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Management of Preoperative Distress by Anesthesia Providers in Toddlers and Preschoolers

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UNIVERSITY OF MIAMI

MANAGEMENT OF PREOPERATIVE DISTRESS BY ANESTHESIA PROVIDERS
IN TODDLERS AND PRESCHOOLERS

By

Rossana Bizzio-Knott

A DISSERTATION

Submitted to the Faculty
of the University of Miami
in partial fulfillment of the requirement for
the degree of Doctor of Philosophy

Coral Gables, Florida

December 2016

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MANAGEMENT OF PREOPERATIVE DISTRESS BY ANESTHESIA PROVIDERS
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The period of time associated with a child's preparation for surgery and induction of general anesthesia is one of the most stressful events a child can experience. It is estimated that 40-60% of children experience preoperative anxiety before induction of anesthesia. Toddlers and preschoolers' cognitive limitations, lack of self-control, high level of dependency on adults, and their limited understanding of the healthcare process make them prone to experience distress and excessive anxiety during the preoperative period. This inability to fully comprehend or manage the hospitalization experience leads to preoperative distress. Children's preoperative distress has also been linked to ineffective coping mechanisms which are associated with significant negative behavioral, physiological, and clinical consequences.

This study utilized a descriptive qualitative research approach to comprehensively determine the pharmacological and non-pharmacological interventions utilized by anesthesia providers in daily practice to reduce young children's preoperative distress. Anesthesia providers' choices and practices in the management of preoperative distress in children was explored using first hand descriptions and explanations. The participants in this study also provided descriptions which address the causes for preoperative distress in children and their recommendations to minimize its occurrence.

A convenience sample of 20 participants were recruited for this study.

Participants were anesthesiologists ($n = 6$), and certified registered nurse anesthetists ($n = 14$) who ranged in age from 33-59 years of age ($M = 47.85$, $SD = 6.59$) and worked an average of 42.95 hours ($SD = 8.54$) per week and spent a significant amount of their clinical time in pediatric anesthesia practice. Five major themes emerged from narratives provided during the anesthesia providers' face-to-face interviews: (1) Non-Pharmacological Interventions Used by Anesthesia Providers, (2) Pharmacological Interventions Utilized by Anesthesia Providers, (3) Anesthesia Providers' Perceptions of Preoperative Distress in Children, (4) Anesthesia Providers Best Practices and Recommendations, and (5) Anesthesia Providers' Reactions to Parents and Children. The results of this study support the need to better prepare anesthesiologists and registered nurse anesthetists in the areas of child development and psychological management of children during the preoperative phase, provided clear evidence of best practices to manage preoperative distress in children, and suggest opportunities for changes in policy at the hospital level to increase the occurrence of positive health outcomes for patients, families and anesthesia providers. This study's results suggest the importance of implementing a family centered approach to the preoperative management of children by including adequate preparation, and support to parents and children with health and socioeconomic disparities. Finally, this study provided evidence of the effects of operating room efficiency pressure on their ability to perform their clinical duties, and the lack of formal debriefing procedures to address negative clinical outcomes, and/or grief caused by their frequent interactions with chronic or terminally ill children.

DEDICATION

This dissertation is dedicated to:

- 1) *To my beautiful children Tristan and Daniella Knott... “Los quiero, hasta el infinito y mas alla.”*
- 2) *To all the children and parents who must endure illness, hospitalization, and surgery.*
- 3) *To my colleagues at Jackson Memorial Hospital whose talent, dedication, and compassion makes a difference in a child’s life. May God always watch over you.*

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I could not have completed this dissertation alone. This accomplishment was possible because of extraordinary people in my life who encouraged me every step of the way. Forgive me if I forget to list your name here. Know that if we crossed paths during this process, I am genuinely grateful for you.

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Chapter 1

Introduction

Process of Preoperative Distress in Children

Most anesthesia providers would agree that the period of time associated with a child's preparation for surgery and induction of general anesthesia is one of the most stressful and consequential events a child can experience. It is estimated that 40-60% of children experience preoperative anxiety before induction of anesthesia; therefore, the effectiveness of pharmacological and non-pharmacological pre-induction interventions has been the focus of interest for many pediatric anesthesia providers (Kain & Caldwell-Andrews, 2005).

Children's cognitive limitations, lack of self-control, high level of dependency on adults, and their limited understanding of the healthcare process make them prone to experience distress and excessive anxiety during the preoperative period. This inability to fully comprehend or manage the hospitalization experience leads to preoperative distress (Li & Lam, 2003). Children's preoperative distress has also been linked to ineffective coping mechanisms which are associated with significant behavioral and physiological consequences (Kain, Mayes, Caldwell- Andrews, Karas, & McClain, 2006).

Hospitalization and surgery produces a number of real and potential threats to the child undergoing a surgical procedure. According to Visintainer and colleagues (1975), children's threats fall under five categories: (1) physical harm or bodily injury associated with discomfort, pain, mutilation or death, (2) separation from parents and the absence of trusted adults (especially in children of preschool age), (3) fear of the unknown, (4)

uncertainty about limits and expected “acceptable behavior” while in the hospital; and (5) loss of control, autonomy or competence in an extraneous environment. If these threats are not removed, ameliorated or the child does not possess adequate coping mechanisms, the hospitalized child could experience different degrees of distress (Visintainer & Wolfer, 1975). Although Dr. Zeev Kain and other researchers (Akinci, Aypar, Kose, & Ocal, 2008; Costa Fernandes & Arriaga, 2010; Finley, Stewart, Buffett- Jerrott, Wright, & Millington, 2006; Kain et al., 2007) researched the impact of parental presence, distraction techniques, hospital-based preparation programs, and use of sedatives for the treatment of children’s preoperative distress before and during induction of anesthesia, the role the anesthesia provider plays on influencing children’s perioperative distress and coping mechanisms remains understudied. The recent Behavioral Interactions Perioperative Study (BIPS), funded by the National Institute of Health (MacLaren Chorney & Kain, 2009), assessed the effects of adults’ behaviors on children’s preoperative anxiety before and during induction of anesthesia. The BIPS study revealed younger children (2-3 years of age) are more likely to display signs of preoperative distress than older children. Specifically, more than 40% of children who undergo general anesthesia present evidence of distress during the preoperative phase and actual induction of anesthesia (MacLaren Chorney & Kain, 2009), further validating the findings of older studies which support that children younger than 6 years of age are at higher risk of experiencing more intense reactions during the perioperative and hospitalization process (Kain, Mayes, Weisman, & Hofstadter, 2000; Hagglof, 1999)

Most surgical and anesthesia personnel understand that children’s level of distress increases progressively as the child is admitted to the hospital and is taken to the

preoperative area and the operating room (Caldas, Pais-Ribero, & Carneiro, 2004). Each step introduces a new source of distress to the child experiencing lack of control and separation from the parents in an unfamiliar and threatening environment (Li, 2007). This progressive and summative process of preoperative distress peaks when the child reaches the operating room and starts to progressively decrease in intensity by the time patients are reunited with parents in the recovery room to be discharged home when applicable (Li & Lam, 2003). The purpose of this dissertation was to investigate the types of pharmacological and non-pharmacological interventions utilized by anesthesia providers in their daily practice to reduce preoperative distress in children younger than 6 years of age. The preoperative process and milestone events which occur at each stage of the

Figure 1: The Process of Preoperative Distress in Children.

