the characteristics of 279 patients. The study showed that the AACN’s Synergy Model for Patient Care’s patient characteristics have satisfactory internal consistency reliability as well as construct validity. The construct validity was evaluated using an exploratory factor analysis, which found that 2 factors (intrapersonal and interpersonal interaction factors) were the causes of most (>69%) of variance. Discriminant validity was
evaluated using an analysis of variance that the eight patient characteristic scores were closely correlated with the acuity of the patient, with $F>10.6$ for expert raters. It is also important to note that the study validates that applicability to a wide range of patients, from the very young to the very old and from the critically ill to those with less serious medical issues (Brewer et al., 2007).

The Synergy Model describes eight nursing competencies, or characteristics, that are present in varying degrees in nurses. According to the American Association of Critical-Care Nurses these “nurse characteristics can be considered competencies that are essential for those providing care to the critically ill” (Hardin & Kaplow, 2005; p. 5). The characteristics are:

- Clinical judgment- “the clinical reasoning utilized by a health care provider in the delivery of care” (Hardin and Kaplow, 2005, p.6)
- Advocacy- Working for the benefit of another to ensure their needs are met.
- Caring practices- Providing compassion and support for the patient as well as their family.
- Collaboration- Promoting interdisciplinary teamwork for the benefit of the patient and their family.
- Systems thinking- Maintaining an awareness of the intricacies of the healthcare system and how the complex nature of the healthcare system affects the patient and their family, as well as assisting the patient and family to navigate the healthcare system.
- Response to diversity- Being aware of and respectful towards the individual traits and needs of the patient and family members, and integrating this individuality into the delivery of care.
Clinical inquiry- Maintaining an ongoing effort to seek out knowledge and best practices; encouraging the use of evidence based practice in all aspects of patient care.

Facilitation of learning- Encouraging and facilitating the education of healthcare providers as well as patients and family members.

(Hardin and Kaplow, 2005)

The 1997 AACN study evaluated the nurse characteristics in addition to the patient characteristics. This was performed using a survey asking nurses to self-rate for the eight nursing characteristics. Eight hundred seventy one nurses returned the surveys, and the researchers found that there was a correlation, based on t-test scores, between nurses with more years of experience and higher self-ratings, as well as between nurses caring for higher acuity patients and higher self-ratings. This suggests that nurses who care for more acutely ill patients perceive themselves to be more competent in the eight nursing characteristics described by the Synergy Model (Curley, 2007).

The premise of the Synergy Model is that patient outcomes are optimized when the patient characteristics align with the competency of the nurse, creating synergy. Collaboration between the nurse and the patient has been shown to increase patient satisfaction as well as patient knowledge (Hook et al., 2012; Marino & Marino, 2000). The patient characteristics have been used to determine staffing as well as patient assignments (Kohr et al., 2012). Continuity of nursing care has been associated with fewer nursing related adverse events (Siow et al., 2013), which supports the model’s basis of nursing care being driven by the needs of the patient population. A bond between the patient and the nurse, often accomplished by providing continuity of care through primary nursing, as well as synergy between the nurse and patient
characteristics, showed an increase in patient satisfaction (Tejero, 2012). Figure 1 depicts Synergy Model’s relationship of the nurses’ competencies, the patients’ characteristics, and influencing factors (Curley, 1998; p.69, reprinted with permission, see appendix A).

The AACN Synergy Model for Patient Care provides a framework for providing nursing care that optimizes patient outcomes, and can be applied at the individual level, in the context of a single nurse-patient relationship (Hook et al., 2012; Marino & Marino, 2000; Tejero, 2012). The model can also be applied at an organizational level when determining staffing patient assignments, or even a legislative level when determining nurse to patient ratios (Kohr et al., 2012). A 2012 study surveyed 30 charge nurses and 32 staff nurses regarding the factors taken into consideration when deciding a patient assignment as well as the factors that contribute to the nursing workload. The researchers found that the charge nurses took all eight patient characteristics into consideration when developing patient assignments. The researchers also
found that staff nurses identified the characteristics of stability, complexity, and predictability as being the most important in determining patient care (Kohr et al, 2012).

A study published in 2000 utilized the Synergy Model to describe the needs as well as the level of acuity of patients based on the diagnosis-related groups (DRG). The researchers stratified each DRG into one of four levels of intensity or acuity. This study garnered information regarding the amount of resources a patient in each DRG may require (Doble et al, 2000). This information could be applied to organizational budgets, unit staffing plans, as well as influence insurance reimbursement. The Synergy Model provides a strong framework for nursing care, and is diverse in its applicability.

The Synergy Model was developed originally with a focus on staff nurses. It has since been applied to expanded nursing roles such as clinical nurse specialists and nurse practitioners. A 2006 study aimed to evaluate the role differences that exist between clinical nurse specialists and acute care nurse practitioners, using the Synergy Model as a framework for evaluation. There was a 35% response rate for the surveys, which resulted in 261 responses from clinical nurse specialists and acute care nurse practitioners. The respondents rated the criticality and frequency of 65 advanced practice nursing activities that were classified within the eight nursing characteristics outline by the Synergy Model. The study found that acute care nurse practitioners placed significance on the importance of clinical judgment, which the clinical nurse specialists placed more significance on the importance of clinical inquiry (Becker, Kaplow, Muenzen, & Hartigan, 2006).

The Synergy Model was originally developed with a focus on the characteristics and competencies of the staff nurse. It has since been applied to the expanded nursing role of the clinical nurse specialist as well as the role of the advanced practice nurse and nurse practitioner.
For the purposes of this study, the tenets of the Synergy Model, especially the overriding core principle of the needs of the patient driving the competency of the caregiver, were applied to disciplines outside of nursing, specifically respiratory therapy and medicine.

The Synergy Model has been shown to be applicable across patient populations and healthcare settings. The patients and families cared for in the NICU have unique characteristics and needs, and according to the Synergy Model, these traits should dictate the competencies of the healthcare providers. However, healthcare providers lack the tools needed to feel comfortable with parents remaining present during invasive procedures (Curley et al., 2012; Duran et al., 2007; Meyer et al., 2009; Nykiel et al., 2011). This illuminates the need for CPGs and education related to parent presence during invasive procedures.

Empiric Literature

The Synergy Model encourages the alignment of patient and family characteristics and healthcare provider competencies. Family members have reported the strong desire and sense of entitlement to remain present during their loved ones’ invasive procedures (Duran et al., 2007; Mangurten et al., 2006; Meyer et al., 2007). However, many healthcare providers are uncomfortable and lack training with this phenomenon (Baumhover & Hughes, 2009; Corniero, Gamell, Parra Cotanda, Trenchs, & Cubells, 2011; Duran, Oman, Abel, Koziel, & Szymanski, 2007; Miller & Stiles, 2009; Vavarouta, Xanthos, Papadimitriou, Kouskouni, & Iacovidou, 2011). Therefore, a gap has presented itself that must be bridged to optimize patient care.

CPGs have been developed across many areas of healthcare in order to standardize treatments and improve patient outcomes (Graham et al, 2011). A CPG, in addition to healthcare provider education, has been developed and implemented specifically aimed at increasing healthcare provider comfort with parent presence during invasive procedures (Curley et al.,
The empiric literature review will present information regarding the concepts of healthcare provider comfort with parent presence during invasive procedures, parent perceptions of their presence during invasive procedures, the Program to Enhance Relational and Communication Skills (PERCS), the Parent Presence during Invasive Procedures CPG, and CPGs as a general concept.

**Healthcare Provider Comfort with Parent Presence During Invasive Procedures.**

The practice of parent or family presence during invasive procedures remains varied among healthcare providers. While family presence during resuscitation is becoming more widely accepted, the concept of family presence during invasive procedures continues to elicit concern and discomfort among healthcare providers (Baumhover & Hughes, 2009; Corniero et al., 2011; Duran et al., 2007; Miller & Stiles, 2009; Vavarouta et al., 2011).

Healthcare providers report concerns for the wellbeing of the family members that witness invasive procedures, as well (Duran et al., 2007). While many articles refer to healthcare provider general discomfort with parent and family presence during invasive procedures, few studies actually report specific concerns. Duran et al. (2007) performed a descriptive study that reported specific concerns from healthcare providers regarding family presence during invasive procedures. Two hundred two nurses, physicians, and respiratory therapists responded to a survey regarding family presence during resuscitation and invasive procedures.

Commonly reported concerns held by healthcare providers regarding family presence during invasive procedures include family members being “traumatized” by the graphic nature of some invasive procedures, or become disruptive during the procedure, negatively impacting the care received by the patient (Duran et al., 2007). Healthcare providers also reported a dislike of being observed by family members while performing invasive procedures, and felt increased
PARENT PRESENCE DURING INVASIVE PROCEDURES

pressure to succeed; however these statements decreased as experience level increased (Duran et al., 2007). There were also concerns that teaching was negatively impacted by family presence during invasive procedures, due to concern that the teaching would be interpreted by the family members as indicative of incompetence (Duran et al., 2007).

Despite the concerns expressed by healthcare providers regarding parent and family presence during invasive procedures, many still support the practice (Duran et al., 2007; Miller & Stiles, 2009). Fears that performance could be negatively affected by parents being present during their child’s invasive procedure have been shown to be unfounded (Mangurten et al., 2006). In fact, parent presence during invasive procedures has been reported to be helpful in a pediatric setting by calming and distracting the child undergoing the procedure (Mangurten et al., 2006).

Cultural and societal norms relating to healthcare vary significantly throughout the world. Views on family presence during invasive procedures are not exempt from this variation. The literature has shown that parents and family members are sometimes permitted to be present during invasive procedures despite the discomfort it may elicit in healthcare providers in the United States (Duran et al., 2007; Miller & Stiles, 2009). However, parent and family presence during invasive procedures is not an accepted practice in other parts of the world. A 2011 study of health care providers’ attitudes towards family presence during invasive procedures evaluated 222 survey responses from physicians and nurses from 36 different Spanish hospitals. The researchers found that the healthcare providers in Spanish pediatric emergency departments had a significantly lower level of comfort with parent presence during their child’s invasive procedure when compared to American studies (Corniero et al., 2011). For example, only 39.7% of the hospitals allowed parents to be present during minor procedures such as blood draws, and
the percentage of hospitals that allowed parents to be present during more invasive procedures steadily declined, with no hospitals allowing parents to be present for intubation (Corniero et al, 2011). Another 2011 study evaluated attitudes towards parent presence during invasive procedures in neonatal and pediatric settings in a Greek city (Vavarouta et al., 2011). The researchers anonymously surveyed 121 nurses and physicians who were working in pediatric or neonatal departments. The majority of the respondents (73.6%) were completely unfamiliar with the concept of family presence during invasive procedures, an interesting comparison to the attitudes of American healthcare providers (Vavarouta et al., 2011).

Discomfort with parent and family presence during invasive procedures is a dynamic trait in healthcare providers. There are several factors that can influence how the healthcare providers feel about parent presence during invasive procedures at any given time. For example, as experience and confidence in one’s abilities increases, there is an increased level of comfort being observed by family members during invasive procedures (Duran et al., 2007). Cultural norms also affect attitudes towards parent and family presence during invasive procedures, either positively or negatively (Corniero et al., 2011; Kotkis & Tabak, 2008; Vavarouta et al., 2011).

Healthcare providers have expressed concern for their ability to provide uninterrupted patient care during invasive procedures, and admit insecurity while being observed performing invasive procedures (Mangurten et al., 2006). A 2006 study aimed to evaluate whether parent presence during pediatric invasive procedures did in fact impact the care provided to the patient, as well as describe the experiences of the healthcare providers and family members who were involved. Following an invasive procedure during which there were parents present, participants were surveyed. Responses were gathered from 92 healthcare providers (nurses, attending physicians, and residents and fellows). Most of the respondents (94%) reported feeling
comfortable with the parents remaining present during the invasive procedure, and the majority (89%) felt that their performance remained unaffected. The overwhelming majority of respondents (97%) reported that the parents’ presence during the procedure was not disruptive. In fact, six of the providers reported that the parents actually facilitated the procedure by calming and distracting the child (Mangurten, 2006).

A 2004 study performed at the Children’s Hospital of Philadelphia evaluated healthcare providers’ feelings towards parent presence during pediatric invasive procedures in the emergency department. One hundred four surveys were completed by attending physicians, nurses, and residents, who rated their approval of parent presence during different invasive procedures. For all respondents, comfort level with parent presence was high for minor procedures such as placement of an intravenous line (95% approval of parent presence), urinary catheterization (90% approval of parent presence), and wound suturing (97% approval of parent presence). However, comfort level decreased as the procedure intensity increased, such as chest tube placement (43% approval of parent presence), endotracheal intubation (28% approval of parent presence), and medical/trauma resuscitation (32/31% approval of parent presence) (Fein, Ganesh, & Alpern, 2004).

The respondents of the Fein (2004) study also reported the advantages and disadvantages they felt towards parent presence during invasive procedures. The advantages included the parent being able to calm the child (93%), decreased feelings of helplessness for the parent (40%), reassurance that everything was done for their child (52%), and increased parental knowledge (18%). Significant disadvantages reported included the child being affected by parental anxiety 52%), parental stress (79%), and impedance of staff performance due to
increased anxiety or distraction from having the parents present (85%) (Fein, Ganesh, & Alpern, 2004).

While cultural differences exist across the globe, acceptance of parent and family presence during invasive procedures is becoming more widespread across the United States. There remains a degree of concern and discomfort with allowing parents and family to be present during invasive procedures. This illuminates a need to bridge the gap between the feelings of accepting the practice of parent and family presence during invasive procedures in the setting of continued discomfort with the practice.

**Parental Emotional Experiences of Parent Presence During Invasive Procedures.**

When discussing parent presence during invasive procedures, the focus is commonly on the comfort and attitudes of the healthcare providers. Rarely are the perceptions and attitudes of the parents discussed in the literature. However, it is beneficial to all involved to review the literature and objectively evaluate parent and families’ perceptions of their presence during invasive procedures.