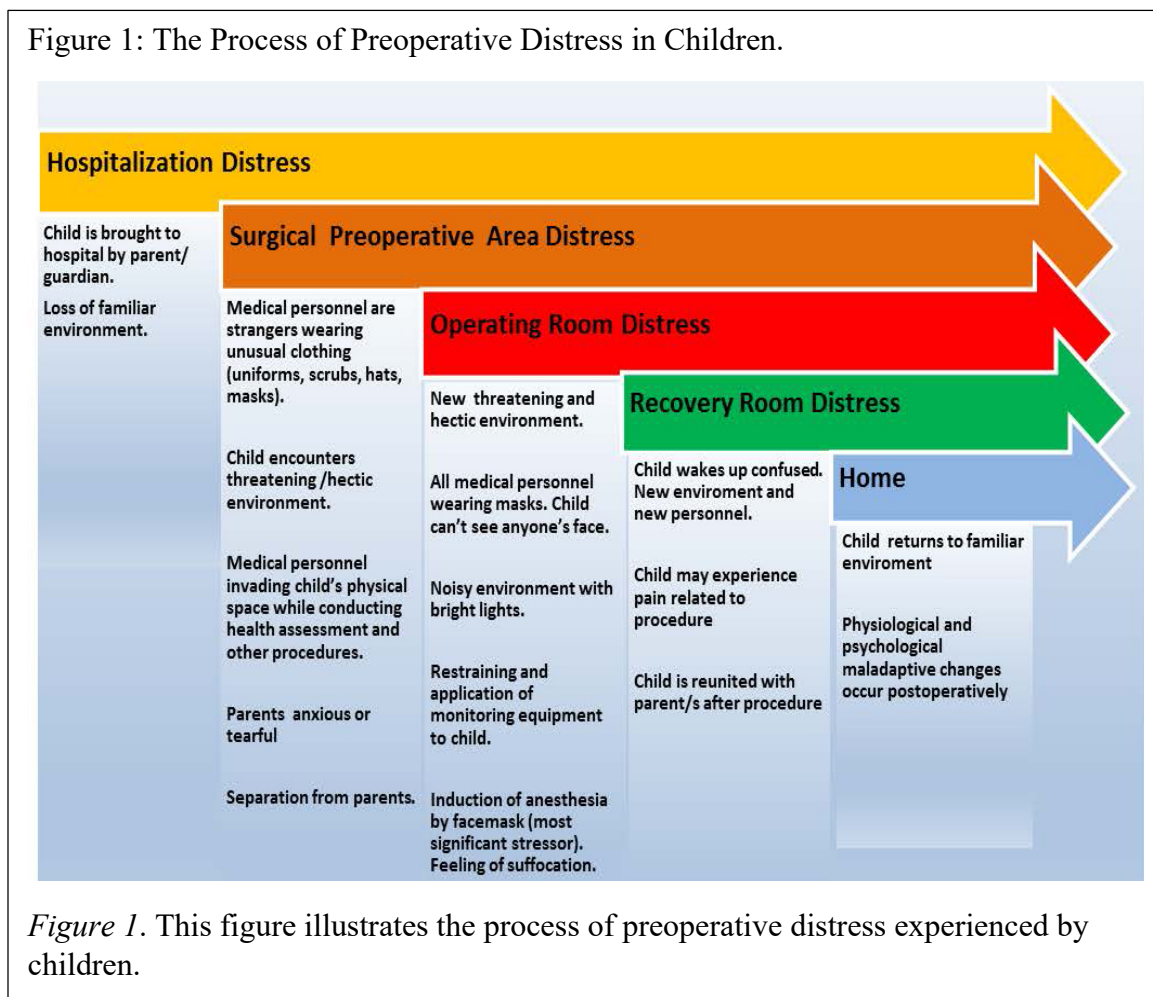


Figure 1. This figure illustrates the process of preoperative distress experienced by children.

anesthetics experience some form of negative clinical or behavioral outcome during the postoperative phase (Bal et al., 2006; Rosenbaum, Kain, Larsson, Lonnqvist, & Wolf, 2009).

Clinical Implications

Children's preoperative distress, including induction of anesthesia, leads to complications and negative clinical outcomes. One such complication among children is airway management. Children experiencing high levels of distress and crying during induction produce large amounts of secretions. Excessive secretions increase the risk of developing laryngospasms and subsequent oxygen desaturation (Soferman, Johnson, & Spencer, 1997). Prolonged oxygen desaturation can result in motor imbalance, gastrointestinal effects, agitation and restlessness (Malviya, Voepel-lewis, Prochaska & Tait, 2000).

Distress at the onset of induction of anesthesia is also associated with a number of problems which occur upon the child awakening from anesthesia (Fortier & Kain, 2015). Children with high levels of preoperative anxiety before induction of anesthesia display higher levels of agitation and confusion, usually triggering elevations in heart rate and blood pressure while emerging from anesthesia. This phenomenon is referred as "emergence delirium." Kain and colleagues (2004) found a significant correlation between children's preoperative anxiety and incidence of postoperative emergence delirium. The researchers estimated a 10% increase in the incidence of emergence delirium symptoms per each 10-point increment in children's state anxiety scores. In addition, children who experience high levels of preoperative anxiety exhibit increased

postoperative analgesic requirements, and delayed discharge times from the recovery room (Kain et al., 2006).

Preoperative stress and surgery may also play a significant role in the incidence of hormonal changes which occur as result of the stress response. Hospitalization and surgery triggers different degrees of anxiety and stress in children. Children at risk of severe distress could be identified early during the preoperative phase by measuring specific hormones, namely cortisol levels (Wennstrom, Tornage, Nasic, Hadelin & Bergh, 2011). The variability of stress experienced by children and their ability to cope effectively with the preoperative experience can be explained by the magnitude and nature of the stimulus received and their individualized perception of control over the situation (Charmandari, Tsigos, & Chrousos, 2005; Folkman, Lazarus, Dunkel-Schetter, De Longis, & Gruen, 1986). Therefore, if the nature, magnitude, and duration of the stressful stimulus falls beyond the adaptive resources of the individual, the perceived loss of control can trigger dysphoria, and elicit other chronic adverse behavioral and physical and psychological consequences (Charmandari, Tsigos, & Chrousos, 2005).

Psychological Implications

Induction of anesthesia may be the most stressful procedure a child experiences during the entire perioperative process (Kain et al, 2004; Kain et al, 2006; Kain et al, 1996). Children's limited understanding about the situation, lack of self-control, and separation from parents contribute to the behavioral changes that occur in the surgical environment (Kain et al., 1996). The behavioral changes are oftentimes manifestations of emotional distress or psychological implications. Emotional distress during the preoperative phase may include reactions of fear, anger, feelings of helplessness and

other types of behaviors such as yelling and crying (Li, 2007). Many children become extremely agitated, display increased motor tone and combative behavior, and in some cases may run away from anesthesia and surgical personnel (Kain, Wang, Mayes, Caramico, & Hofstadter, 1999; Fortier & Kain, 2015). Extreme distress has been linked to a number of negative outcomes in the postoperative phase. As previously mentioned, emergence delirium, a state of confusion and agitation which occurs upon awakening from general anesthesia, occurs in 12 to 18% of all children undergoing general anesthesia (Kain et al., 2004; Kain et al., 2006).

Postoperative maladaptive behaviors have also been associated with preoperative distress. The most common postoperative maladaptive behaviors observed in children include: night time crying, enuresis, separation anxiety, nightmares, apathy, withdrawal, decreased appetite, and temper tantrums (Rosenbaum et al., 2009). Children who develop high levels of preoperative anxiety are three times more likely to develop the aforementioned maladaptive behaviors, as compared to those children who are less anxious (Kain et al., 1999). These negative behaviors are believed to decrease over time; however, Kain and colleagues (1999) found that 67% of the children developed new maladaptive behaviors the day after surgery, 45% displayed these behaviors on day 2 after surgery, and 23% of them at two weeks after surgery. The maladaptive behaviors persisted in some cases up to 6 months in 20% of the children, and up to a year in over 7% of the children (Watson & Visram, 2003). This last group of children who have displayed the long-term effects of the maladaptive behaviors have been under-investigated, requiring further attention. Most importantly, there is a need to determine which specific surgical/anesthetic procedures are responsible for these long-term

maladaptive effects. In addition, individual characteristics of the parents and children such as temperament, sociability, coping styles, emotionality, age, gender, and prior life experiences also need to be taken in account when reaching conclusions about the effects of preoperative distress and incidence of maladaptive behaviors (Carlos, Pais-Ribeiro, & Carneiro, 2004).

Anesthetic Mask and Children's Anxiety

The application of an anesthetic mask over a child's face to administer a proportioned amount of oxygen and inhalational anesthetic to produce unconsciousness has been identified as one of the most traumatic experiences for a child (Przybylo, Tarbell, & Stevenson, 2005). Despite the efforts of anesthesia providers to obtain cooperation from children during the application of the anesthetic mask during induction of anesthesia, successful completion of this task is difficult. The positive effects of pharmacological agents and other distraction techniques commonly used to reduce children's anxiety before application of the anesthetic mask is not always effective, and oftentimes results in forceful restraint of the child during the process of induction (Aydin et al., 2008). This forceful process of induction not only creates a safety issue for the child and surgical personnel attending to the induction, but it provokes negative emotions towards the anesthesia provider involved in this essential task within the child (Thomas, 2005).

Pharmacological Interventions to Reduce Distress in Children

The common use of pharmacological means to quickly control preoperative anxiety in children appears to be effective; however, pharmacological use is associated with increased cost to the hospital, potential surgical delay while waiting for the

medication to take effect, and delayed discharge from the recovery room (Kain et al., 2007). Despite the time and economic setbacks proposed by the use of pharmacological agents such as Midazolam, premedication is still widely used by anesthesia providers (Kain et al., 2000). In the United States, Midazolam is used by most anesthesia providers to treat preoperative anxiety and distress in children despite potent anxiolytic and amnestic effects (Kain et al., 2000). Approximately, 14.1% of children who receive Midazolam preoperatively still experience extreme signs of distress during the preoperative phase (Kain et al., 2007). Among this group of children, the following characteristics are observed: less than 6 years of age, greater emotionality or emotional lability, and high levels of baseline preoperative anxiety (Kain et al., 2007). Furthermore, in this group of children, Midazolam has been shown to cause a disinhibiting effect which leads to “acting out” and other non-compliant types of behaviors during the process of induction of anesthesia (Finley et al., 2006). The anesthesia provider may attempt to address the non-compliant behaviors by increasing the dosage of Midazolam. However, large dosages of Midazolam administered to children can result in respiratory depression and hypoxia (Von Ungern-Stenberg, Erb, Habre, Sly, & Hantos, 2009). In addition to critical events during preoperative and surgical stages, Midazolam is also associated with other side effects upon discharge. This side effects experienced at home may be less familiar to anesthesia providers and can include motor imbalance, agitation and restlessness lasting more than 6 hours (Malviya et al., 2000). In one study, among children who experienced these prolonged side effects, only 48% of the children returned to baseline activity and normal behavior within 8 hours, while 89% of the children returned to normal baseline within 24 hours after the procedure (Malviya et al., 2000). No

recent studies have focused specifically on long-term effects of Midazolam on children of different ages.

Other drugs such as Clonidine, Oral Transmucosal Fentanyl Citrate (OTFC), and Ketamine have been used in the preoperative setting as alternatives to treat preoperative distress in children (McCann & Kain, 2001). Each one of these drugs offer specific pharmacological benefits which appeal to anesthesia providers, influencing their clinical decisions to use or not to use these drugs in replacement of Midazolam. OTFC is an appealing drug to children since it can be offered to them in the form of a “lollipop” which tastes great and can be easily administered to children. In contrast, other drugs, such as Midazolam and Ketamine are less tolerated orally or intramuscularly. Unlike OTFC, Midazolam and Ketamine offer greater sedative, amnestic, and anxiolytic properties (Ginsberg, Dear, & Margolis, 1998, Mc Cann& Kain 2001, Sekerci, Donmez, Ates, & Okten, 1996). Predicting which pharmacological intervention will be used depends on the anesthesia provider, the purpose of the surgery and a myriad of other factors.

Non-Pharmacological Interventions to Reduce Distress in Children

Pharmacological management for perioperative anxiety still remains a valued and preferred intervention by anesthesia providers (Finley et al., 2006). However, exploration of non-pharmacological interventions has increased over the last 20 years. Current interventions to reduce anxiety in children offer mixed results. These studies have focused on: parental presence in the operating room during the process of induction; the effectiveness of behavioral preparation programs for parents and children to reduce preoperative distress; enviromental control of child’s overstimulation; music therapy; and

distraction techniques and therapeutic play (Kain, Wang, Mayes, Krivutza, & Teague, 2001; Kain et al., 2006; Kain et al., 2007; Li, 2007).

More innovative non-pharmacological interventions made use of hand-held devices or videogames (Patel et al., 2006), while others used clown doctors to reduce children's anxiety during the preoperative phase and actual induction of anesthesia (Vagnoli, Caprilli, Robiglio, & Messeri, 2005). Although the review of literature offers a positive outlook on the effectiveness of some of these non-pharmacological interventions, new options need to be researched and explored. No information was found regarding the efficacy of non-pharmacological interventions associated with verbal and nonverbal communication styles and behaviors of anesthesia personnel with regard to the management of distress in children.

Childrens' Age and Preoperative Anxiety

Younger children may be at higher risk for preoperative anxiety as compared to older children (Kain et al., 1996; Messeri, Caprilli & Busoni, 2004). When the anxiety level is measured during the preoperative stage, children between the ages of 3-7 years demonstrated higher anxiety levels than children between the ages of 8-12 years (Kain et al., 1996). Younger children's anxiety may be heightened by fear of separation from parents or guardians (Kain et al., 1996). This difference in anxiety level can also be attributed to developmental differences in comprehension. Preschool children have limited understand of the surgical process and may lack the coping mechanisms to manage the stress of the surgical process (Messeri, Caprilli, & Busoni, 2004).

Normal Growth and Development for Children 1- 6 Years Old

A significant amount of developmental growth takes place during the ages of 1-6 years. In a global context, children who are 1- 6 years of age fall within the developmental categories of toddlers and preschoolers (Erikson ,1950 ; Hockenberry& Wilson, 2007). While toddlers are characterized for initiating the process of decreasing dependency on parents in replacement of increasing autonomy, the preschooler is succesful in finishing this separation-individualization process (Mahler, Pine, & Bergman, 2000).

Children between the ages of 1 and 3 years of age learn to complete a series of tasks including: delayed gratification, control over bodily functions, demonstrate acceptable social behaviors, and interact with others with less egocentrism. A major milestone for this age group is understanding that separation from parents is temporary (Hockenberry& Wilson, 2007). Erikson (1950) described eight developmental stages in which a crisis must be resolved in order to prevent maladaptive behaviors in subsequent stages of life; consequently, it is critical for toddlers to develop a sense of autonomy. This developmental stage is known as Autonomy vs. Shame and Self Doubt. Failure to establish autonomy during the toddler period leads to unresolved feelings of shame and self-doubt; these unresolved feelings can persist as the child grows into adulthood. According to Erickson's Theory of Psychosocial Development (Erikson, 1950), toddlers who are encouraged to explore and accomplish age appropriate tasks develop a heightened sense of autonomy. Parents, teachers, and healthcare providers need to be aware of young childrens' need for physical movement and exploration during this developmental stage.

Exploration is a physiologically driven need in children; therefore, excessive repression of these behaviors may have negative consequences for the child (Cross, 2001).

Between the ages of 3-5 years or preschool stage, children attempt to find a balance between taking the initiative to undertake a specific task or feeling fearful to do so. Erikson (1950) describes this developmental struggle as *Initiative vs. Guilt*. During this developmental stage, adults play a key role in encouraging and supporting children's early efforts to perform activities independent of parents, and for accomplishing tasks beyond prior abilities and successes. Children during this stage learn that it is acceptable to initiate activities on their own, and that they should not feel guilty for doing so (Cross, 2001). It is during this developmental stage that children develop the biological, psychosocial, cognitive, spiritual, and social achievements necessary to cope with separation from parents, to interact with other children and adults, and to use language as a tool in their day to day interactions (Hockenberry & Wilson, 2007). In the hospital setting, it is not uncommon for healthcare providers to play a central role as a temporary "parental figures" by becoming, in many instances, the most important person the child interacts with during the hospital stay (Favara-Sacco, Smirne, Schiliro, & Di Cataldo, 2001; Jan, 2007).