A descriptive study published in 2000 evaluated 39 family members’ experiences of their presence during 24 invasive procedures on adult patients in an emergency department. Nearly all of the family members interviewed (97.5%) expressed their feelings that it was their right to be present during their loved one’s procedure, and that they would prefer to be present during future procedures. A qualitative exploration of the experiences of the family members revealed that they felt obligated to be present during the invasive procedure, and that it helped them to understand the patient’s clinical status (Meyers et al., 2000).

A 2007 descriptive study surveyed 72 family members of adult as well as neonatal patients. The researchers found that family members not only wanted the option to be present
for invasive procedures, they felt it was their right. The majority of the family member respondents that had been present during an invasive procedure (89%) reported that they felt it was helpful to them to be present during an invasive procedure, and that it increased their understanding of the patient’s condition. Nearly all of the family member respondents that had been present during an invasive procedure (95%) reported that they would make the same choice in the future (Duran et al., 2007).

These findings are similar to those of a 2006 study that was focused on family presence during pediatric invasive procedures. The researchers surveyed 92 healthcare providers and 22 parents after 16 pediatric invasive procedures for which the parents were present. All of the surveyed parents reported that being present for their child’s invasive procedure was important for them, and was also helpful to the child. The majority (95%) reported that their presence during the invasive procedure increased their understanding of their child’s diagnosis; most (86%) stated they believed it was their right to be present during the procedure. Additionally, most of the parent respondents (82%) felt that their presence did not impact healthcare providers’ ability to care for the child (Mangurten et al., 2006).

Parents perceive their presence during their child’s invasive procedure as helpful not only to themselves, but also to their child as well as the healthcare providers. The 2006 study found that parents (91%) actively calmed and soothed their child during their invasive procedure. They also reported that they (86%) were able to provide information to the medical team, and greater than half of the respondents reported that they helped hold and position their child during the invasive procedure (Mangurten et al., 2006).

Parents have reported that they feel it is their right to have the option to be present during their child’s invasive procedure (Duran, 2007). They provide comfort to the child, and can
provide valuable information to the medical team. Parents have an increased understanding of their child’s condition, which is extremely important (Duran et al., 2007; Mangurten et al., 2006). However, there remains a paucity of data assessing parental perceptions of their presence during invasive procedures. Further studies would provide valuable support for the practice of offering parents the option to remain present during their child’s invasive procedure.

**Clinical Practice Guidelines**

Clinical practice guidelines (CPGs) have been implemented in the neonatal and pediatric settings in order to standardize practice and to optimize patient outcomes. CPGs may be related to a variety of aspects of healthcare. Many are related to a specific diagnosis, such as neonatal abstinence syndrome (Murphy-Oikonen, Montelpare, Bertoldo, Southon, & Persichino, 2012), or medication administration (McKamy, Chen, Lee, & Ambrose, 2012), or symptom evaluation (McCanny, McCoy, Grant, Walsh, & O'Sullivan, 2013). The standardization of care related to the implementation of a CPG has been shown to reduce length of stay in the hospital (McCanny et al., 2013; Murphy-Oikonen et al., 2012).

The Institute of Medicine defines CPGs as “statements that include recommendations intended to optimize patient care” (Graham et al., 2011; p25). The goal of implementing evidence based CPGs is ultimately to improve the quality of the care provided by decreasing practice variation and to shift clinical care in the direction of evidence-based practice. CPGs should be evidence based, clear and logical, and revised at appropriate intervals (Graham et al., 2011). A 2012 study aimed to evaluate the efficacy of a CPG related to neonatal abstinence syndrome (NAS) in identifying symptomatic patients, decreasing the average symptom score (Finnegan NAS score), and decreasing the average length of stay for infants with the diagnosis of NAS. The researchers found that after the implementation of the NAS CPG there was a
significant decrease in NAS scores (P <0.001), as well as length of stay (P= 0.001) (Murphy-Oikonen et al., 2012).

CPGs can be applied in many different healthcare settings. A 2012 study evaluated a CPG regarding the evaluation and treatment of a limp in a pediatric patient presenting to the emergency department (McCanny et al., 2012). Data was collected on 110 pediatric patients presenting to the emergency department with a limp, before and after the implementation of the CPG. The researchers found that after the guideline was implemented, there was a reduction in the amount of lab work (P= 0.03), and a reduced length of time spent in the emergency department (P=0.04). Most importantly, there were no incidents of missed major pathology (McCanny et al., 2012). In a time when emergency departments are overcrowded, and healthcare costs are soaring, this reduction in unnecessary usage of resources is very valuable.

While many CPGs are related to very concrete concepts such as medication administration or symptom management, the Parent Presence During Invasive Procedure CPG is related to the slightly more abstract concept of parent presence during invasive procedures. The goals remain the same: to standardize the approach of healthcare providers and to improve outcomes. The Parent Presence During Invasive Procedures CPG has been shown to be effective in increasing healthcare provider comfort with parent presence during invasive procedures (Curley et al., 2012).

**Clinical Practice Guideline Regarding Parent Presence During Invasive Procedures.**

A CPG regarding parent presence during invasive procedures was developed at Boston Children’s Hospital by a committee that included both clinicians as well as organizational leadership in the mid 2000’s (Curley et al., 2012). Subsequently, a four year long, quasi-experimental time series pre-post design study was performed. The study included three
interventions: the development of the CPG, development and training of a parent facilitator role, and inter-professional education. The CPG discusses when to offer parent presence during an invasive procedure, how to prepare the parent for the procedure, how to determine if a parent facilitator is required, and debriefing with the family and the healthcare providers. Parent facilitator training involved participation in the Program to Enhance Relational and Communication Skills (PERCS), which utilizes high fidelity simulation with a pediatric mannequin and professional actors portraying parents. Staff also received education in the form of a presentation discussing family centered care, the components of the Family Presence During Invasive Procedures Guideline, and the parent facilitator role (Curley et al., 2012).

The Curley et al. (2012) study aimed to evaluate if the implementation of the CPG and the associated education initiatives would impact the healthcare providers’ comfort with parent presence during invasive procedure. An additional objective was to evaluate the parents’ experience of being present during their child’s invasive procedure, before and after the intervention. The researchers used two surveys during the study. A total of 782 healthcare providers participated in the Clinician Perception Surveys. A total of 538 healthcare providers and 274 parents participated in the Practice Surveys, which evaluated the parent and healthcare provider experience during a particular invasive procedure.

The researchers found that higher levels of comfort with parent presence during invasive procedures were significantly higher in healthcare providers who participated in the PERCS program (P<0.001). The participants of the PERCS programs reported improved ability to prepare parents for the procedure, and to support and assist them during the procedure. After the intervention there was an increase in the number of healthcare providers who offered parents the option to be present during their child’s invasive procedure (P<0.001). There was also an
PARENT PRESENCE DURING INVASIVE PROCEDURES

increase in parents being in a more active role during the procedures (P=0.006). Both before and after the intervention, healthcare providers reported that parent presence during highly invasive procedures was more likely to negatively affect performance of the procedure (P= 0.01) and their ability to teach others about the procedure (P< 0.001) when compared to less invasive procedures (Curley et al., 2012). The parents that participated in the study who reported being prepared by healthcare providers for the procedure also reported higher levels of emotional support (P< 0.001). The parents also reported that their comfort level with their participation increased when they were given the option of whether or not they wanted to remain present for their child’s invasive procedure (P< 0.001) (Curley et al., 2012).

The CPG and subsequent study (Curley et al., 2012) took place in a pediatric setting. However, many of the studies regarding family presence during invasive procedures report data from adult patient populations. The culture of neonatology can be quite different from that of adult healthcare settings, making it difficult and possibly unwise to generalize findings from adult focused studies, and apply similar tactics in a neonatal setting. There are varied opinions and practices regarding family presence during invasive procedures. In an adult emergency department setting, there was an increased report of healthcare providers’ comfort with family presence during invasive procedures, as well as decreased concern about possible interference from family members (Nykiel et al., 2011). However, in an adult ICU setting involved in a different study, there was no significant change in attitude towards or practice regarding family presence during invasive procedures after the implementation of a guideline and educational initiative specific to family presence during resuscitation and invasive procedures (Edwards & Despotopulos, 2012).
The CPG regarding parent presence during invasive procedures has been shown to be effective in increasing healthcare providers’ comfort with having parents present during pediatric invasive procedures. Similar guidelines that have been implemented in varying adult healthcare settings have yielded variable results (Edwards & Despotopulos, 2012; Nykiel et al., 2011). Further studies of guidelines specific to parent and family presence during invasive procedures would be useful, as there is limited literature that is specific to invasive procedures.

**Program to Enhance Relational and Communication Skills**

A study published by Meyer et al (2009) specifically evaluated the impact of the Program to Enhance Relational and Communication Skills (PERCS), which was a part of the intervention in the Curley et al (2012) study, on the communication skills and relational abilities of pediatric healthcare providers. Meyer et al (2009) surveyed 106 healthcare providers, and found that the PERCS high fidelity simulation training program had an immediate positive impact on clinicians as well as a lasting impact. Nearly all of the participants reported an improvement in their “sense of preparation, communication skills, and confidence” immediately following the program, as well as five months later (93-98%). Participants also reported improved abilities in establishing relationships (90% immediately after the program, 84% five months later) and decreased anxiety (82% immediately after the program, 74% five months later). The training exercise had a significant impact on the healthcare providers who participated. The participants reported increased confidence as well as a lower level of anxiety (70%). They gained valuable insight into the perspectives of the family members of the patients (Meyer et al., 2009).

The desire for formal training on supporting and communicating with family members during stressful situations was also reflected in a British study of pediatric nurses who had been involved in family witness pediatric resuscitations (Perry, 2009). The observational study
surveyed 32 nurses who worked in pediatric acute care hospitals regarding the nurses’ knowledge and experiences with family presence during resuscitation. Two thirds of the respondents reported a positive attitude toward family presence during pediatric resuscitation; twenty-four reported having been involved in a pediatric resuscitation, and twenty of those cases had family present. All of the respondents reported increased stress levels when family members were present during the resuscitation, and they all reported a lack of education regarding how to handle family members during these stressful events (Perry, 2009). This supports the use of education programs such as PERCS.

Healthcare providers report concerns regarding family presence during invasive procedures. Such apprehension manifests as concerns that witnessing the invasive procedure may be stressful for the family members, or that they may become disruptive and impede the care provided to the patient (Duran et al., 2007). However, studies have shown that these fears are largely unfounded, and conversely, family presence has been shown to be helpful during the procedures (Mangurten et al., 2006). Parents who have remained present for their child’s invasive procedures have reported increased understanding of their child’s condition, and have voiced that having the option to remain present should be their right (Meyer et al., 2000; Duran et al., 2007; Mangurten et al., 2006). The continued fears of healthcare providers regarding parent presence during invasive procedures, despite evidence that shows the fears are very infrequently realized, depicts a lack of education and training regarding the concept.

CPGs were developed as a way to standardize treatment, guide decision making on the part of the patient as well as the healthcare provider, and improve patient outcomes (Graham et al., 2011). Through the development of CPGs, the length of hospital stays has decreased, and the quality of patient care has improved (Graham et al., 2011; Murphy-Oikonon et al., 2012;
McCanny et al., 2012). A CPG, in conjunction with an educational workshop regarding parent presence during invasive procedures has been shown to increase healthcare provider comfort with parent presence during invasive procedures (Curley et al., 2012; Meyer et al. 2009).

**Conclusion**

In past years, the focus had been on allowing families to be present during resuscitation. In more recent years, however, the focus has shifted to allowing families to be present during invasive procedures. There remains concern that families will become disruptive, negatively impacting patient care, or will be traumatized by the sometimes gruesome nature of invasive procedures (Duran et al., 2007). Additionally, healthcare providers also admit a level of discomfort with being watched as they perform an invasive procedure, and feel increased pressure to be successful (Duran et al., 2007). Despite the negative associations healthcare providers have with allowing families to be present during invasive procedures, they concurrently support the practice (Duran et al., 2007; Mangurten et al., 2006). There remains a limited amount of literature further exploring attitudes towards family presence during invasive procedures.

By implementing a CPG that includes an educational initiative for healthcare providers that is focused on enhancing communication skills with parents during stressful situations, the competencies of the healthcare providers were aligned with the patient characteristics, which is the hallmark of the AACN’s Synergy Model for Patient Care. The Synergy Model has been used in many different aspects of patient care, from the bedside level to the legislative level. The model has been shown to be dynamic, and applicable to all different patient demographics.

The practice of allowing parents to be present during their child’s invasive procedures continues to elicit concern and discomfort in healthcare providers. However, many also support
the practice, despite their discomfort. The implementation of a CPG has been shown to increase healthcare provider comfort with the practice of allowing parents to remain present during invasive procedures (Curley et al., 2012).

Parents and family members have rarely been surveyed to evaluate their true feelings towards being present during a loved one’s invasive procedure. What the limited number of studies do show is that parents especially feel it is their right to support and soothe their child during an invasive procedure (Duran et al., 2007; Mangurten et al., 2006). Parents reported an increase in their understanding of their child’s condition (Duran et al., 2007). As parents are most often the primary caregivers of a child, it is imperative that they have the highest possible level of understanding of their child’s healthcare issues.

By implementing the CPG regarding parent presence during invasive procedures, contributions to the existing body of knowledge were made. There is a clear deficiency of studies focusing on parent presence during invasive procedures, especially ones that include parent perceptions of their presence. The implementation of the guideline along with the PERCS program not only contributed to the literature, but also positively impacted the healthcare providers, the patients, and the parents. This is the ultimate embodiment of the Synergy Model.
Chapter Three

Methods

Introduction

Parent presence during invasive procedures is a concept that can elicit discomfort from healthcare providers. Parents have expressed their desire to have the option to remain present during their child’s invasive procedure. Healthcare providers, however, have expressed concerns that parents being present for their child’s invasive procedure could be traumatic for the parent, and that the care provided to the child could be compromised due to healthcare provider stress or parental interference.

Studies have shown that the reported concerns of healthcare providers are largely unfounded (Mangurten et al., 2006). Additionally, CPGs and healthcare provider education has been shown to increase comfort with allowing parents the option to stay with their child during an invasive procedure. The purpose of this study was to evaluate the impact of a multifaceted intervention in a Neonatal Intensive Care Unit on (1) healthcare provider comfort with parent presence during invasive procedures, and (2) parental emotional experiences as a consequence of being present during invasive procedures.