From Erikson's perspective, healthcare providers have a significant impact on young children's ability to cope with the challenges children face during the hospitalization process. One strategy used by healthcare providers is children's play. Promoting children's play has been a popular hospital based initiative aimed to fulfill a significant developmental need in this age group (Erikson, 1982). Children's play facilitates social interactions with others and enhances problem solving ability by

allowing children to develop coping mechanisms under critical situations, or unfamiliar environments such as the hospital setting (Batra, 2013). In order to better understand and summarize the evolution of psychosocial stages of human development according to Erikson (1982), Table 1 describes key elements of Eriksons theoretical framework.

Toddler (1- 3 Years Old)

Social development. A major accomplishment during the toddler period is the differentiation of the self from significant others, especially the mother. This change occurs in two stages. In the first stage (a) the symbolic separation from the existing symbiotic relationship between mother and child takes place, and in the second stage (b) individuation or the ability of the child to assert his/her own identity in relationship to the environment (Mahler et al., 2000). During this stage, children learn that although parents are not readily visible, they still exist; however, a significant dependence on parents still exists for safety and reassurance. It is not unusual for children in this age group to show less fear of strangers as long as parents are present (Johnson, 2012). During the toddler period, if children are left alone they can become depressed and withdrawn, or paradoxically become hyperactive and restless as it is typically seen in children who start preschool or are hospitalized (Shatz, 1994). This separation process is not necessarily harmful to the child as long as the parent works with the child in preparing them for temporary separation, such as in cases in which the child may need to stay in the hospital (Stein, Carey, & Snyder, 2004).

Table 1

Erikson's Psychosocial Stages of Human Development

	Stages	Psychosocial crisis	Significant Relationships	Strengths	Favorable Outcomes	Unfavorable Outcomes
I	Infancy (0-1)	Basic Trust vs Mistrust	Maternal figure	Hope	Faith in environment and future events	Suspicion or fear of future events
II	Early Childhood or Toddler (1-3)	Autonomy vs Shame Doubt	Parental figure, mother still most prominent	Will	Sense of self control and adequacy	Feelings of shame and self doubt
III	Play Age or Preschooler (3-6)	Initiative vs Guilt	Basic family	Purpose	Ability to be "self starter" or initiate own activities	Sense of guilt or inadequacy to be on one's own
IV	School Age (6-12)	Industry vs Inferiority	Neighborhood, school	Competence	Ability to know how things work, to understand and organize	A sense of inferiority at understanding concepts and organizing
V	Adolescence (12-19)	Identity vs Identity Confusion	Peers, out groups; models of leadership	Fidelity	Seen one self as a unique and integrated individual	Confusion about who and what role one plays
VI	Young Adulthood (20-25)	Intimacy vs Isolation	Partners in friendship, sex, competition, cooperation	Love	Ability to make commitments to others and love	Inability to form affectionate/ loving relationships
VII	Adulthood (26-64)	Generativity vs Stagnation	Divided labour and shared household responsibilities	Care	Concerned for family and society in general	Concerned only for self and self prosperity
VIII	Old Age (65- death)	Integrity vs. Dispair	Mankind	Wisdom	A sense of fulfilment and integrity. Able to face death	Disastsfaction with life and inability to deal with own death

Note. The contents of this table were adapted from Erikson (1982). The developmental stage of interest for this dissertation are in boldface.

The provision of a transitional object that provides comfort to the child (e.g. blanket, toy) can provide security and diminish distress in children during separation periods from parents (Johnson, 2012).

Cognitive development. During toddler years, there is a significant increase in the use of language and mental symbolism (Rescorla & Goossens, 1992). There is also clear evidence of egocentrism in thought, play, and interactions with others. Piaget (1957) noted very young children have difficulty seeing viewpoints other than their own, failing to perceive an object or a situation in more than one way when alternative perspectives are available to them. Toddlers in this stage have the ability to construct a coherent representation of relationship between events. It is important for anesthesia providers to reconsider interactions with these young children, by avoiding making the erroneous assumption that children in this age group do not have the ability to make simple causal inferences about events and/or explanations presented to them during the surgical process (Sobel & Kirkham, 2006). Although reasoning and causal inferences may not be logical at times, simplistic forms of reasoning are still evident in this age group. Furthermore, children of this age rely on their own perception of events by making sense of what they see or hear to solve problems, instead of utilizing past experiences (recall of prior objects, situations, and events) as a reference point. Anesthesia providers can support this thought process by presenting clear and simple options/solutions to children's perceived conflictive situations (Hockenberry & Wilson, 2007).

Psychological development. Children in this age group are known for demonstrating a lot of negativism and ritualistic behavior. It is not uncommon for toddlers to use the word "no," and not comply with adults' requests (negativism)

(Hockenberry & Wilson, 2007). During this stage of the child's development a great deal of emotional lability is evident, as toddlers can be frustrated very easily when they cannot control a given situation. There is an ambivalence of emotions as well, evidenced by the child's ability to throw a tantrum and yet hold on to parents in search of love and comfort (Hockenberry & Wilson, 2007). Children in this age group are highly dependent on consistent daily routines (ritualism), which validates the great difficulty this age group has in adapting to strangers and the unknown hospital environment. Providing the child with an opportunity to stay close to the parents during the hospitalization process, and maintaining normal routines as much as possible is thought to create a more stable environment for the toddler (Stafford Ford, 2007).

The importance of play in toddlers. Toddlers are known to transition from solitary play to parallel play (Piaget, 1945). Although sensorimotor play is still prevalent, the discovery of multisensory play is of most importance during this stage (Hockenberry & Wilson, 2007). The most helpful type of play activity for children in this age group is one which fosters interaction between the child and others in a supportive and unconditional form (Johnson, 2012). Play is another form of consciousness in which the child is allowed to engage in play and fantasy while they are not fully conscious of their environment (American Academy of Pediatrics, 2006). Play allows the child to be deeply engaged in a self-directed reality in which manipulation of experience and imagination allows toddlers to cope with the environment (Johnson, 2012).

Toddlers can benefit from *dramatic*, *collaborative* or *therapeutic play* while they are in the hospital (Hockenberry & Wilson, 2007). The ability of the child to step outside of the self and play a specific role is helpful and restoring to children. When children are

engaged in this type of play, they are arming themselves with coping strategies to diminish their distress, and adapt themselves to what is occurring in their environment (Johnson, 2012). When healthcare providers allow children to direct play, they are empowering the child to perceive a greater sense of control over hospitalization and helping them conquer their feelings of helplessness (Robson, 2008).

Preschooler (3- 6 Years Old)

Social development. During the preschool ages the separation-individualization process is finished (Mahler et al., 2000). Children in this age group are able to successfully relate to strangers and separate from parents for brief periods of time; however, preschoolers still rely heavily on parents' security, support, and reassurance to face life challenges including hospitalization (Mahler et al., 2000). This age group relies more than toddlers on the use of familiar objects such as toys, dolls, and family pictures to cope with foreign environments and distress (Salmela , Salanterä, Ruotsalainen, & Aronen, 2010). In the absence of parents, children also rely on extended family, and healthcare providers to help them cope with fear and separation from parents (Favara-Sacco et al., 2001; Jan, 2007).

Cognitive development. According to Piaget (1957), children's age should be used as a chronological indicator for cognitive development, but not as a criterion for the child's developmental stage; therefore, most of the information presented applies to children typically aged 3-5 years. Children in this age group are able to think and verbalize thoughts, expressing one idea at a time; the ability to conceptualize all parts of a general concept or as a whole is not possible. The prevalence of egocentric communication in this group is important since preschoolers assume everyone thinks as

they do; therefore, communicating with them in a way that makes sense to them is crucial (Hockenberry & Wilson, 2007).

Preschoolers typically communicate without accurately understanding the meaning of words used, particularly concepts that involve causality and time (Hockenberry & Wilson, 2007). The preschool aged child's interpretation of causality may look logical to them, but in reality mimics rationales or explanations heard before in another context, ultimately limiting their ability to understand situations (Hockenberry & Wilson, 2007). Preschoolers also experience what is known as *Magical Thinking*. Due to egocentrism and transductive reasoning preschoolers tend to believe that thoughts are powerful and capable of becoming real if one really tries (Hockenberry & Wilson, 2007; Johnson, 2012). As such, thoughts of rejecting pain and fear are common coping mechanisms in the hospitalized preschool child (Salmela et al., 2010).

Words are powerful for children in this age group and are interpreted literally. Anesthesia providers and other healthcare providers need to carefully choose words when communicating with children to avoid unwanted distress in the child (Cyna, Andrew, & Tan, 2009). For example, telling a child "you are going to sleep now" can be a very scary concept to a child, since the child interprets this verbiage as a "forceful nap" intended to exert control and cause separation from parents (Cyna et al., 2009).

Psychological development. Erikson (1950) described this period in the child's development as a period in which the child acquires an urge to become an active learner. Pre-schoolers are typically engaged in all types of physical, cognitive, social and play activities, giving them a sense of accomplishment and satisfaction (Hockenberry & Wilson, 2007). A sense of guilt in this age group emerges from the perceived inability to

perform or behave as expected (Erikson, 1950). Anesthesia providers may unintentionally use language or display behaviors which indicate disapproval of the child's reactions. Children in this age group are able to cooperate and behave appropriately on the basis of punishment reward systems while relying entirely on parents' values to establish a moral system (Hockenberry & Wilson, 2007; Kohlberg, 1968). For example, children in the surgical environment tend to respond positively to a simple gesture such as the provision of a sticker or a toy when engaged in a desired behavior (Perez Fontan & Lister, 2003). The preschooler is likely to understand the differences between acceptable and unacceptable behaviors; however, the child may not be able to fully understand as to the reasons why a certain behavior is perceived inappropriate by an adult (Hockenberry & Wilson, 2007).

The importance of play in preschoolers. Common types of play during the preschool years are imitative, imaginative, and dramatic play. It is not uncommon for children to engage in role playing, dress up, and talk in ways that resemble adults, ultimately, creating an environment in which fantasy and reality become one (Hockenberry & Wilson, 2007). Although children's attention span may be short during this period, they begin to enjoy the complexity of crafts and other tasks in the company of adults (American Academy of Pediatrics, 2006).

Play takes on a very important role in the hospitalized preschooler. Most children find comfort in playing with toys, games and crafts. Some even find a sense of achievement through play, creating special attachments to toys they own or perceive as "their own." Children in this age group sometimes create a special "friendship" with special toys, to help them cope with fear and loneliness (Bull & Gillies, 2007).

The importance of the preschooler's body image . Children develop a sense of body image between the ages of 3-5 years. Preschoolers start to become aware of differences in people related to size, color, and height, while becoming more sensitive to prejudices and biases (Davidson & Birch, 2001; Hockenberry & Wilson, 2007). It is not uncommon for children to react adversely to individuals with particular traits or characteristics based on what they have learned, experienced, or heard from other adults close to them (Montagne et al , 2003). Children in this age group also become fearful of invasive procedures which are perceived as means to disrupt the integrity of the body. For example, children of this age believe that blood and the insides of the body can “leak out” if the body is “broken” (Dutt-Gupta, Bown, & Cyna, 2007; Hockenberry & Wilson, 2007; Salmela et al., 2010). It is imperative for anesthesia and other healthcare providers to emphasize additional or expanded explanations to routine procedures in a simple and clear manner (Montagne et al , 2003).

Temperament in Toddlers and Preschoolers

Children's temperament during early life tend to prevail during the toddler and preschool years (Hockenberry & Wilson, 2007). Behavioral problems in children can be managed to a certain point; however, children's temperament cannot be changed, creating a challenge to healthcare providers when dealing with children in the hospital setting (Stein, Carey, & Snyder, 2004). Temperament is thought to reflect constitutionally-based differences in behavior which are important in dictating the ability to regulate behavior, adapt to circumstances and the environment (Martin & Fox, 2008). This important component of child development is important for anesthesia providers because pharmacological and non-pharmacological interventions to reduce stress in children are

ineffective in those children with temperaments that make them prone to extreme temper tantrums and emotional outbursts (Kain et al., 2007).

Toddlers and Preschoolers in the Hospital Setting

The biological, psychosocial, cognitive, spiritual, and social achievements during the toddler and pre-school years prepare children to cope with longer periods of separation from parents, to interact with other children and adults, and to use language in day to day interactions (Hockenberry & Wilson, 2007). A better understanding of toddlers and preschoolers growth and development needs enables healthcare providers to meet children's most important needs throughout the entire hospitalization process as this process is notably marked with uncertainty and severe distress (Caldas, Pais-Ribero, & Carneiro, 2004).

Anesthesia Providers

In the United States anesthesia providers are qualified healthcare professionals who can administer anesthesia. This group primarily includes certified registered nurse anesthetists and anesthesiologists (Hogan, Seifert, Moore, Simonson, 2010). Certified Registered Nurse Anesthetists (CRNAs) are advanced practice nurses who have earned a baccalaureate degree, practiced at least one year as a nurse in the acute care setting, and have successfully completed a graduate level program to become a nurse anesthetist. Graduate education for nurse anesthetists ranges from 28 to 36 months in duration. Starting January 2022 all nurse anesthesia educational programs for registered nurse anesthetists will be required to offer a doctoral terminal degree for entry into practice (American Association of Nurse Anesthetists [AANA], 2007). Anesthesiologists are physicians who completed medical school, a clinical base year residency, and three years

of residency in an anesthesia program. Some physicians go on to complete one to two years of additional clinical education (fellowship) to become certified in a specialty area within anesthesia practice.

Upon completion of course education, CRNAs and anesthesiologists are required to become Board Certified in the specialty of anesthesia. Both types of anesthesia providers dedicate their time to safely providing all types of anesthesia services (Hogan et al., 2010). Most anesthesia providers' education in pediatric anesthesia focuses primarily on pharmacological, physiological, and procedural pediatric principles; therefore, most anesthesia providers are not formally trained on how to manage psychological distress in children (Rosenbaum et al., 2009). Most anesthesiology residents and student nurse anesthetists learn this aspect of patient care from other experienced anesthesia providers who teach them different pharmacological routines, communications skills, and distraction techniques to obtain cooperation from children in the perioperative setting.

Problem Statement

Multiple studies conducted in the area of preoperative anxiety (Akinci et al., 2008; Chorney & Kain, 2009; Costa Fernandes & Arriaga, 2010; Fazi, Jantzen, Rose, Kurth, & Watcha, 2001; Kain, Caldwell- Andrews, Lo Dolce, Krivutza, & Wang, 2002; Kain Z. N., Wang, Mayes, Krivutza, & Teague, 2001; Li & Lopez, 2006; MacLaren & Kain, 2008; Mahajan, Singh, & Kataria, 2012; Wright, Stewart, Finley, & Buffett-Jerrott, 2007) attempted to address the effectiveness of pharmacological and non-pharmacological interventions used to reduce children's preoperative anxiety during the stages immediately preceding induction of anesthesia and the actual period of induction

of anesthesia. Some of the techniques studied included utilization of sedatives, music therapy, therapeutic play, parental presence during induction of anesthesia, and a combination of at least two techniques (Patel et al., 2006). While most of the studies have focused on testing the effectiveness of specific pharmacological and non-pharmacological interventions to reduce children's preoperative distress, none of the studies have focused on describing the actual practices of anesthesia providers in their attempt to reduce children's distress during the preoperative period. Therefore, for this dissertation, a descriptive qualitative research approach was used to comprehensively determine the pharmacological and non-pharmacological interventions used by anesthesia providers in daily practice to reduce children's preoperative distress. The data generated from this study provided valuable information about the effectiveness of these interventions in clinical routines, while revealing the clinicians' explanations about the phenomenon of preoperative distress in children, and recommendations for its management.

Purpose of the Study

The purpose of this descriptive qualitative study was to investigate the types of pharmacological and non-pharmacological interventions utilized by anesthesia providers before and during induction of general anesthesia to reduce preoperative distress in toddlers and preschoolers. This qualitative study attempted to explore the anesthesia providers' choices and practices in the management of preoperative distress in children, by providing first hand descriptions and explanations about this phenomenon. The anesthesia providers also provided recommendations for best practices when managing preoperative distress in toddlers and preschoolers.