Setting

The setting was a community-based level III NICU located just outside a major metropolitan area in the Northeast. The NICU is located in a community hospital that has between 3,000 and 3,500 births each year and a NICU admission rate of 300-350 admissions per year.

Study Design
This study was a time series design that took place from December 15, 2014 through June 30, 2015. The time series design was chosen as a more rigorous study design as compared to a simple pre-test, post-test design (Polit and Beck, 2012). The time series design enabled the researcher to observe trends in the data over time (using three time periods for data collection, rather than the two time periods used in a pre-test, post-test design), decreasing the effect of confounding variables. The study involved implementing a multifaceted intervention that involved: 1) the dissemination of a CPG; 2) providing healthcare provider education and training focused on communication with parents during stressful events; 3) laminated clinician reminder pocket cards placed in strategic patient care areas; and 4) feedback of performance measurement and process of care data.

The CPG was originally developed and implemented in a large pediatric teaching hospital, and was primarily applied to infants three months of age and younger. The intervention includes implementing the CPG, as well as offering specific training for healthcare providers regarding communicating with parents during stressful situations such as their child’s invasive procedures (Curley et al., 2012). The goals of implementing the intervention were to: 1) increase healthcare provider comfort related to parent presence during invasive procedures through education, training, and support; 2) facilitate and support the parental choice of whether or not to be present during their child’s invasive procedure and to provide education and support if they are present for their child’s invasive procedure.

The intervention implemented in this study included a multifaceted approach to facilitate parent presence during invasive procedures. The healthcare providers were offered a presentation discussing family centered care as well as outlining the key points of the CPG. The guideline instructed the healthcare provider team to discuss prior to an invasive procedure if the
team was in agreement that having a parent present during the invasive procedure would be appropriate, and if having a parent facilitator was indicated. According to the guideline, the team then ascertained if the parent wanted to be present during the invasive procedure. The parent was then instructed on how to maintain the integrity of the sterile field. The staff nurse or parent facilitator then remained with the parent during the procedure to provide information about the procedure and support to the parents. The guideline also recommended debriefing with the team as well as the parents after the invasive procedure was completed (Curley et al., 2012).

A second aspect of the intervention was to offer healthcare provider education and training specifically related to increasing comfort with parent presence during invasive procedures. The program, called the Program to Enhance Relational Communication Skills (PERCS) was developed at Boston Children’s Hospital, and involved high fidelity simulation with professional actors (Curley et al., 2012). The program offered healthcare providers the opportunity to discuss concerns they have with parent presence during invasive procedures, as well as to discuss strategies and techniques to manage these concerns (Curley et al., 2012).

The healthcare providers were provided the opportunity to undergo the PERCS training to become competent performing in the role of parent facilitator during a pediatric or neonatal invasive procedure. The parent facilitator is a healthcare provider who is not directly involved in the invasive procedure but who is available to parents for support and information (Curley et al., 2012).

A third component of the multifaceted intervention strategy is a clinician reminder in the form of a laminated pocket card. The pocket card prompted healthcare providers to invite parents to remain present during an invasive procedure and highlighted key points of the CPG. These
clinician reminders were distributed to all NICU clinicians with additional copies available in strategic patient care areas.

Initiated two months after the dissemination of the CPG and PERCS workshop, a fourth and final component of the multifaceted intervention strategy was feedback of performance measurement and process of care data. At the same time as the receipt of such data, clinicians received a knowledge update of the CPG and key points of the PERCS workshop, in addition to the distribution of additional clinician reminder pocket cards.

The first portion of the intervention involved the dissemination of the CPG. The guideline was introduced to the staff through staff meetings, as well as the institution’s internal email system. This dissemination included a power point presentation discussing the background and significance of the intervention. Additionally, clinician reminders in the form of laminated pocket cards were placed in patient care areas to serve as a reminder of the guideline.

The second portion of the intervention was the educational initiative. The healthcare providers were invited to attend a half-day workshop that focused on relational and communication skills with parents during their child’s invasive procedure. This workshop involved professional actors and high fidelity simulation, and was offered five times over the course of four weeks. For the healthcare providers who were unable to attend the five formal workshops, informal workshops were held in the unit to offer the information, view simulation recordings, and debrief after the viewings. Two months after the completion of the educational initiative, the healthcare providers were given feedback of performance measurement and process of care data.

Project Timeline
PARENT PRESENCE DURING INVASIVE PROCEDURES

The study began on December 15, 2014 and ended on June 30, 2015. The Project Timeline is described below:

- Week 1: Pre-Intervention Perception Survey administered to healthcare providers
- Weeks 9-12: Roll out of CPG, PERCS workshops and clinician reminder
- Week 20: First Post-Intervention Perception Survey and dissemination of performance data
- Week 28: Second Post-Intervention Perception Survey
- Weeks 1-28: Continuous administration of Linked Invasive Procedure surveys

Upon IRB approval, the Pre-Intervention Perception Survey was administered to the healthcare providers during week one. During week nine, the CPG was rolled out, the clinician reminder pocket cards were distributed, and the PERCS workshops began. The PERCS workshops were held from week nine to twelve. The first Post-Intervention Perception Survey was administered during week twenty, immediately followed by the dissemination of the performance feedback data. The final Post-Intervention Perception Survey was administered during week twenty-eight, marking the end of the data collection period. The Linked Invasive Procedure Surveys were administered on an ongoing basis throughout the twenty-six-week period.

**Sampling Plan:**

The target population included parents of NICU patients undergoing invasive procedures as well as the healthcare providers in the NICU, including physicians, nurse practitioners, nurses, and respiratory therapists.

The total accessible population of healthcare providers in the NICU included 7 physicians, 2 neonatal nurse practitioners, 65 registered nurses, and 18 neonatal respiratory therapists.
therapists. The accessible population of parents of NICU patients was variable, depending on the number of admissions during each month of the data collection period.

Inclusion criteria for healthcare providers participating in the surveys included employment in the NICU. Exclusion criteria included healthcare providers who are employed in other areas of the hospital, such as maternity or the pediatric floor, but who had been floated to the NICU as support staff. Inclusion criteria for parents participating in the survey process included being over the age of 18, and having been present during their child’s invasive procedure. Exclusion criteria for parents included being younger than 18 years, non-English speaking, and not being competent to provide informed consent. Competence to provide consent was assessed by the PI and research assistants during the consent process. Competence was defined as the parent being able to understand the information being discussed and being free of the influence of illicit drug or alcohol, or severe mental illness that would inhibit logic or understanding.

Healthcare providers were recruited through notifications during staff meetings and the institution’s internal email service. There was a small group of CITI trained nurses who were identifying parents who were present during their child’s invasive procedure. The parents were then approached by the principal investigator or CITI trained nurse in order to request their voluntary participation in the paired survey process. When a parent was approached to request their participation in the survey process, it was made clear that participation in the survey process was entirely confidential as well as completely voluntary, and that refusal to participate would in no way impact the care provided to their children.

Protection of Human Subjects:
The principal investigator submitted a proposal to the organization’s Institutional Review Board, and underwent the required review to ensure adequate protection of the participants. Participation in the survey process was confidential as well as voluntary. The surveys were administered on paper, and asked the participant to enter their own, unidentifiable user ID, using the first four letters of their mother’s maiden name, and the four digit month and year of their birth. For healthcare providers, there were minimal risks associated with participating in the educational initiative and the survey process. The benefits of participation include contributing to a quality improvement initiative, as well as potentially improved relational and communication skills garnered from participation in the educational initiative. Parents participating in the survey also faced minimal risks from participation, however, reflecting upon their child’s invasive procedure could have been emotionally trying. Benefits for the parents participating in the survey included a feeling of being heard, and feeling that they contributed to improved care for the NICU patients.

The surveys were completed confidentially, with the participants providing their own unique user ID that consists of the first four letters of their mother’s maiden name along with the four digit month and year of their birth, which allowed for pairing of surveys without compromising the confidentiality. The return of a completed survey implied consent. The surveys were returned in sealed envelopes to ensure confidentiality, and contained no identifiable information. The principal investigator along with a small group of CITI trained nurses were the only people contacting participants directly, and followed a scripted conversation discussing that participation in the surveys was both voluntary and confidential. This decreased variation from the protocol. Additionally, the Perception and Invasive Procedure Surveys were identical when administered.
The healthcare providers were encouraged to attend the educational workshop that was offered as part of the intervention. Those who attended the workshop were awarded continuing education units. The researchers held no supervisory authority over the participants in the study, and the subjects reported to different management than the researchers. This decreased the potential for perceived coercion into participation.

**Instruments**

The CPG implemented in this study, entitled Parent Presence During Invasive Procedures, was developed at a major pediatric academic medical center. It was adapted to make it applicable to the specific NICU at the institution where the study took place.

There were a total of five survey instruments utilized in the data collection process. The original surveys were adapted from the literature by Curley et al (2012), and formatted to be applicable to the setting and population being studied. The Clinician Perception Survey was adapted to “examine staff attitudes, beliefs, and concerns” as well as comfort and preparedness, regarding parent presence during invasive procedures and resuscitation (Curley et al, 2012; p. 1134). The Clinician and Parent Practice Survey aimed to examine the experience of an actual invasive procedure or resuscitation during which there was a parent present, from the perspective of the healthcare providers as well as the parents (Curley et al, 2012).

These existing surveys were adapted to be applicable to the specific institution where this study was being conducted (meaning locations other than NICU and Special Care Nursery were removed as options, and procedures not performed at the institution such as ECMO cannulation were removed as options). Also, the scales were modified to maintain a consistent structure. There were two surveys to evaluate healthcare provider comfort with parent presence during invasive procedures: the Pre-Intervention Perception Survey (Appendix B), and the Post-
Intervention Perception Survey (Appendix C). There are also three surveys that were linked and administered to those involved in an invasive procedure during which there was a parent present. These surveys were referred to as the Parent and Clinician Practice Surveys in the Curley (2012) study, but for the purposes of this study, they were labeled the Parent Invasive Procedure Survey (Appendix D), the Healthcare Provider Invasive Procedure Survey (Appendix E), and the Facilitator Invasive Procedure Survey (Appendix F). All surveys were administered on paper, and were submitted in sealed envelopes to maintain confidentiality.

The Pre-Intervention Perception Survey was administered immediately at the outset of the study. The survey measured the healthcare providers’ recent experience and comfort with parent presence during invasive procedures. It also measured the healthcare providers’ perception of how prepared they feel in: Assessing the parent’s desire to be present, assessing the parent’s capacity to be present, preparing the parent to be present during the procedure, assigning an appropriate staff member to the parent, and assisting a parent who is unable to tolerate being present for the procedure. There were fifteen items on the survey, and included multiple-choice items with the option for open-ended responses, as well as Likert scale items. The level of invasiveness of the procedures, as well as Likert scale items, were an ordinal level of measurement. Other details regarding experience with parent presence during invasive procedures were nominal data. Demographic information including job title, years of experience, age, and gender were also collected.

The Post-Intervention Perception Survey was administered two months after the intervention had been implemented, and then again, two months after the dissemination of performance feedback and process of care data. The Post-Intervention Perception Survey also collected information regarding the healthcare provider’s recent experience and comfort with
PARENT PRESENCE DURING INVASIVE PROCEDURES

parent presence during invasive procedures, just as the Pre-Intervention Perception Survey did. The survey examines which parts of the intervention the healthcare provider took part in, as well as how prepared the healthcare provider felt to assess the parent’s capacity to be present, the parent’s desire to be present, to prepare the parent to be present, to support the parent during the procedure, and to assist the parent who is unable to tolerate remaining present for the procedure. The survey also examined the degree of compliance with the CPG as perceived by the healthcare provider. The survey contained sixteen items, including demographic data that was collected, including job title, age, gender, and years of experience. The survey contained multiple choice questions with the option for an open-ended response as well as Likert scale questions. The data collected were nominal as well as ordinal.

When a parent had been present during their child’s invasive procedure, and agreed to participate in the survey process, linked surveys were administered to all those involved in that specific procedure. The Parent Invasive Procedure Survey examined the parent’s perception of the experience of being present during their child’s invasive procedure. The survey asked what information and support was provided, as well as what was most helpful to them. The survey aimed to assess whether the parent felt their presence was helpful to them or their child, and also evaluates the parent’s level of comfort and understanding during the procedure. Parent participation was limited to one survey.

There were twelve items on the Parent Invasive Procedure Survey, with demographic data gathered including the parent’s age, gender, and gestational age of the infant. The items on the survey included multiple choice questions with the option for open-ended responses, true open-ended questions, and Likert scale questions. The data collected included nominal and ordinal levels of measurement.
The Facilitator Invasive Procedure Survey was administered only when the role of parent facilitator was employed during an invasive procedure. As not all invasive procedure situations dictate the need for a facilitator, this survey was only administered as needed. This survey aimed to assess the actions of the facilitator during the invasive procedure, as well as the importance of those actions for the parent. The survey examined the facilitator’s perception of the parent’s emotional state, their behavior during the procedure, and if the parent’s presence was helpful to the infant or the parent.

There were fourteen items on the Facilitator Invasive Procedure Survey, with demographic information collected including job title, age, gender, and years of experience. The items on the survey were a combination of multiple-choice questions, with the option of an open-ended response, true open-ended questions, and Likert scale questions. The data collected from this survey were nominal and ordinal levels of measurement.

The final survey was the Healthcare Provider Invasive Procedure Survey. This survey aimed to examine the healthcare provider’s perception of the experience of a parent remaining present for a specific invasive procedure. The tool gathered data including what procedure was performed, if there was agreement amongst the team to offer parent presence, who initiated the presence of the parent, and what information was given to the parent prior to the procedure. The tool also assessed the details of what the parent did during the procedure; if a parent facilitator was used, and if so, why; as well as who supported and informed the parent during the procedure. The survey also asked the healthcare provider to describe their perception of the parent’s emotional state, as well as the impact the parent’s presence had on the healthcare provider’s performance, and if the parent’s presence was helpful to the parent or the infant.
There are sixteen items on the survey, with demographic data collected including job title, age, gender, and years of experience. The question items were multiple-choice with the option for open-ended response, true open-ended questions, and Likert scale questions. The data collected were nominal and ordinal levels of measurement.