Research Questions

Research Question #1

What pharmacological and non-pharmacological interventions do anesthesia providers use to reduce preoperative distress in toddlers and preschoolers?

Research Question #2

What are anesthesia providers' descriptions and explanations about the plausible causes of preoperative distress in toddlers and preschoolers?

Research Question #3

What do anesthesia providers recommend as best practices to manage preoperative distress in toddlers and preschoolers?

Philosophical Underpinnings of Qualitative Research

Qualitative research is used to address research questions that highlight the human experience within a specific context or situation. This form of research inquiry is unique because qualitative researchers overtly bring their own worldviews in the design of the research project of choice. The rigor of qualitative research is based on the researcher's ability to explicitly incorporate the assumptions, paradigms, and frameworks which guide the study, and by demonstrating self-awareness of potential bias (Creswell, 2007).

The philosophical assumptions which guide qualitative research depends on the researcher's ability to: (1) embrace the idea of multiple realities of the individuals participating in a given study (*ontology*), (2) stay as close as possible to the participants being studied by conducting "field" research where the participants live or work (*epistemology*), and (3) report and admit the value-laden nature of the study by explicitly

acknowledging the researcher's values and biases (*axiology*) during the research process (Creswell, 2007).

Definition of Key Terms

Pharmacological Interventions

Pharmacological interventions in the pediatric perioperative setting referred to the use of sedative and anesthetic agents to alleviate preoperative anxiety and to facilitate separation from parents or friends (Kain et al., 1999). Midazolam at a dose of 0.3-0.5 mg/kg it is the typical pharmacological intervention used on a routine basis in clinical practice to control preoperative distress in children (Von Ungern-Sternberg et al., 2009). Other agents such as Oral Trans mucosal Fentanyl Citrate (Mc Cann& Kain, 2001), Clonidine (Mahajan et al., 2012) and Ketamine (Mc Cann& Kain, 2001) are other less utilized premedication choices to manage preoperative anxiety and distress in children.

Non-pharmacological Interventions

Non-pharmacological interventions involve the use of non-drug alternatives to alleviate signs of preoperative distress in adults and children. In the context of pediatric anesthesia, those interventions may include the use psychological (cognitive or behavioral) interventions such as distraction techniques, play therapy, and cognitive tasks (Yip, Middleton, Cyna, & Carlyle, 2009). Other non-pharmacological interventions include environmental modification, anesthesia equipment modification, social interventions such as parental support during induction of anesthesia, and anesthesia provider communication (Yip et al., 2009). Any of the examples of non-pharmacological interventions listed above were acceptable for this study.

Toddlers/Toddlerhood

For this study, toddlerhood was defined as the child's stage of physical, cognitive, and psychological development which occurs during the second year of life, from the child's first birthday to the point when the child turns three years of age (Erikson, 1982; Hockenberry & Wilson, 2007). Therefore, a toddler was a child between the age of 1-3 years.

Preschoolers

A preschooler was defined as the physical, cognitive, and psychological developmental stage occurring during the time in which a child is being prepared to attend Kindergarten, and was between three and six years of age (Erikson, 1982; Hockenberry & Wilson, 2007).

Anesthesia Providers

Two different types of anesthesia providers participated in this study, anesthesiologists, and certified registered nurse anesthetists. These providers worked together as a team in providing anesthesia services to children at Jackson Memorial Hospital, a large teaching hospital in Miami, Florida. Both anesthesia providers had acquired the adequate education and clinical expertise to evaluate patients, select and administer a pre-anesthetic plan, develop and implement intraoperative anesthetic management, and safely achieve the anesthetic emergence and recovery of young patients (Hogan et al; 2010).

Significance of the Study

This study contributed to nursing science by providing new knowledge about the common clinical practices of anesthesiologists and nurse anesthetists, who administer

anesthesia to children who are 1- 6 years of age in large teaching hospital. Effective reduction of preoperative distress in children is not only important to parents and children who must endure the surgical experience, but it is also relevant to clinicians who are concerned about potential negative anesthetic outcomes (Kain et al., 2004; Kain et al., 2006; Soferman et al., 1997), unnecessary discharge delays from the hospital (Kain et al, 2006), and negative behavioral postoperative changes in children (Rosenbaum et al., 2009; Watson & Visram, 2003).

Many pharmacological and non-pharmacological interventions have been tested via quantitative methodologies to explore their effects on the reduction of preoperative distress in children; however, no qualitative studies are available to understand anesthesia providers' personal choices of practices in the management of preoperative distress in children. A better understanding of the practices that appeal to anesthesia providers in the management of children's preoperative distress in toddlers and preschoolers is essential for the (1) development of guidelines and interventions specifically designed to address the management of preoperative distress in young children, (2) the integration and promotion of consistent clinical practices that cause reductions in preoperative distress, and (3) generation of knowledge about key elements of this phenomenon that cannot be captured via quantitative methodologies (Sadhasivam et al, 2009).

Chapter Summary

A significant number of children experience signs of distress during the preoperative phase and induction of anesthesia. Although past research has primarily focused on testing pharmacological and non-pharmacological interventions to decrease preoperative anxiety and distress in children, a quantitative research approach alone has

not been sufficient to understand the phenomenon of interest. A qualitative descriptive study that describes and explains the clinical routines utilized by anesthesia providers in their attempt to reduce preoperative distress in toddlers and preschoolers was needed to elucidate other factors which influence the management of preoperative distress in children. The information obtained from anesthesia providers in this study is critical to anesthesia practice, since these clinicians must not only be prepared to manage the anesthetic needs of the pediatric patient but also interact with children resourcefully to obtain children's compliance during the perioperative process (MacLaren-Chorney et al., 2009).

Chapter 2

Review of the Literature

In this chapter, first the historical perspectives of preoperative distress will be discussed, then current interventions for managing preoperative distress will be examined.

Prevalence of Surgery and Preoperative Distress in Children

It has been estimated that five million children undergo surgical procedures with anesthesia in the United States each year; this number reaches larger proportions when considering the worldwide population of children who are exposed to routine surgical procedures (Mc Laren & Kain, 2008). In 2006, it was estimated that 2,159,000 surgeries were performed in the United States on children less than 15 years of age (De Frances, Lucas, Buie, & Golosinsky, 2008). Approximately 40 to 60% of all children receiving general anesthetics experience severe anxiety during the period immediately before the start of the surgery and the anxiety is highest during induction of general anesthesia (Kain, Mayes, O'Connor, & Cicchetti, 1996).

While all children regardless of their age experience some form of preoperative anxiety, children 2 and 3 years of age are more likely to display evidence of preoperative anxiety (MacLaren Chorney & Kain, 2009). Therefore, young children are considered to be at higher risk of developing preoperative stress and anxiety during the perioperative continuum (Messerli et al., 2004). Toddlers and preschoolers are more likely to display active signs of preoperative anxiety and distress such as avoidance, ignoring and/or pushing away the anesthesia provider, while school age children and older are more

likely to display less disruptive behaviors (Chorney& Kain, 2009; Kain et al, 1996; Messeri et al., 2004).

Short-term and long-term outcomes of preoperative distress in young children are of great significance to anesthesia providers, since the preoperative period and induction of anesthesia is considered a very stressful experience for a child, potentially leading to physiological and psychological long term effects (Kain et al., 1997). Distress at the onset of induction of general anesthesia has been associated with a number of problems which can occur at the time of induction, during the postoperative phase when the child awakens from anesthesia in the recovery room and upon discharge home (Li, 2003; Malviya et al., 2000).

Children who experience high levels of distress at the onset of induction of anesthesia are at higher risk of developing agitation and confusion during induction and emergence from anesthesia, leading to airway complications and potential physical injuries associated with protective restraint of the child during this process (Bal et al., 2006; Fortier et al., 2014; Kain et al, 2004; Soferman et al., 1997). Preoperative distress in children has also been associated with increased utilization of postoperative analgesic medication, and delayed discharge from the recovery room (Kain, Mayes, Caldwell-Andrews, Karas, & McClain, 2006).