Procedure

Prior to gathering any data, including pre-intervention data, a proposal was submitted to the organization’s Institutional Review Board (IRB), and upon its approval, to the University of Connecticut’s IRB. The study commenced once IRB approval from each institution had been obtained. Eligible participants included the physicians, nurse practitioners, registered nurses, and respiratory therapists who work in the NICU of the organization. Additional eligible participants included parents who were present for their child’s invasive procedure. The PI and a small group of CITI trained nurses on the day and night shifts identified eligible parents.

Healthcare providers were approached during staff meetings to discuss the study and to request voluntary participation in the educational initiative as well as the survey process. The healthcare providers were also contacted through the institution’s internal email service with reminders of the dates and times of the educational initiatives, as well as the fact that participation in the study is entirely voluntary. The healthcare providers received paper copies of the surveys with sealable envelopes in which to return the survey. The principal investigator or a CITI trained nurse contacted eligible parents to request their voluntary participation in the survey process. If the parent consented to participate in the survey process, they were provided with a survey and sealable envelope in which to return the survey to maintain confidentiality.

The healthcare providers who were employed in the study setting were offered a half-day workshop that utilizes professional actors and high fidelity simulation techniques. This
PARENT PRESENCE DURING INVASIVE PROCEDURES

workshop focused on enhancing relational and communication techniques with parents during invasive procedures. The healthcare providers were asked to submit anonymous surveys immediately at the outset of the study, which was the Pre-Intervention Perception Survey. They were also be asked to submit anonymous surveys two months after the completion of the workshops, prior to the dissemination of performance feedback and process of care data, and then again two months later, which were the Post-Intervention Perception Surveys. The healthcare members who were involved in an invasive procedure during which there was a parent present were asked to participate in the linked Parent/Facilitator/Healthcare Provider Invasive Procedure Surveys. These linked surveys were also confidential and voluntary.

The parents who participated in the study were approached a single time by the principal investigator to request their participation in the survey process related to a specific invasive procedure. If they consented to participate, they were given a survey and envelope in which to return the survey.

The timeline for the study included two months of pre-intervention data collection, and four months of post-intervention data collection. During this time period, the linked Parent/Facilitator/Healthcare Provider Invasive Procedure Surveys were administered when a parent had been present for an invasive procedure, and had been identified as eligible by the principal investigator or CITI trained nurse. The administration of these linked surveys was ongoing throughout the study. Immediately at the outset of the study, the Pre-Intervention Perception Survey was administered to the healthcare providers. Two months after the completion of the intervention, the first Post-Intervention Perception Survey was administered to the healthcare providers. After the first Post-Intervention Perception Survey was completed, the
healthcare providers were given feedback of performance measurement and process of care data. Two months later, a second round of Post-Intervention Perception Surveys were administered.

The educational initiative, which was a half-day PERCS workshop, was offered five times over the course of one month, with additional informal sessions held for those who could not attend a formal session. Maximum capacity for the formal workshops was twenty people in order to maintain a sense of intimacy. Sign-up sheets for the workshops were posted in the staff break room, with the option of email response included. The workshops were offered during both morning and afternoon time slots, to accommodate both the day and night shifts. The CPG was rolled out when the PERCS classes began.

The PERCS classes required the use of the organization’s existing simulation lab. The simulation lab is equipped for high fidelity simulation scenarios, and has video capability. The workshops also required the consultation of the PERCS program coordinator and facilitators, as well as hiring professional actors, and administrative assistance. The budget for the PERCS workshops was $23,580. To support the workshops, a private philanthropic organization anonymously donated $12,000, which was matched with $11,580 by the host institution.

The total timeline consisted of 6 months of data collection. The Pre-Intervention Perception Survey was administered immediately at the start of the study period. Two months later, the intervention was implemented. The CPG was rolled out, and the PERCS workshops were held five times over the course of one month. Two months after the rollout of the CPG and completion of the PERCS workshops, the first Post-Intervention Perception Survey was administered, followed by the dissemination of performance feedback and process of care data. Two months later, the final Post-Intervention Perception Survey was administered. The linked
Invasive Procedure Surveys were continuously administered throughout the six-month period. Below is a diagram to illustrate the timeline:

![Diagram showing timeline of invasive procedure surveys and implementation of CPG and PERCS]

**Treatment of Data**

The data collected was entered into the SPSS windows version 22 statistical software program. Any missing data was entered as a value of 99.

Research Question #1: Does the implementation of a CPG promoting parent presence during invasive NICU procedures implemented through a multifaceted educational intervention increase healthcare provider comfort with parent presence?

Research Question number one as stated above was answered using the mixed model method of repeated measures ANOVA. This test was appropriate given that the level of measurement of the variables is ordinal, as the survey questions were posed in a Likert Scale for these items on the Pre-Intervention Perception Survey and the Post-Intervention Perception...
PARENT PRESENCE DURING INVASIVE PROCEDURES

Survey. This test was also appropriate because the data resulted from three survey groups over time. It accounts for variability between the participants in each survey group, assuming that each group is independent because some of the healthcare providers participated in some, but not all three surveys. The test evaluated for significant changes in responses over the course of the three survey assessments.

Research Question #2: Is parent emotional experience associated with being present during invasive NICU procedures different after the implementation of a CPG?

Research Question number two as stated above, involved descriptive analyses of independent samples. Group analyses of pre and post intervention responses were evaluated also using the mixed model method of repeated measures ANOVA, grouping the surveys into categories of pre-intervention, mid-intervention, and post-intervention. The three groups were independent, and data was collected over time, making this test an appropriate choice.

Conclusion

The study was performed using a time series design. The total timeline was six months long, with the linked Invasive Procedure Surveys being administered continuously throughout the study period. The Pre-Intervention Perception Survey was administered at the outset of the study. The intervention was implemented during the third month of the study, allowing for two months of pre-intervention data collection. The first Post-Intervention Perception Survey was administered two months after the CPG was rolled out and the PERCS workshops were completed. After the first Post-Intervention Perception Survey had been administered, performance feedback and process of care data was disseminated. The final Post-Intervention Perception Survey was administered two months later, marking conclusion of the data collection period, which allowed for four months of post-intervention data collection.
The setting was a level III NICU located within a community hospital that is affiliated with a major pediatric academic medical facility. The target population included the healthcare providers who work in the NICU, as well as the parents of the NICU patients undergoing invasive procedures. All participation was strictly voluntary. The return of a completed survey implied consent yet ensured anonymity.

There were five different surveys that were utilized during this study. They had been adapted from the Curley et al (2012) study in order to be applicable to the setting of this study. These surveys included: the Pre-Intervention Perception Survey, the Post-Intervention Perception Survey, the Parent Invasive Procedure Survey, the Facilitator Invasive Procedure Survey, and the Healthcare Provider Invasive Procedure Survey. The data collected from these surveys were nominal and ordinal, and were used to answer the two research questions.

Research question number one and number two were both answered using the mixed model method of repeated measures ANOVA. This allowed for the comparison of three independent groups over a period of time. Data was analyzed using SPSS version 22 for windows. Data was anonymous, as participants entered their own unique user ID, in order to maintain confidentiality and protect the identity of the participants.

The research has shown that despite parents voicing their desire to have the option to remain present during their child’s invasive procedure, in addition to research showing that it is beneficial to the parent as well as the healthcare provider, discomfort with the practice remains amongst healthcare providers (Mangurten et al., 2006; Duran et al., 2007). According to the Synergy Model, the needs of the patients should dictate the competencies of the healthcare providers (Hardin & Kaplow, 2005). Therefore, an opportunity presented itself to offer the knowledge and tools that healthcare providers lack in order to bridge this apparent gap.
Chapter Four

Results

Introduction

Parent presence during invasive procedures is a concept that has elicited discomfort among healthcare providers. This discomfort stems from concerns that parents will not understand unfolding events, will be traumatized by witnessing the invasive procedure, and that patient care will be negatively impacted by the increased stress level of parents and providers (Beal, Decker, & Gibson-Young, 2012). Healthcare providers often lack the tools necessary to manage these perceived concerns.

The research has shown that the concerns expressed by healthcare providers regarding parent presence during invasive procedures are most often unfounded (Mangurten et al., 2006). In fact, studies have found that when parents remained present during their child’s invasive procedure, their presence was beneficial to both parents and healthcare providers (Dingeman et al., 2007; Mangurten et al., 2006). Parents who remained present for their child’s invasive procedure were less anxious, felt that they were helping their child, and had a better understanding of their child’s diagnosis (Dingeman et al., 2007). Additionally, healthcare providers reported that having parents remain present was also beneficial to the healthcare providers. Parents were found to contribute to the healthcare team by assisting with restraining the child when necessary, providing pertinent information about the child, and helping to calm the child during the procedure (Dingeman et al., 2007).

Allowing parents to have the option of remaining present during their child’s invasive procedure is an integral part of providing family centered care. Reconciling the discrepancy of
the healthcare provider discomfort with the practice and the research that supports the practice was the goal of this clinical practice dissertation. The study implemented a multifaceted intervention that included the dissemination of a CPG, an educational workshop focused on supporting parents at the bedside during invasive procedures, laminated clinician reminder pocket cards, and feedback of performance measurement and process of care data.

Healthcare providers were asked to fill out surveys to measure their level of comfort with offering parent presence during invasive procedures. The surveys were administered three times: prior to the multifaceted intervention; eight weeks after the dissemination of the CPG and the offering of the workshops; and, eight weeks after the dissemination of the feedback of performance measurement and process of care data. Clusters of healthcare providers and parents that were involved in an invasive procedure during which the parent remained present were asked to fill out surveys to evaluate the parents’ emotional experience during the procedure.

**Description of the Sample**

The target population included parents of NICU patients undergoing invasive procedures and NICU providers, including physicians, nurse practitioners, nurses, and respiratory therapists. The response rate for the Pre-Intervention Perception Survey was 75% overall (76.9% for nurses, 66.7% for respiratory therapists, and 77.8% for physicians/nurse practitioners). The response rate for the first Post-Intervention Perception Survey was 63% overall (66.1% for nurses, 44.4% for respiratory therapists, and 77.8% for physicians/nurse practitioners). The response rate for the second Post-Intervention Perception Survey was 65.2% overall (64.6% for nurses, 44.4% for respiratory therapists, and 88.9% for physicians/nurse practitioners).

The accessible population of parents of NICU patients was variable, depending on the number of admissions during each month of the data collection period (Table 4.1). Parents aged
30-35 years comprised the largest percentage of the respondents (50.0%), followed by >35 years (22.2%), 25-29 years (13%), and 18-24 years (9.3%). In three (5.6%) instances, parents did not provide their age. Infants with a gestational age of 34 weeks to 37 weeks and 6 days comprised the largest percentage of the cohort (40.7%), followed by 38-42 weeks (24.1%), and 30-33 weeks and 6 days (16.7%). The majority of the infants were seven days old or less (81.5%). Inclusion criteria for parents participating in the survey process included being over the age of 18 years and having been present during their child’s invasive procedure. Exclusion criteria for parents included being younger than 18 years, non-English speaking, and not being competent to provide informed consent, as assessed by the principal investigator or research RN using the criteria of documented severe mental illness or disability precluding the parent’s ability to effectively understand or provide consent, or suspicion of, or confirmed knowledge of, being under the influence of alcohol or illicit drugs.

Table 4.1

Demographic Data for Parent Invasive Procedure Surveys

<table>
<thead>
<tr>
<th>Parents</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-24 years</td>
<td>5</td>
<td>9.3</td>
</tr>
<tr>
<td>25-29 years</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>30-35 years</td>
<td>27</td>
<td>50</td>
</tr>
<tr>
<td>&gt;35 years</td>
<td>12</td>
<td>22.2</td>
</tr>
<tr>
<td>Missing Data</td>
<td>3</td>
<td>5.6</td>
</tr>
<tr>
<td>Total</td>
<td>54</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Infants</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;29 weeks 6 days</td>
<td>5</td>
<td>11.2</td>
</tr>
<tr>
<td>30 weeks -33 weeks 6 days</td>
<td>9</td>
<td>16.7</td>
</tr>
</tbody>
</table>
PARENT PRESENCE DURING INVASIVE PROCEDURES

<table>
<thead>
<tr>
<th>Infant’s Day of Life^a</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
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<tr>
<td>≤7</td>
<td>44</td>
<td>81.5</td>
</tr>
<tr>
<td>&gt;7</td>
<td>6</td>
<td>11.2</td>
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<tr>
<td>Missing Data</td>
<td>4</td>
<td>7.4</td>
</tr>
<tr>
<td>Total</td>
<td>54</td>
<td>100</td>
</tr>
</tbody>
</table>

^aWhen discussing the infant’s day of life, the day of birth is considered day of life zero.

The total accessible population of NICU providers included nine physicians/neonatal nurse practitioners, 65 registered nurses, and 18 neonatal respiratory therapists. The participants in the Pre-Intervention Perception Survey included 50 registered nurses (72.5%), 12 respiratory therapists (17.4%) and 7 physicians/neonatal nurse practitioners (10.1%) (Table 4.2). The participants of the first Post-Intervention Perception Survey included 43 registered nurses (70.0%), 8 respiratory therapists (13.8%) and 7 physicians/neonatal nurse practitioners (10.1%) (Table 4.2). The participants of the second Post-Intervention Perception Survey included 42 registered nurses (74.1%), 8 respiratory therapists (13.3%) and 8 physicians/neonatal nurse practitioners (13.3%) (Table 4.2).

In both the pre-intervention and the second post-intervention surveys, healthcare providers aged 50-59 years comprised the largest percentage of respondents (29% pre-intervention and 28.3% post-intervention), followed by 30-39 years old (27.5% and 26.7%), and 40-49 years old (24.6% and 23.3%). For the first Post-Intervention Perception Survey, healthcare providers aged 30-39 years comprised the largest percentage of respondents (29.3%), followed by 40-49 years (27.6%), and 50-59 years (24.1%). Across all three surveys (pre-intervention, post-intervention 1, and post-intervention 2), the majority of respondents were
registered nurses (72.5%, 74.1%, and 70%, respectively), and the majority had between 10 and 19 years of pediatric or neonatal experience (46.4%, 51.7%, and 50%, respectively). Inclusion criteria for healthcare providers participating in the surveys included employment in the NICU. Exclusion criteria included healthcare providers who are employed in other areas of the hospital, such as maternity or the pediatric floor, but who had been floated to the NICU as support staff.