Past and current literature on the subject places great emphasis on children's maladaptive behaviors occurring during the postoperative phase. Children with high levels of distress immediately before or during the period of induction of general anesthesia are more likely to suffer from: a) separation anxiety from parents, b) experience fear of the dark at night, c) cry during sleep, d) develop enuresis, and e) suffer

from night terrors (Bal et al., 2006). These postoperative maladaptive behaviors can last from 2 to 6 months after the surgical procedure and exposure to general anesthesia (Watson & Visram, 2003).

Potential Sources of Preoperative Distress

The source of distress in children can be attributed to many factors. Surgery, is an emotionally taxing experience to most young children due to their cognitive limitations, dependency on others, and poor understanding of their own medical needs (Li, 2007). Children's stress during this process is exacerbated when the child is separated from parents in the preoperative holding area, and while waiting to be transported to the operating room suite for induction of anesthesia (as it is typically done in most hospitals across the United States) (Kain et al., 1996; Li & Lam 2003). As the child enters the operating room accompanied by surgical and anesthesia personnel, dressed in surgical attire with facemasks covering their faces, the child's anxiety continues to grow. Depending on the hospital setting and anesthesia department's policy, one of the parents may be allowed to escort the child into the operating room, up to the point of induction of general anesthesia. This practice has been adopted worldwide in an attempt to reduce separation anxiety in children, especially those of preschool age (Akinci et al., 2008; Kain et al., 2004; Przybylo et al., 2005). Upon entrance to the surgical suite, several actions take place to expedite the surgical process. Standard anesthetic monitors are attached to the child, and an anesthetic face mask is placed over the child's face to deliver a proportioned amount of oxygen and inhalational anesthetic to render the child unconscious (Aydin et al., 2007).

Children find these processes very stressful. Anesthesia providers can expect to trigger very strong reactions to the entire sequence of events from the child, especially to the forceful placement of the anesthetic mask over the child's face when the child is unable or unwilling to cooperate. This experience is not only confining to the child, but it can also trigger phobias and irrational fears of potential suffocation and death (Przybylo et al., 2005). It has been estimated that 17% of all children undergoing induction of general anesthesia display behaviors indicative of severe distress, such as: (a) attempts to escape the procedure; (b) verbal complaints; (c) crying; (d) screaming; (e) soiling or wetting; (f) verbally communicating fear to parents and healthcare professionals, and (g) attempting to escape from medical personnel (Chorney & Kain, 2009; MacLaren & Kain, 2008). The ability to obtain children's cooperation during the preoperative phase and induction of anesthesia heavily relies in the clinician's ability to control the child's anxiety during these critical points (Mac Laren, & Kain, 2009).

Historical Perspective on Children's Preoperative Distress

The most significant challenge encountered by past researchers has been understanding the how, when, and why preoperative distress affects young children, and also in devising an effective plan of management to address it. Lack of reliable measures (Watson & Visram, 2003) to explain, predict, and quantify preoperative anxiety in children undergoing procedures was a barrier that was successfully removed when Venham and colleagues (1980) developed anxiety scales in the late 1970s to measure state anxiety in children undergoing dental procedures. These scales were later modified and used to measure anxiety in children undergoing surgical procedures and induction of anesthesia (Venham, Bengston, & Cipes, 1977; Venham & Gaulin-Kramer, 1979;

Venham et al., 1980). During the last 20 years, great progress has been made in the area of research and measurement of preoperative anxiety in children undergoing anesthesia (Kain et al., 1996; Kain et al., 1997). Although the majority of the original studies on the subject were published in journals of pediatrics, psychology, and dentistry, a new generation of research addressing preoperative anxiety in children has also emerged in the anesthesia literature (Watson & Visram, 2003).

Beginning in the late 1990's, the literature reflects substantial advancement in the subject area of linking biological markers and physiological parameters to preoperative distress in children. Human developmental studies of stress physiology, and psychobiological studies in children (Fell et al., 1985; Ramsay, 1972; Wennstrom et al., 2011) became more noticeable after 1980, as new assays for neuroendocrine markers such as cortisol allowed the development of psychobiological experimentation (Gunnar, 2006) to explain the stress response in children. As an example, some researchers explored the link between children's and/or parents emotional responses to surgery and the rise of biological markers such as cortisol, prolactin, and/or amylase to explain preoperative distress in children (Arai et al., 2008; Gunnar, 2006; Khilnani et al., 1993; Wennstrom et al., 2011). Arai and colleagues (2008) were able to show a strong correlation between mothers' increased amylase activity and their children's increased level of anxiety and agitation during induction of general anesthesia.

Other researchers focused on clinical physiological markers as predictors of preoperative distress. Li and Lopez (2006) not only demonstrated the presence of negative behaviors as evidence of preoperative distress in children, but they also established that children with higher levels of preoperative distress had increased baseline heart rates and

blood pressure readings. Other clinical studies focused on distress levels in children as a predictor for postoperative pain scores and pain management requirements (Kain et al., 2006; Kain et al., 2002). MacLaren and Kain (2008) also observed one third of all children who were exposed to surgery and anesthesia had significant reductions in sleep efficiency postoperatively, while in another study Kain and colleagues (1996) recognized a relationship between preoperative anxiety and incidence of bad dreams, and new onset of enuresis (Kain et al., 1999) during the postoperative period.

The psychobiological and physiological studies found in the literature review reinforces and supports the findings of many of the studies which have primarily relied on the traditional use of psychological scales to measure anxiety and distress in children, adding more relevant and useful clinical information to anesthesia providers in their daily practice (Akinici et al., 2008; Costa Fernandes & Arriaga, 2010; Finley et al., 2006; Kain et al., 2000 ;Visintainer & Wolfer, 1975).

A predominant body of the literature focuses on the influences of parents and incidence of preoperative distress in children. Anxious parents were found to be a strong predictor of high incidence of preoperative distress in children (Li & Lam, 2003; Voepel-Lewis, Tait, & Malviya, 2000). More specifically, mothers rather than fathers who were present during induction of anesthesia with low state anxiety levels appeared to have a positive effect on reducing preoperative distress in children six years of age and younger (Messeri, Caprilli, & Busoni, 2004). Two important findings are of importance from these studies. First, gender differences and active involvement of parents appears to be a factor affecting child's ability to cope during a stressful situation. Second, increased emotional involvement of the mother as compared to the father resulted in higher levels

of state anxiety among both mother and child (Messeri et al., 2004; Voepel-Lewis et al., 2000). Although these studies reveal very interesting and relevant information, the results may be very specific to the socio cultural context in which these studies took place and lack generalizability.

Research on parental presence remains controversial and complex. Although a great number of researchers endorse the presence of the parents during induction of anesthesia, many still believe that parental anxiety can be a hindrance to the child undergoing a stressful period, and to the medical personnel involved in the care of the child (Voepel-Lewis et al., 2000). Kain and colleagues (1998) suggested that use of premedication can be more effective than parental presence during induction in most instances. An analysis of the literature appears to point out parental presence during induction of anesthesia may be of benefit to children when parents have a better understanding of their role, parental anxiety levels remain low, and parents receive adequate preparation for this experience (Voepel-Lewis et al., 2000; Wheatcroft & Cresswell, 2007).

Although this historical review of the literature identifies most of the topics of research within the general topic of children's preoperative distress, many literature gaps still exist. Little is known about the specific role that the anesthesia provider plays in deminishing childrens' preoperative stress and anxiety and what pharmacological and non- pharmacological interventions utilized in their daily anesthetic routines may have a significant impact on children's anesthetic and postoperative outcomes.

Pharmacological Interventions for Children's Preoperative Distress

Pharmacological interventions remains the preferred modality of treatment for preoperative anxiety in the United States. A large follow-up survey conducted by the American Association of Anesthesiologists in 2002 revealed nearly 75% of anesthesiologists in the USA routinely administer Midazolam preoperatively to patients (Kain et al.,2007). It was also reported that 50% of all children undergoing surgical procedures received preoperative medication as compared to the initial national survey conducted in 1995, which found that only 30% of the children received some form of preoperative medication (Kain et al., 2004). No data was found in reference to certified registered nurse anesthetists premedication practices.