Table 4.2

**Demographic Data for Healthcare Providers Responding to Perception Surveys**

<table>
<thead>
<tr>
<th>Demographic Variable</th>
<th>Pre-Intervention</th>
<th>2 Months Post-Intervention</th>
<th>4 months Post-Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;30 years</td>
<td>7</td>
<td>10.1</td>
<td>3</td>
</tr>
<tr>
<td>30-39 years</td>
<td>19</td>
<td>27.5</td>
<td>17</td>
</tr>
<tr>
<td>40-49 years</td>
<td>17</td>
<td>24.6</td>
<td>16</td>
</tr>
<tr>
<td>50-59 years</td>
<td>20</td>
<td>29</td>
<td>14</td>
</tr>
<tr>
<td>&gt;60 years</td>
<td>6</td>
<td>8.7</td>
<td>7</td>
</tr>
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<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>69</td>
<td>100</td>
<td>58</td>
</tr>
<tr>
<td>Position</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RN</td>
<td>50</td>
<td>72.5</td>
<td>43</td>
</tr>
<tr>
<td>RT</td>
<td>12</td>
<td>17.4</td>
<td>8</td>
</tr>
<tr>
<td>NP/MD</td>
<td>7</td>
<td>10.1</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>69</td>
<td>100</td>
<td>58</td>
</tr>
<tr>
<td>Years Exp</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;10</td>
<td>14</td>
<td>20.2</td>
<td>10</td>
</tr>
<tr>
<td>10-19</td>
<td>32</td>
<td>46.4</td>
<td>30</td>
</tr>
<tr>
<td>20-29</td>
<td>16</td>
<td>23.2</td>
<td>10</td>
</tr>
<tr>
<td>&gt;30</td>
<td>7</td>
<td>10.1</td>
<td>8</td>
</tr>
</tbody>
</table>
PARENT PRESENCE DURING INVASIVE PROCEDURES

<table>
<thead>
<tr>
<th>Missing Data</th>
<th>0</th>
<th>0</th>
<th>0</th>
<th>0</th>
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<th>5</th>
</tr>
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<tbody>
<tr>
<td>Total</td>
<td>69</td>
<td>100</td>
<td>58</td>
<td>100</td>
<td>60</td>
<td>100</td>
</tr>
</tbody>
</table>

\(^a\)Position abbreviations: RN meaning Registered Nurse; RT meaning Respiratory Therapist; NP meaning Nurse Practitioner; and MD meaning Physician.

\(^b\)Years Exp refers to years of clinical experience in the pediatric or neonatal field.

Statistical Analysis

Statistical analysis of the healthcare provider perception surveys was performed using the mixed model method of repeated measures ANOVA. When comparing data from the Pre-Intervention Perception Surveys to both post-intervention surveys, the analysis revealed a statistically significant increase in healthcare provider comfort with offering parent presence during invasive procedures, and in healthcare provider reports of feeling prepared to prepare the parents to be present, support them during invasive procedures, and assist parents when they were unable to tolerate the events. There was not a statistically significant difference between the first and second post-intervention surveys, suggesting the increase from the initial survey responses were sustained over time.

Research Question #1: Does the implementation of a CPG promoting parent presence during invasive NICU procedures implemented through a multifaceted educational intervention increase healthcare provider comfort with parent presence?

This question was answered using the mixed model method of repeated measures ANOVA (Table 4.3 and 4.4). The analysis showed a statistically significant increase in healthcare provider comfort with offering parent presence during an invasive procedure when comparing the Pre-Intervention Perception Survey with the first and second Post-Intervention Perception Surveys. The responses were on a scale of 1-10, with 1 being very uncomfortable and 10 being very comfortable. The mean response from the Pre-Intervention Perception Survey
PARENT PRESENCE DURING INVASIVE PROCEDURES

was 7.2, with an increase to 8.5 on the first Post-Intervention Perception Survey (p<0.0001). The mean response to comfort with offering parent presence on the second Post-Intervention Perception Survey was 8.7, which is significantly different from the Pre-Intervention Perception Survey (p<0.0001). There was no significant difference between the two Post-Intervention Perception Surveys (p=0.2551).

When comparing the Pre-Intervention Perception Survey results with the first Post-Intervention Perception Survey results, there was a statistically significant increase in healthcare provider self report of feeling prepared (on a scale of 1-10, with 1 being very unprepared, and 10 being very prepared) to prepare the parent to be present (mean 7.5 increased to 8.8; p<0.0001), support the parent during the procedure (mean 7.2 increased to 8.8; p<0.0001), and assist the parent who is unable to tolerate evolving events (mean 6.5 increased to 8.0; p<0.0001).

When comparing the Pre-Intervention Perception Survey with the second Post-Intervention Perception Surveys, there was a statistically significant increase in healthcare provider self report of feeling prepared (on a scale of 1-10, with 1 being very unprepared, and 10 being very prepared) to prepare the parent to be present (mean 7.5 increased to 8.8; p<0.0001), support the parent during the procedure (mean 7.2 increased to 8.7; p<0.0001), and assist the parent who is unable to tolerate evolving events (mean 6.5 increased to 8.1; p=0.0003).

There was no significant difference between the two post-intervention surveys. Post-Intervention Perception Surveys one and two evaluated healthcare provider self report of feeling prepared (on a scale of 1-10, with 1 being very unprepared, and 10 being very prepared) to prepare the parent to be present (mean 8.7 and 8.8, respectively; p=0.3811), support the parent during the procedure (mean 8.8 and 8.7, respectively; p=0.9768), and assist the parent who is unable to tolerate evolving events (mean 9.0 and 8.1, respectively; p=0.9206).
Statistical analyses are listed in Table 4.3 and Table 4.4. Table 4.3 shows the analysis of the healthcare provider perception surveys using the differences of least square means. Table 4.4 shows the analysis of the healthcare provider perception surveys using the solution for fixed effects.

**Table 4.3**

**Healthcare Provider Perception Survey Responses: Differences of Means**

<table>
<thead>
<tr>
<th></th>
<th>Survey 1&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Survey 2&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Survey 3&lt;sup&gt;c&lt;/sup&gt; Mean</th>
<th>Change 1&lt;sup&gt;a&lt;/sup&gt; to 2&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Change 1&lt;sup&gt;a&lt;/sup&gt; to 3&lt;sup&gt;c&lt;/sup&gt;</th>
<th>Change 2&lt;sup&gt;b&lt;/sup&gt; to 3&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comfort with idea of offering parent presence</td>
<td>7.2</td>
<td>8.5</td>
<td>8.7</td>
<td>+1.3</td>
<td>+1.5</td>
<td>+0.2</td>
</tr>
<tr>
<td>How prepared you feel to:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepare the parent to be present:</td>
<td>7.5</td>
<td>8.8</td>
<td>8.8</td>
<td>+1.3</td>
<td>+1.3</td>
<td>0</td>
</tr>
<tr>
<td>Support the parent during a procedure:</td>
<td>7.2</td>
<td>8.8</td>
<td>8.7</td>
<td>+1.6</td>
<td>+1.5</td>
<td>-0.1</td>
</tr>
<tr>
<td>Assist the parent who is unable to tolerate evolving events:</td>
<td>6.5</td>
<td>8.0</td>
<td>8.1</td>
<td>+1.5</td>
<td>+1.6</td>
<td>-0.1</td>
</tr>
</tbody>
</table>

<sup>a</sup>Survey 1 is the Pre-Intervention Perception Survey.
<sup>b</sup>Survey 2 is the first Post-Intervention Perception Survey, administered 8 weeks after the intervention.
<sup>c</sup>Survey 3 is the second Post-Intervention Perception Survey, administered 8 weeks after Survey 2 and dissemination of the process of care data.

Statistical analysis of parent surveys did not show any statistically significant difference in the parent emotional experience of being present for invasive procedures when comparing responses prior to, during, or after the intervention. Parents were surveyed one time only. Therefore the analysis is based on independent samples, rather than repeat surveys of the same
sample. Additionally, Likert scale responses were high prior to the intervention, and remained high during and after the intervention, reflecting a sustained positive response from parents.

Of the 54 parents surveyed, 52 (96.3%) responded “yes” when asked if they would like to have the option to stay for future invasive procedures, one responded “no”, and one responded “unsure”. The person who responded “no” was from the post-intervention group, and the one who responded “unsure” was from the pre-intervention group. When responding to the question about whether or not they would choose to stay for future invasive procedures, 47 (87%) parents responded “yes” and 6 (11.1%) responded “unsure”. No parents responded “no”, although one participant left that answer blank. Two of the “unsure” responses were from the pre-intervention survey group, and four were from the post-intervention survey group.

Research Question #2: Is parent emotional experience associated with being present during invasive NICU procedures different after the implementation of a CPG?

This question involved descriptive analyses of independent samples, as parents responded only a single time. Group analyses of pre, mid and post intervention responses were evaluated using the mixed model method of repeated measures ANOVA. The analysis showed no significant difference in parent report of the following questions: 1) How helpful was your presence to your child?; 2) How helpful was your presence to you as a parent?; 3) Did you understand what was going on?; 4) Was your child emotionally supported?; 5) Did you receive enough emotional support?; and 6) Did you feel comfortable with your level of participation? The parent responses were on a ten point Likert scale. Results are displayed below in Figures 4.1-4.6. The red area shows the responses prior to the intervention, the green area shows responses obtained during the intervention, and the blue area shows responses obtained after the intervention.
Figure 4.1 displays parent responses to the question, “How helpful was your presence to your child?” Parents rated helpfulness on a Likert scale of 1-10, where one was not at all helpful and 10 was very helpful. The mean response from the pre-intervention time period was 6.62. The mid-intervention mean score was 5.78; and the mean post-intervention score was 7.16. There is significant overlap between all three time periods as displayed in Figure 4.1. This indicates strong similarity between parent perception of how helpful their presence was to their child before, during, and after the intervention. There was no significant difference before (indicated by color red), during (color green), or after (color blue) the study intervention.

Figure 4.1

Density Plot for Results at Three Time Points for the Survey Question, “Parent Emotional Experience: How helpful was your presence to your child?”
Figure 4.2 displays parent responses the question, “How helpful was your presence to you as a parent?” Again there is strong similarity between parent perception of how helpful their presence was to their child before (indicated by color red), during (color green), or after (color blue) the intervention. The same ten point Likert scale was used with this question. The mean pre-intervention score was 8.61, the mean mid-intervention mean score was 8.78, and the mean post-intervention score was 9.29. Figure 4.2 offers a visual representation of the parent responses for the three time periods. The similarity in responses is evidenced by the noticeable overlap between the three time periods. The degree of overlap indicates no significant difference on account of the study intervention.
Figure 4.2

*Density Plot for Results at Three Time Points for the Survey Question, “Parent Emotional Experience: How helpful was your presence to you as a parent?”*

![Density Plot](image)

Helpfulness to parent from 1-10

*Visual representation of frequency of responses on a 10-point scale (1= least helpful; 10= most helpful)*

Figure 4.3 displays parent responses the question, “Did you understand what was going on?” There was no significant difference between parent responses before (indicated by color red), during (color green), or after (color blue) the study intervention. The responses to this question were also on a Likert scale, where one represented poor understanding, and 10 represented excellent understanding. The mean pre-intervention score was 8.46, the mean mid-intervention score was 7.67, and the mean post-intervention score was 9.06. Figure 4.3 shows clear overlap of all three colors representing the three time periods, indicating similar frequencies of responses.
Figure 4.3

Density Plot for Results at Three Time Points for the Survey Question, “Parent Emotional Experience: Did you understand what was going on?”

Understanding from 1-10

*aVisual representation of frequency of responses on a 10-point scale (1= least understanding; 10= most understanding)*

Figure 4.4 displays parent responses the question, “Was your child emotionally supported?” The parents responded to this question using a ten point Likert scale where one represented no support, and 10 represented full support. The mean pre-intervention score was 9.46, the mean mid-intervention score was 8.78, and the mean post-intervention score was 9.71. The visual representation of the parent responses shown in Figure 4.4 illustrates the similarity in responses across the time periods. There was no significant difference in responses before (indicated by color red), during (color green), or after (color blue) the intervention.
Figure 4.4

*Density Plot for Results at Three Time Points for the Survey Question, “Parent Emotional Experience: Was your child emotionally supported?”*

![Density Plot](image)

Support for child from 1-10

<table>
<thead>
<tr>
<th>Time</th>
<th>Pre-Intervention</th>
<th>Mid-Intervention</th>
<th>Post-Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Support for child from 1-10</strong></td>
<td><strong>Support for child from 1-10</strong></td>
<td><strong>Support for child from 1-10</strong></td>
<td><strong>Support for child from 1-10</strong></td>
</tr>
<tr>
<td><strong>Probability of Responses</strong></td>
<td><strong>Probability of Responses</strong></td>
<td><strong>Probability of Responses</strong></td>
<td><strong>Probability of Responses</strong></td>
</tr>
<tr>
<td>0.00 - 0.25</td>
<td>0.25 - 0.50</td>
<td>0.50 - 0.75</td>
<td>0.75 - 1.00</td>
</tr>
</tbody>
</table>

*Visual representation of frequency of responses on a 10-point scale (1= least support; 10= most support)*

Figure 4.5 displays the frequency of parent responses to question, “Did you receive enough emotional support?” This question utilized the same ten point Likert scale as the previous question. The mean pre-intervention score was 9.46, the mean mid-intervention score was 8.67, and the mean post-intervention score was 9.71. There was no significant difference between score across the three time periods; before (indicated by color red), during (color green), or after (color blue) the intervention, which is represented by the overlap in the colored areas.
The final parent survey question to be analyzed was “Did you feel comfortable with your level of participation?” This question also used a ten point Likert scale where one represented strong discomfort, and 10 represented feeling very comfortable. The mean pre-intervention score was 9.0, the mean mid-intervention score was 9.1, and the mean post-intervention score was 9.2. There was no significant difference between the scores of the three time periods: before
(indicated by color red), during (color green), or after (color blue) the study intervention. Figure 4.6 shows the similar frequencies of responses to this question.

**Figure 4.6**

*Density Plot for Results at Three Time Points for the Survey Question, “Parent Emotional Experience: Did you feel comfortable with your level of participation?”*

```
<table>
<thead>
<tr>
<th>Time</th>
<th>Pre-Intervention</th>
<th>Mid-Intervention</th>
<th>Post-Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comfort with Participation from 1-10</td>
<td>Probability of Responses</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

*aVisual representation of frequency of responses on a 10-point scale (1= least comfortable; 10= most comfortable)*

**Summary**

Statistical analysis of the data related to research question one (Does the implementation of a CPG promoting parent presence during invasive NICU procedures implemented through a multifaceted educational intervention increase healthcare provider comfort with parent...*
PARENT PRESENCE DURING INVASIVE PROCEDURES

presence? found that there was a statistically significant increase in healthcare provider comfort with offering parent presence during invasive procedures. Healthcare providers also reported a statistically significant increase in feelings of preparedness in managing parental stress during their child’s invasive procedure.

Analysis of the data related to research question two (Is parent emotional experience associated with being present during invasive NICU procedures different after the implementation of a CPG?) found that parents’ emotional experiences were similar before, during, and after the intervention. The parents had initial high reports of feeling their presence was helpful to their children and to themselves. This trend continued after the intervention. Parents consistently reported they want the option to remain present during their child’s invasive procedure.

Parent presence during invasive procedures has been known to elicit anxiety and stress from healthcare providers. The implementation of a multifaceted intervention aimed at increasing healthcare provider comfort with the concept of parent presence during invasive procedures resulted in higher levels of healthcare comfort and preparedness with the practice.
Chapter Five

Introduction

Parent presence during invasive procedures has been known to elicit feelings of anxiety and discomfort among healthcare providers. However, parents have consistently reported their desire to have the option to remain present during their child’s procedure, although some may choose to leave. This discrepancy between parent desires and healthcare provider discomfort highlights an opportunity for professional growth and education. The AACN Synergy Model for Patient Care discusses the need for healthcare provider competence to be driven by the needs of the patient and their family. Thus, once a patient need is identified, it is the duty of the healthcare provider to strive to become competent in that area. Keeping in line with the Synergy Model for Patient Care, the intervention implemented in clinical practice dissertation provided an opportunity to develop competence in this area.

Discussion

The literature described widespread discomfort with parent presence during invasive procedures among healthcare providers. This was echoed in the data gathered from the healthcare providers in the Pre-Intervention Perception Survey. Some of the comments provided by the healthcare providers who participated in the survey are listed below.

- “My only concern with parental presence of invasive procedures, especially code situations, is that there is a staff member assigned to meet the parents’ needs if the situation becomes too difficult for them. A liaison, as is commonly practiced in the emergency room.”
- “May need extra people around to support parents. What if they get upset or pass
PARENT PRESENCE DURING INVASIVE PROCEDURES

out?”

• “I don’t believe parents should be present at procedures. They can be distracting and take your attention away from the procedure, where it should be.”

• “I feel confident in my skills, but do not perform as well when the parent is standing at the bedside. 1 IV stick is my norm. I average 3-4 if the parent is present.”

• “I feel very comfortable with parents at most procedures. I have always wanted to be present for my children’s procedures. What I CAN NOT do is compromise safety and efficacy of emergency procedures because of parental responses. I understand that it can be emotional, but my job there is to provide care to the neonate.”

These comments are strikingly consistent with the findings in the literature (Duran et al., 2007, Fein, Ganesh, & Alpern, 2004). Specifically cited concerns from healthcare providers included fears that the parents would be unable to tolerate the stress and be traumatized as a result, or become disruptive and negatively impact patient care (Duran et al., 2007, Fein, Ganesh, & Alpern, 2004). Healthcare also reported feeling uncomfortable being observed performing invasive procedures due to feeling increased pressure to succeed, and feeling teaching others would be interpreted as an indication of incompetence (Duran et al., 2007; Fein, Ganesh, & Alpern, 2004).

After the implementation of the study intervention, healthcare providers reported a significant increase in comfort with offering parent presence during invasive procedures increasing from a mean response of 7.2 to 8.5 on a scale of 1-10 (p<0.0001). They also reported significantly increased feelings of preparedness related to 1) Preparing the parent to be present
PARENT PRESENCE DURING INVASIVE PROCEDURES

(mean increased from 7.5 to 8.8; p<0.0001), 2) Supporting the parent during a procedure (mean increased from 7.2 to 8.8; p<0.0001), and 3) Assisting the parent who is unable to tolerate evolving events (mean increased from 6.5 to 8.0; p<0.0001).

Additionally, the increased scores persisted four months after the intervention was implemented. The second Post-Intervention Perception Survey showed similar responses as the first Post-Intervention Perception Survey, indicating the increase in mean responses was maintained. Healthcare provider report of comfort with offering parent presence during invasive procedures was a mean of 8.5 on the first Post-Intervention Perception Survey and 8.7 on the second Post-Intervention Perception Survey. The increase in mean responses was also sustained from the first to the second Post-Intervention Perception Surveys for healthcare provider reported feelings of preparedness related to 1) Preparing the parent to be present (8.7 and 8.8, respectively), 2) Supporting the parent during a procedure (8.8 and 8.7 respectively), and 3) Assisting the parent who is unable to tolerate evolving events (9.0 and 8.1 respectively).

Although there was a significant increase in comfort and preparedness among respondents, it was not unanimous. Some still reported discomfort with parent presence during invasive procedures. On the first Post-Intervention Perception Survey (using a scale from 1 to 10 where one is least comfortable and 10 is most comfortable offering parent presence) two people (3.4%) responded with a 4, three people (5.2%) responded with a 5, and two people (3.4%) responded with a 6. On the second Post-Intervention Perception Survey, one person (1.7%) responded with a 3, four people (6.7) responded with a 5, and three people (5.0%) responded with a 6. Healthcare providers offered the following comments on the Post-Intervention Perception Surveys:

- “There has been a noticeable attitude change with staff asking the parents to stay
or be a part of invasive procedures. Staff appears to feel more comfortable with parents at the bedside. Staff need to continue to designate someone to be with the parents during procedures.”

- “I think that offering parents the opportunity to be present during procedures not only helps the parents, but also the staff. I feel the staff becomes more confident in the delivery of their care. They will communicate better with the parents and decrease the fear and phobia.”

- “I was a support person for a parent and the PERCS program increased my ability to appropriately support the father. After the line placement, 2 days later he thanked me and introduced me to his wife stating ‘She helped me so much when the baby was born and came to the NICU.’ Thank you for offering the PERCS program. It has made a significant impact on my nursing practice.”

- “A parent facilitator was used during this procedure. I see it helped the parents by preparing them and supporting them. Also allowed the team to focus only on the patient we were intubating.”

- “The idea of having parents present during and invasive procedure can be nerve wracking. I have witnessed the change in staff’s attitude and behavior since the implementation of the clinical practice guideline. I think it served both the staff and parents positively. The staff is calmer and less fearful of failure. The parents are less anxious and are more involved.”

The findings from the healthcare provider perception surveys were consistent with the reported findings in the literature (Duran et al., 2007, Fein, Ganesh, & Alpern, 2004). The Pre-Intervention Perception Surveys illustrated the fears and concerns among healthcare providers
that parents would be unable to tolerate the stress of witnessing their child’s invasive procedure, or that they would interfere with the procedure or the staff’s ability to provide appropriate care. When compared to the Pre-Intervention Perception Survey the first and second post-intervention surveys showed a significant increase (18% and 20.1%, respectively) in healthcare provider comfort with offering parent presence for invasive procedures. Healthcare providers also felt more prepared to prepare parents (17.3% improvement on both post-intervention surveys), to support parents (22.2% and 20.1% improvement respectively), and assist parents during procedures (23.1% and 24.6% improvement respectively).

One significant aspect of the study intervention was the dissemination of a CPG stating that parent presence during invasive procedures is to be offered when appropriate. However, one cannot institute a new guideline expecting adherence and proficiency without also providing training (Curley et al., 2012). Therefore, healthcare provider training was offered in order to provide the tools necessary to achieve a level of comfort with parent presence during invasive procedures. As the staff comments above have shown, there was great value to the training. The staff comments, along with the survey data showing a significant increase (18.0-20.1%) in healthcare provider comfort with parent presence during invasive procedures, correlate with an effective study intervention. This is consistent with the findings in one extensive study evaluating the impact of the CPG and staff training (Curley et al., 2012). Healthcare provider reports of feeling an improved sense of preparedness also echo the reported finding in the literature (Meyer et al., 2009).

The parents who participated in the invasive procedure survey provided insight into the parental emotional experience of witnessing their infant’s invasive procedure. The information garnered from the data is consistent with the findings in the literature, specifically the desire to
have the option to be present (Duran et al., 2007; Mangurten et al, 2006). A review of the current literature found that the majority of parents would like the option to remain present for their child’s procedure, and many would choose to be present (Duran et al., 2007; Mangurten et al, 2006). Parents offered the following comments regarding being present for their child’s invasive procedure:

- “The procedure went very well. I appreciate being able to observe and be involved.”
- “Having your child going through a procedure is overwhelming and stressful. It’s important to inform parents and give them the option to stay or not.”
- “The RN, NP, and MD were all amazing, both with my husband and I, and our daughter; explaining what was happening, why, etc. Made us feel comfortable and validated our feelings.”
- “As terrifying as the experience was, the information, explanation of the NP and RNs with the comforting manner of everyone made the whole situation less terrifying, and that my son was in the best care.”
- “NICU staff were wonderful and fully supportive of my option to stay. It was pleasurable to be part of the care of my child; I feel more connected to my child.”

The comments offered by the parents who participated in the survey demonstrate similar concepts to those seen in the literature (Duran et al., 2007; Mangurten et al, 2006). Consistent with the findings in the literature, most parents (96.2%) who participated in the survey reported that they would like the option to be present for their child’s invasive procedure. Most (86.8%) who had stayed for the procedure stated that they would make the same choice for future procedures.
Parents reported high levels of understanding (mean of 9.46 out of 10), support for the infant (mean of 9.46), and support for the parent (mean of 9.0) prior to the study intervention. In a follow-up study, it would be interesting to measure differences, if any, in the same set of parents’ responses before and after staff training, as such a measurement would provide a better indication of impact of staff training on parent perception of staff support during invasive procedures.

**Theoretical Framework**

The theoretical framework chosen for this study was the American Association of Critical Care Nurses’ Synergy Model for Patient Care. According to the Synergy Model, patient outcomes are improved when nursing competency is driven by patient needs and characteristics (Hardin & Kaplow, 2005). In the NICU setting, the infant is the primary focus as the recipient of the clinical care. However, the family of the infant is also under the care of the staff. The infant as well as their family should be considered to be the patient. Parents participating in the study (96.2%), as well as in the literature (Meyers et al., 2000; Mangurten et al., 2006), consistently made it very clear that they feel it is their right to have the option to remain present for their child’s invasive procedure. The fact that healthcare providers are uncomfortable with this does not mean that the parents should be denied this opportunity to participate, even peripherally, in their child’s care. It does, however, illuminate a significant area for education and training. Healthcare providers can develop strategies for addressing concerns and fears, thus becoming more competent to address a patient and family need (Curley et al., 2012; Eichner et al., 2012; Gooding et al., 2011; Kamerling, Lawler, Lynch, & Schwartz, 2008).

The Synergy Model describes nursing characteristics that are required to be competent to provide care to critically ill patients that include: clinical judgment, advocacy, caring practices,
collaboration, systems thinking, response to diversity, clinical inquiry, and facilitation of learning (Hardin & Kaplow, 2005). Each one of these nurse characteristics can be applied to the concept of parent presence during invasive procedures. Each one of these characteristics emphasizes the patient as well as their family. Also, each one of these characteristics is essential to providing appropriate family centered care.

The implementation of the study intervention resulted in a significant increase (18.0-20.1%) in healthcare provider comfort with parent presence during invasive procedures. It also resulted in significant increases in feelings of preparedness. That is to say, healthcare providers reported feeling more competent with offering and managing parent presence during invasive procedures.

The Synergy Model applies very well to the concept of parent presence during invasive procedures. It highlights the need for healthcare provider education and training in order to increase comfort and preparedness, effectively increasing competence. It is the duty of the healthcare provider to care for the patient in the most effective way. In this circumstance, effective means optimizing parent education and participation in their child’s care.

**Study Limitations**

There were several limitations of the study. The study took place in a single setting: A community based level III neonatal intensive care unit. There was a fairly small sample size as well. These could impact the generalizability of the study findings. Future research utilizing a multi-site study design would increase the sample size and the generalizability of the findings. Expanding the study to include other patient areas such as the pediatric emergency department, pediatric inpatient floors, and adult care units, would also provide important information regarding generalizability.
PARENT PRESENCE DURING INVASIVE PROCEDURES

The weather created a major challenge during the course of the study. The PERCS (Program for Enhanced Relational and Communication Skills) program sessions were offered during the month of February 2015, which saw a historical amount of snow in the northeast. This negatively impacted the number of provider-participants in the formal PERCS sessions. This was somewhat mitigated by the offering of the informal sessions that took place in the NICU. Due to the cost and difficulty coordinating the schedules of the session facilitators, the formal PERCS sessions could not be rescheduled, and were therefore held as scheduled despite the weather.

It is important to note that the design of the study was such that parents were surveyed one single time. Therefore, the comparison is not between the same set of parents at two different points in time, but rather a comparison of the experiences of two groups of unique (non-overlapping) parents. This limits the ability to effectively compare the parent experience before and after the study intervention. Future researchers could design a study that focuses on the parent experience. Parents of chronically ill children who undergo procedures frequently could be surveyed enrolled in a study that evaluates their experiences before and after the implementation of a similar study intervention. Surveying the same parents after multiple procedures could allow for a comparison of experiences.

Implications for Future Practice

The multifaceted intervention implemented during this study resulted in a statistically significant increase in healthcare provider comfort with parent presence during invasive procedures in the NICU. Healthcare providers reported significant increases in offering parent presence and also in preparedness in managing parental stress during invasive procedures. Parents have consistently reported that they feel it is their parental right to have the option to
remain present for their child’s procedure. These findings validate the previously published findings, in the different setting of a community NICU. Healthcare providers were better positioned to meet the needs of patients and their families in the NICU setting by giving them the tools necessary to address their concerns. This is the embodiment of the Synergy Model for Patient Care.

In future practice, it would be ideal if parent presence during invasive procedures became engrained in the culture of the unit. By inviting the parents to be active participants in the care of their child, their role as the parent would be validated and they would be empowered to fulfill their role to the best of their ability. If parent presence during invasive procedures becomes the norm, healthcare provider comfort with it will continue to increase, as their experience with the practice will grow. Additionally, new staff members will be hired into a culture where parent presence during invasive procedures is the standard of care; this will increase the likelihood that staff and clinicians will continue to follow the practice.

Many of the participants commented that they found the PERCS program to be extremely worthwhile and asked if it could become a part of annual training. The program should be offered to NICU healthcare providers on a regular basis, and PERCS training should be extended to include ancillary staff such as nursing assistants, physical and occupational therapists, speech and language pathologists, social workers, and chaplains. Additionally, leadership could consider expanding the program to include all pediatric patient care areas such as the pediatric floor, pediatric emergency department, and mother-infant units.

**Implications for Future Studies**

Future research could expand upon these findings by applying the intervention to other patient populations and locations, such as pediatric long term care facilities, pediatric emergency
PARENT PRESENCE DURING INVASIVE PROCEDURES

departments, and pediatric surgical centers. While there was a significant increase in healthcare provider comfort with parent presence during invasive procedures seen in this study setting, it was a single setting study. Future research could include multiple patient care areas, as the original work of Dr. Martha Curley did (Curley et al., 2012). Future research could also collect data at additional points in time to evaluate sustainability of changes in healthcare provider self report of comfort with parent presence during invasive procedures.

This study also surveyed parents a single time, so the same parents were not surveyed before and after the implementation of the study intervention. Perhaps a future study could be constructed where the same parents would be available both before and after the implementation of this intervention. This would enable researchers to compare parents’ experiences before and after the intervention; this would provide a different and perhaps more powerful perspective on the interventions’ impact on the practice of including parents in invasive procedures.

Implications for Practice

This study demonstrated that with proper training and guidelines, healthcare providers can become significantly more comfortable with parent presence during invasive procedures. Additionally, the parents who participated in the study consistently reported that they desired to have the option to remain present for their child’s procedure. This sentiment has been echoed in the literature (Duran et al., 2007; Mangurten et al., 2006).

It is the duty of the healthcare provider to strive to meet the needs of the patient and their family, to the best of their ability. This means allowing the parents to be as involved in their child’s care as they would like. As healthcare providers, it is important to give parents the option to remain present.

Implications for Policy
PARENT PRESENCE DURING INVASIVE PROCEDURES

Without proper policies and guidelines in place, there can be variation in practice. Especially when introducing a new concept that can be anxiety provoking, such as parent presence during invasive procedures, it is imperative to have proper policies in place, to collect data about adherence to such policies, and, as necessary, to provide periodic training to maintain and/or extend performance. Implementing a CPG, such as the one used in this study intervention, will assist with standardizing the approach.

Unit specific policies and CPGs should be developed and implemented when introducing parent presence during invasive procedures. This will provide some encouragement to offer parent presence despite it being a change in practice for some.

Implications for Education

A major component of the study intervention was the educational initiative. Without proper education and training, simply mandating people to perform a new task or to learn a new concept is setting them up for failure. The PERCS (Program for Enhanced Relational and Communication Skills) program is a unique learning experience. The aim of the program is to equip healthcare providers with the tools necessary to increase comfort with parent presence during invasive procedures. The PERCS program is an interactive, engaging learning experience. It provides opportunities for healthcare providers to discuss concerns related to parent presence during invasive procedures, as well as strategies to address and manage these concerns. There is also ample opportunity for practicing the management strategies with high a fidelity simulation, including professional actors who portray parents.

Healthcare provider education traditionally focuses on caring for a patient by treating the disease process. However, providing care for the whole person rather than just the disease has been what sets nursing apart from other healthcare professions. Caring for the whole person
means caring for the family as well. Healthcare provider education must be expanded to include communication skills aimed at improving the relationships between healthcare providers and their patients, along with the families.

Summary

The findings in this study closely correlate with the findings in the current literature. Before the intervention, healthcare providers reported concerns regarding parent presence during invasive procedures. Specifically, providers expressed concerns that the parents could be distracting to the providers or become distressed by the event. However, after the implementation of the multifaceted intervention, there was a statistically significant increase in healthcare provider comfort with parent presence.

The data gathered from the parents also correlated with the findings in the literature. Most notable was the consistent report that parents desire the option to remain present for their child’s invasive procedure. By implementing the study intervention, healthcare providers were able to significantly increase their comfort with parent presence, thereby aligning healthcare provider competency with patient and family needs. This is the main tenet of the Synergy Model of Patient Care.

Study limitations included a small sample size and the fact that this was a single site study. Additionally, there were significant challenges as a result of a series of blizzards that interfered with providers attending the PERCS workshops. In addition to scheduling make-up sessions in the event of inclement weather, future researchers could expand upon the study by involving other pediatric patient populations and including multiple study sites.

Parent presence during invasive procedures should become not only accepted but encouraged. CPGs and unit policies should support the inclusion of parents at all possible points
of care. Also, healthcare provider education and training regarding communication skills in support of guidelines and policies should become a standard.

**Conclusion**

Parent presence during invasive procedures is a concept that elicits anxiety and discomfort among many healthcare providers. This illuminates incongruence between the needs of the patient and their family and the comfort of the healthcare providers. The Synergy Model for Patient Care states that the needs of the patient and family should drive the practices of the healthcare provider. The multifaceted intervention implemented in this study aimed to improve healthcare provider comfort with parent presence during invasive procedures. Data was collected over a six month time period. Healthcare providers were surveyed at three distinct points, and data from the parents was collected continuously over the six-month study period. Healthcare providers reported a statistically significant increase in comfort with offering parent presence. There was also a significant increase in healthcare provider report of preparedness to prepare the parents, support the parent during the procedure, and assist the parent who is unable to tolerate the events. There was no significant difference in parent responses before, during, or after the study intervention, demonstrating that throughout all phases of the study, parents felt informed, that they and their child were supported emotionally, and that they would like the option to remain with their infant. This study intervention appeared to be effective in increasing provider comfort. Parent presence should be encouraged. Parents have made it abundantly clear that they expect to have the option to remain present for their child’s procedure. If healthcare providers report concerns or discomfort with that concept, then it is necessary to provide proper measures in the form of guidelines, policies, and training in order to facilitate healthcare provider
PARENT PRESENCE DURING INVASIVE PROCEDURES

competence. It is in this manner that healthcare providers can truly meet the needs of the
patients and their families. Only then will true synergy be achieved.
PARENT PRESENCE DURING INVASIVE PROCEDURES

References


PARENT PRESENCE DURING INVASIVE PROCEDURES


PARENT PRESENCE DURING INVASIVE PROCEDURES


PARENT PRESENCE DURING INVASIVE PROCEDURES


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PARENT PRESENCE DURING INVASIVE PROCEDURES


Appendix A
Permission to reproduce the figure of the Synergy Model
Appendix B
Pre-Intervention Perception Survey

Pre-Intervention Perception Survey

You are being asked to take part in a research study about parent presence during invasive procedures. You will be asked to complete a survey about your thoughts and feelings regarding parent presence during invasive procedures. Your participation is voluntary. All information is recorded anonymously.

The purpose of this survey is to evaluate healthcare providers’ comfort level with parent presence during invasive procedures. Participation in the survey process is entirely confidential as well as voluntary. Refusal to participate or withdrawal will not involve a penalty or loss of benefits to which you are otherwise entitled. The data gathered will be statistically analyzed and the results will be disseminated and submitted for publication. All demographic data will be reported only in the aggregate, and responding to those questions is also entirely voluntary as well as confidential. Please seal the completed survey in the provided envelope prior to submitting it to ensure confidentiality.

The PI of the study is Amy Ditzel, RN, MS, NNP-BC. You can reach her at 781-624-8373.

Circle the most invasive bedside procedure (select one) in which you were involved in the past three months.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2. PICC or Peripheral Arterial line insertion</td>
<td>10. ETT extubation</td>
</tr>
<tr>
<td>3. Urinary catheter placement</td>
<td>11. ETT intubation</td>
</tr>
<tr>
<td>5. Circumcision</td>
<td>13. Other, please specify: ____________________</td>
</tr>
<tr>
<td>6. Endo-tracheal suctioning</td>
<td>14. None of the above</td>
</tr>
<tr>
<td>7. Lumbar Puncture</td>
<td></td>
</tr>
<tr>
<td>8. Umbilical Catheter Placement</td>
<td></td>
</tr>
</tbody>
</table>

2. Using the above list and the same time period, please identify the most invasive procedure that you were involved in which parents were present.

Insert the number from the list above__________________________
(if your answer is #14 - (none of the above) please skip to question 9)

3. Who first requested that the parent(s) stay?

- RT
- Physician/NP
- Parent
- No one (occurred spontaneously)
- Nurse
- Other, please specify: ____________________

4. Was this the first time that the parent experienced the invasive procedure?

- Yes
- No
- Don’t Know

5. Prior to the parent’s involvement, what information was provided to them? (Circle all that apply)
PARENT PRESENCE DURING INVASIVE PROCEDURES

What they would see
Typical patient response
Suggest ways they could help
Other, please specify: _______________
None of the above
Don’t know

6. If information was provided, who provided it? (Fill in all that apply.)
   Nurse   Physician/NP   RT   Other, please specify: _____________

7. What specifically did the parents do? (Circle in all that apply.)
   Observed from a distance
   Provided physical contact
   Provided verbal reassurance
   Other, please specify: _______________

8. Did the parent interfere with the procedure?   Yes   No
   If yes, did you ask the parent to leave?   Yes   No

9. How comfortable are you with the idea of providing the option to some parents to be present during an invasive procedure on their infant/child? (Please select just one number)
   1  2  3  4  5  6  7  8  9  10
   Not at all comfortable   Very comfortable

10. On a scale from 0-10, to what extent do you feel prepared to complete the following during an invasive procedure on your infant/child? (Please select just one number for each question)

<table>
<thead>
<tr>
<th></th>
<th>0 1 2 3 4 5 6 7 8 9 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Assess the parent’s capacity to be present:</td>
<td>Not prepared at all Very Prepared</td>
</tr>
<tr>
<td>b. Assess the parent’s desire to be present:</td>
<td>Not prepared at all Very Prepared</td>
</tr>
<tr>
<td>c. Prepare the parent to be present</td>
<td>Not prepared at all Very Prepared</td>
</tr>
<tr>
<td>d. Support the parent during a procedure</td>
<td>Not prepared at all Very Prepared</td>
</tr>
<tr>
<td>e. Assist the parent who is unable to tolerate evolving events</td>
<td>Not prepared at all Very Prepared</td>
</tr>
</tbody>
</table>
Demographic Information

11. What is your age? ______

12. What is your job title?
   - Physician/NP
   - RN
   - Respiratory Therapist

13. In which unit(s) do you primarily work? *(Fill in all that apply)*
   - NICU
   - SCN

14. How many years of pediatric/neonatal experience do you have? _____ yrs.
   *(MDs: Please include years in pediatric/neonatal training.)*

15. What are the first four letters of your mother’s maiden name? ___ ___ ___

Please feel free to insert any other comments regarding parent presence during invasive procedures in the box.

*Thank you for your time and input; please return completed surveys in the provided envelope*

Version 12.15.2014
Appendix C
Post-Intervention Perception Survey

Post-Intervention Perception Survey

You are being asked to take part in a research study about parent presence during invasive procedures. You will be asked to complete a survey about your thoughts and feelings regarding parent presence during invasive procedures. Your participation is voluntary. All information is recorded anonymously.

The purpose of this survey is to evaluate healthcare providers’ comfort level with parent presence during invasive procedures. Participation in the survey process is entirely confidential as well as voluntary. Refusal to participate or withdrawal will not involve a penalty or loss of benefits to which you are otherwise entitled. The data gathered will be statistically analyzed and the results will be disseminated and submitted for publication. All demographic data will be reported only in the aggregate, and responding to those questions is also entirely voluntary as well as confidential. Please seal the completed survey in the provided envelope prior to submitting it to ensure confidentiality.

The PI of the study is Amy Ditzel, RN, MS, NNP-BC. You can reach her at 781-624-8373.

Circle the most invasive bedside procedure (select one) in which you were involved in the past three months.

1. Peripheral IV placement/venipuncture
2. PICC or Peripheral Arterial line insertion
3. Urinary catheter placement
4. Nasogastric tube placement
5. Circumcision
6. Endo-tracheal suctioning
7. Lumbar Puncture
8. Umbilical Catheter Placement
9. Chest tube removal
10. ETT extubation
11. ETT intubation
12. Chest tube placement
13. Other, please specify: ____________________
14. None of the above

2. Using the above list and the same time period, please identify the most invasive procedure that you were involved in which parents were present.

Insert the number from the list above______
(If your answer is #14 - (none of the above) please skip to question 9)

3. Who first requested that the parent(s) stay?

RT
Physician/NP
Parent
No one (occurred spontaneously)
Nurse
Other, please specify: ____________________

4. Was this the first time that the parent experienced the invasive procedure?

☐ Yes  ☐ No  ☐ Don’t Know
5. Prior to the parent’s involvement, what information was provided to them? (Circle all that apply)
   - What they would see
   - Typical patient response
   - Suggest ways they could help
   - Other, please specify: ______________
   - None of the above
   - Don’t know

6. If information was provided, who provided it? (Fill in all that apply.)
   - Nurse
   - Physician/NP
   - RT
   - Other, please specify: ______________

7. What specifically did the parents do? (Circle in all that apply.)
   - Observed from a distance
   - Provided physical contact
   - Provided verbal reassurance
   - Other, please specify: ______________

8. Did the parent interfere with the procedure? Yes   No
   If yes, did you ask the parent to leave? Yes   No

9. How comfortable are you with the idea of providing the option to some parents to be present during an invasive procedure on their infant/child? (Please select just one number)
   1  2  3  4  5  6  7  8  9  10
   Not at all comfortable
   Very comfortable

10. Did you attend any of the following training sessions on ‘Parent Presence during Invasive Procedures’? (Fill in all that apply)
    - O Staff meeting where guideline was discussed
    - O Practice guideline review with the unit-based educator
    - O PERCS Workshop
    - O No training has been received
    - O Other training, please specify below____________________

11. On a scale from 0-10, to what extent do you feel prepared to complete the following during an
    (Please select just one number for each question)
    a. Assess the parent’s capacity to be present:
       0  1  2  3  4  5  6  7  8  9  10
       Not prepared at all
       Very Prepared
    b. Assess the parent’s desire to be present:
       0  1  2  3  4  5  6  7  8  9  10
       Not prepared at all
       Very Prepared
    c. Prepare the parent to be present
       0  1  2  3  4  5  6  7  8  9  10
**PARENT PRESENCE DURING INVASIVE PROCEDURES**

<table>
<thead>
<tr>
<th>d. Support the parent during a procedure</th>
<th>Not prepared at all</th>
<th>Very Prepared</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>e. Assist the parent who is unable to tolerate evolving events</td>
<td>Not prepared at all</td>
<td>Very Prepared</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

12. On a scale from 1-10, to what extent do you feel the following elements of the practice guidelines in *Parent Presence at the Bedside during an Invasive Procedure* are implemented?

<table>
<thead>
<tr>
<th>a. Reach team consensus on offering the Parent the option to be present:</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
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<tbody>
<tr>
<td>Never</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Always</td>
</tr>
<tr>
<td>b. Assess the parent’s capacity to be present:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
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<tr>
<td>Never</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Always</td>
</tr>
<tr>
<td>c. Assess the parent’s desire to be present:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Never</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Always</td>
</tr>
<tr>
<td>d. Prepare the parent to be present:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
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<td>Never</td>
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<td></td>
<td></td>
<td></td>
<td>Always</td>
</tr>
<tr>
<td>e. Assign an appropriate staff person to the parent so the team can focus entirely on the patient:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
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<tr>
<td>Never</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Always</td>
</tr>
<tr>
<td>f. Support the parent during the procedure:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
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<td>Never</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Always</td>
</tr>
<tr>
<td>g. Assist the parent who is unable to tolerate evolving events:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Never</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Always</td>
</tr>
</tbody>
</table>

Please add any comments regarding your clinical experience with parent presence, the practice guideline on *Parent Presence at the Bedside during an Invasive Procedure*, and or the training.
Demographic Information

13. What is your age? ______

14. What is your job title?
   - Physician/NP
   - RN
   - Respiratory Therapist

15. In which unit(s) do you primarily work? *(Fill in all that apply)*
   - NICU
   - SCN

16. How many years of pediatric/neonatal experience do you have? _____ yrs.
   *(MDs: Please include years in pediatric/neonatal training.)*

17. What are the first four letters of your mother’s maiden name? ____ ____ ____

Please free feel to insert any other comments regarding parent presence during invasive procedures in the box.

*Thank you for your time and input; please return completed surveys in the provided envelope*

Version 12.15.2014
Parent Invasive Procedure Survey

You are being asked to take part in a research study about parent presence during invasive procedures. You will be asked to complete a survey about your thoughts and feelings regarding your experience of being present during your child’s invasive procedure. Your participation is voluntary. All information is recorded anonymously.

The purpose of this survey is to evaluate parent experiences during their child’s invasive procedures. Participation in the survey process is entirely confidential as well as voluntary. Refusal to participate or withdrawal will not involve a penalty or loss of benefits to which your child is otherwise entitled. The data gathered will be statistically analyzed and the results will be disseminated and submitted for publication. All demographic data will be reported only in the aggregate, and responding to those questions is also entirely voluntary as well as confidential. Please seal the completed survey in the provided envelope prior to submitting it to ensure confidentiality.

The Principal Investigator of the study is Amy Ditzel, RN, MS, NNP-BC. You can reach her at 781-624-8373.

Version 12.10.2014
4. Was this the first time that you stayed for this procedure?  Yes  No

5. Prior to staying, did you receive any of the following information?
   Yes  No

   If YES, please identify the information received: (Fill in all that apply)
   ○ What you would see
   ○ How your infant/child might respond
   ○ Suggest ways you could help
   ○ Other, please specify: ____________________________________________

   What information (from the list above) was MOST helpful?

   What information (from the list above) was LEAST helpful?

6. On a scale from 1-10, to what extent do you think that your presence:
   (Please fill in only one circle for each question)

   a. Helped your infant/child?
      1  2  3  4  5  6  7  8  9  10
      Not at all helpful  Extremely helpful

   b. Helped you as a parent?
      1  2  3  4  5  6  7  8  9  10
      Not at all helpful  Extremely helpful

7. On a scale from 1-10, please answer the following questions:
   (Please fill in only one circle or each question)

   a. Did you understand what was going on?
      1  2  3  4  5  6  7  8  9  10
      Did not understand  Understood completely

   b. Did you feel your infant/child received enough emotional support?
      1  2  3  4  5  6  7  8  9  10
      Not supported  Fully supported

   c. Did you feel you received enough emotional support?
      1  2  3  4  5  6  7  8  9  10
      Not supported  Fully supported

   d. Did you feel comfortable with your level of participation?
      1  2  3  4  5  6  7  8  9  10
      Not comfortable  Fully comfortable

8. If your child requires a similar procedure in the future, would you:

   a. Like the option to stay during the procedure?  ○ Yes  ○ No  ○ Unsure

   b. Stay during the procedure?  ○ Yes  ○ No  ○ Unsure
Please add any additional comments on this topic that you think are important. (For example, do you have any advice for staff members, etc.?)

Demographic Information

9. What was your child’s gestational age at birth? ______ Weeks ______ Days

10. What day of life is your child? (Day of birth is day 0) __________

11. What is your age?

12. What are the first four letters of your mother’s maiden name? ___ ___ ___ ___

Thank you for your participation!
Please return your survey sealed in the provided envelope
Healthcare Provider Invasive Procedure Survey

You are being asked to take part in a research study about parent presence during invasive procedures. You are being asked to complete a survey about your thoughts and feelings regarding your experience of having a parent remain present during their child’s invasive procedure. Your participation is confidential and voluntary. Refusal to participate or withdrawal will not involve a penalty or loss of benefits to which you are otherwise entitled. All information is recorded anonymously. The data gathered will be statistically analyzed and the results will be disseminated and submitted for publication. All demographic data will be reported only in the aggregate, and responding to those questions is also entirely voluntary as well as confidential. Please seal the completed survey in the provided envelope prior to submitting it to ensure confidentiality.

The Principal Investigator of the study is Amy Ditzel, RN, MS, NNP-BC.

You can reach her at 781-624-8373.

Unit:  O NICU  O SCN  Date: ___/___/___  Case#: ___ ___ ___

1. What procedure was performed?  ______________________________

2. Was the parent given the option to be present during this procedure?  O Yes  O No

What factored into your decision?

3. Was a team consensus achieved prior to providing parent(s) the option to stay?
   O Yes    O No    O Unknown

4. Who first requested that the parent(s) stay? (Please select one)
   O Parent  O Physician/NNP
   O RN      O RT
5. Was this the first time the parent witnessed the procedure?  ○ Yes  ○ No  ○ Don’t know

6. Prior to the procedure, what information was provided to the parent? (Fill in all that apply)
   ○ What they would see  ○ Other, please specify: ____________
   ○ Typical patient responses  ○ None of the above
   ○ Suggested ways they could help  ○ Don’t know how parent was prepared

7. How did the parent interact with the patient during the procedure? (Fill in all that apply)
   ○ Stood in the room, but away from the patient  ○ Provided verbal reassurance
   ○ Stood next to the patient  ○ Provided restraint
   ○ Provided physical contact  ○ Provided comfort/held
   ○ Other, please specify: ____________________________________________

8. Was a Parent Facilitator used?  ○ Yes  ○ No

If YES, what factored into the decision to use one?

9. Who provided information and support to the parent during the procedure? (Fill in all that apply)
   ○ No one
   ○ Member(s) of the bedside team
   ○ Unit staff member, please specify: ____________
   ○ Parent Facilitator
   ○ Other, please specify: ____________

10. On a scale from 1-10, please describe the emotional state of the parent during the procedure. (Please select just one number)
PARENT PRESENCE DURING INVASIVE PROCEDURES

- Calm
- Distraught

If distraught, was the parent asked to leave? ○Yes ○No ○Unknown

Please describe the scenario and parent response to your intervention:

11. On a scale from 1-10, to what extent do you feel the parent’s presence:

(Please fill in only one circle for each item)

a. Affected YOUR technical skill/performance?
- 1 2 3 4 5 6 7 8 9 10
- Not affected
- Significantly Hindered

b. Affected YOUR therapeutic decision making?
- 1 2 3 4 5 6 7 8 9 10
- Not affected
- Significantly Hindered

c. Affected YOUR ability to teach those in training?
- 1 2 3 4 5 6 7 8 9 10
- Not affected
- Significantly Hindered

d. Helped the patient?
- 1 2 3 4 5 6 7 8 9 10
- Not at all helpful
- Extremely Helpful

e. Helped the parent?
- 1 2 3 4 5 6 7 8 9 10
- Not at all helpful
- Extremely Helpful

12. On a scale from 1-10, to what extent do you feel the parent’s needs for information and support were met? (Please select just one number)

- 1 2 3 4 5 6 7 8 9 10
- Not at all
- Completely
Appendix F
Facilitator Invasive Procedure Survey

Facilitator Invasive Procedure Survey

You are being asked to take part in a research study about parent presence during invasive procedures. You are being asked to complete a survey about your thoughts and feelings regarding your experience of having a parent remain present during their child’s invasive procedure. Your participation is confidential and voluntary. Refusal to participate or withdrawal will not involve a penalty or loss of benefits to which you are otherwise entitled. All information is recorded anonymously. The data gathered will be statistically analyzed and the results will be disseminated and submitted for publication. All demographic data will be reported only in the aggregate, and responding to those questions is also entirely voluntary as well as confidential. Please seal the completed survey in the provided envelope prior to submitting it to ensure confidentiality.

The Principal Investigator of the study is Amy Ditzel, RN, MS, NNP-BC.

You can reach her at 781-624-8373.

Unit:  ○ NICU  ○ SCN  Date: ___/___/___  Case#: ___ ___ ___

1. What procedure was performed?  ____________________________

2. What things did you do during the procedure? (Fill in all that apply)
   ○ Accompanied the parent(s) to the patient care area
   ○ Joined the parent(s) at the bedside
   ○ Created opportunities for parent to leave and return to the beside as needed
   ○ Announced the parent's presence at the bedside
   ○ Assessed parents influence on the milieu, and responded appropriately to physical safety of all
   ○ Accessed appropriate services (translator, chaplaincy, social work, psychology, security, etc)
   ○ Other, please specify: ___________________________________________

3. What did you provide for the parent(s) during the procedure? (Fill in all that apply)
   ○ Information about the procedure and medical team
   ○ Emotional Support
   ○ Explanations about what to expect
   ○ Information about how best to be present during the event (may include touching and talking to child)
   ○ Information about expectations of the parents' behavior during the event
4. Which of the following activities do you feel were most important to the parents? (Fill all that apply)
   - Preparing them for what they would see
   - Providing information about typical patient responses
   - Suggesting ways they could help their child
   - Making referrals
   - Providing support
   - Assisting them in leaving and/or returning to the bedside
   - Other, please specify: ________________________________

5. In addition to yourself, who else provided information and support to the parents during the invasive procedure? (Fill in all that apply)
   - No one, parent by him/herself
   - Another family member
   - Another clinician, please specify: ___________

6. How did the parent(s) interact with the patient during the invasive procedure? (Fill in all that apply)
   - Stood in the room but far away from the patient
   - Provided comfort/held
   - Provided restraint
   - Stood next to patient
   - Provided physical contact
   - Provided verbal reassurance
   - Other, please specify: ________________________________

7. On a scale from 1-10, please describe the emotional state of the parent during the procedure. (Please select just one number)
   - 1  2  3  4  5  6  7  8  9  10
PARENT PRESENCE DURING INVASIVE PROCEDURES

Calm

Distraught

If distraught, was the parent asked to leave? ○Yes  ○No  ○Unknown

Please describe the scenario and parent response to your intervention:

8. On a scale from 1-10, to what extent do you feel the parent’s presence:

(Please fill in only one circle for each question)

a. Helped the patient? ○1  ○2  ○3  ○4  ○5  ○6  ○7  ○8  ○9  ○10
Not at all helpful

b. Helped the parent? ○1  ○2  ○3  ○4  ○5  ○6  ○7  ○8  ○9  ○10
Not at all helpful

9. On a scale from 1-10, to what extent do you feel the parent’s needs for information and support were met? (Please select just one number)

○1  ○2  ○3  ○4  ○5  ○6  ○7  ○8  ○9  ○10
Not at all

Completely

Please comment (especially if the parent’s needs were not met):

10. What were you doing just prior to facilitating this event? (Fill in all that apply)

○ Direct care with the patient
PARENT PRESENCE DURING INVASIVE PROCEDURES

- Direct care with a different patient
- Charge nurse
- Other, please specify: ______________________________

11. Did you attend the PERCS: Supporting Parents at the Bedside workshop? 〇Yes 〇No

If you would like to provide any additional comments about the invasive procedure, please use the space below:

Demographic Information

12. What is your job title?
   - Physician/NNP
   - RN
   - RT

13. What is your age? ________

14. How many years of pediatric/neonatal experience do you have? ________

15. What are the first four letters of your mother’s maiden name? ___ ___ ___ ___

Thank you for your participation!

Please return your completed survey sealed in the provided envelope

Version 12.15.2014