Midazolam and Management of Children's Preoperative Distress

Midazolam, a widely used short acting benzodiazepine, also known by its trade name of Versed®, is used to produce anxiolytic, amnesic, hypnotic, anticonvulsant, and skeletal muscle relaxant effects (Curran, 1986). Administration of this drug has also been associated with diminishing the stress response associated with the surgical process (McCann & Kain, 2001). Because of its rapid onset and short half-life, this drug is the preoperative anxiolytic of choice within the same-day surgery setting because it is believed that the effects of the drug dissipate by the time the patient is discharged from the hospital (Wright et al., 2007). Within the context of pediatric practice in the United States, oral administration of Midazolam is very popular and believed to be effective in reducing preoperative anxiety in children (O'Sullivan & Wong, 2013; Rosenbaum, Kain, Larsson, Lonnqvist, & Wolf, 2009). The majority of controlled randomized studies conducted in North America, Europe, and Asia focused on the effects of Midazolam

administered to children during the preoperative phase via the oral route, and its effects on preoperative anxiety in children (Akinci et al., 2008; Costa Fernandez & Arriaga 2010; Kain et al., 2006; Li & Lopez, 2006; Messeri et al., 2004; Watson & Visram, 2003). These studies focused mainly on outcomes such as preoperative measures of child's anxiety, distress, levels of cooperation and incidence of postoperative maladaptive behaviors when using Midazolam alone or in combination with other types of interventions. The anesthesiology community has argued most of these outcomes were not of sufficient clinical relevance (Kain et al., 2000); therefore, a later set of studies placed emphasis on more clinically relevant outcomes such as anesthetic requirements, postoperative patient satisfaction, incidence of nausea and vomiting, and postoperative behavioral recovery (Kain et al., 1999; Maranets & Kain, 1999; Wang & Kain, 2000). Most of the results of these studies identify Midazolam as an effective and consistent method to reduce preoperative anxiety as compared to placebo when administered to young children; however, more recent studies have shown that this drug is not always effective and there are some risks involved when using this drug in young children (Bartels, Altohoff, & Boosma, 2009; Kain et al., 2007; Nikizad, Yon, Carter, & Jevtovic-Todorovic, 2007; Wilder et al., 2009; Wright et al., 2007; Xu et al., 2009).

Recent Midazolam studies suggest that administration of this drug and other anesthetic agents during the first 3 years of life can trigger learning disabilities in children (Bartels et al., 2009), due to its neurotoxic effects on new synapses responsible for learning and memory (Mellon, Simone, & Rappaport, 2007; Nikizad et al., 2007; Reder et al., 2006; Wilder et al., 2009). Other studies conclude that children who are young, highly emotional, impulsive, and exhibit anxiety at baseline do not benefit from use of

preoperative premedication, making preoperative distress even worse (Finley et al., 2006; Kain et al., 2007). Other studies suggest that other unwanted effects of this drug include risk of respiratory depression and or hypoxemia in children with existing comorbidities, which should not be undermined when using this drug (Von Ungern- Sternberg et al., 2009). A summary of the advantages and disadvantages of administration of Midazolam for preoperative distress is displayed in Table 2.

Table 2

Advantages and Disadvantages of Midazolam Use

Advantages	Disadvantages
Fast onset of action as compared to Clonidine.	Midazolam does not taste as good as Clonidine, which tastes better and provides better quality of sedation in children.
Most effective medication in reducing children's distress during all stressful points of the perioperative continuum.	Not effective in younger children with high emotionality, high impulsivity, and high baseline anxiety trait.
Most effective in increasing parent's satisfaction because as child's distress decreases, parent's anxiety also decreases.	Midazolam anterograde amnesic effects are partial.
Midazolam is most preferred drug by anesthesiologists in the USA because of its significant anxiolytic effects and relative easy use in pediatric anesthesia.	Administration of Midazolam before 3 years of age is linked to learning disabilities.
Midazolam decreases cortisol levels associated with preoperative and induction of anesthesia associated distress.	N-methyl-d-aspartate glutamate (NMDA) receptors antagonists and gamma-aminobutyric acid A(GABA) receptors agonists drugs such as Midazolam are associated with neurotoxic effects on synaptogenesis in young rats.

Other Premedication Agents Utilized to Manage Preoperative Distress in Children

Clonidine. Clonidine is an α_2 adrenergic agonist drug originally developed as an antihypertensive agent; however, it also provides analgesic, anxiolytic, and sedative effects (Mc Cann & Kain, 2001). Clonidine can be administered preoperatively to children in a dose of 4mcg/kg to produce sedation, decrease anesthetic requirements, and reduce postoperative analgesia needs (Mc Cann & Kain, 2001). One disadvantage of this medication is the lack of amnestic properties that Midazolam possesses (Fazi, Jantzen, Rose, Kurth, & Watcha, 2001). Fazi and colleagues (2001) found that children who received oral Clonidine exhibited more intense anxiety on separation from parents, and stronger reactions to induction of anesthesia by mask than those children who received equipotent dosages of Midazolam as preoperative medication.

The pros and cons of this drug and its compared usefulness relative to its counterpart drug Midazolam has been best summarized by Mahajan and colleagues (2012). Pros of Oral Clonidine are: (1) it tastes better than Midazolam, (2) the onset of sedation is faster after administration of Midazolam, (3) the quality of sedation is higher with Clonidine, and (4) no respiratory or cardiac instability was observed intraoperatively with Clonidine or Midazolam (Mahajan, Singh, & Kataria, 2012). Despite the usefulness of Clonidine, there was no distinction in its benefit over Midazolam for satisfactory anxiolysis and the quality of mask induction (Mahajan et al, 2012).

Fentanyl. In the preoperative setting Oral Transmucosal Fentanyl Citrate (OTFC), an opioid based medication, that can be administered to children in the form of a lozenge attached to a stick (“a lollipop”). OTFC was the first sedative drug approved by the FDA in 1993 to use in children. Usually 200-400 micrograms of this drug mixed in a

rasberry flavored candy base can be given to children at a transmucosal dose of 10-15 micrograms/kilogram. This drug is very appealing to children because it is concealed in a candy matrix; however, it has a longer onset of action (30–45 minutes) as compared to Midazolam (20 minutes). Clinicians tend not to use this drug very frequently because it is associated with significant respiratory depression, and facial pruritus (Mc Cann & Kain, 2001).

Ketamine. This pharmacological agent is an arylcycloalkylamine that produces sedation, immobility, analgesia, amnesia, and dissociation from the environment. An advantage of this drug is that it causes less respiratory depression as compared to other premedication agents, and also provides a strong analgesic effect. The disadvantage of this drug is that it is associated with physiological side effects in children. These side effects include frequent onset of nausea and vomiting, excessive salivary and bronchial secretions, muscle rigidity, and nystagmus (uncontrolled horizontal movement of the eyes) which are frequently observed in children. Orally administered Ketamine has an onset of action of approximately 10 minutes and provides sedation in 20 minutes (Sekerci et al., 1996). This discussion of pharmacological interventions to control preoperative children's distress provides empirical evidence of the most significant benefits and negative effects of the most widely used premedication agents used in the clinical setting.

Non-Pharmacological Interventions to Manage Preoperative Distress in Children

The literature lists a number of non-pharmacological interventions tailored to reduce perioperative stress and anxiety in children, with the primary focus to encourage cooperation from children while allowing the children to maintain a certain degree of autonomy and self-control. Non-pharmacological interventions can be classified under

five major categories: (1) psychological, (2) environmental, (3) equipment modification, (4) social interventions, and (5) communication style based interventions (Yip et al., 2009).

Psychological. Psychological interventions primarily aim to prepare the child to cope more effectively with perioperative distress associated with the period before and during induction of general anesthesia. Distraction techniques (Cooke, Chaboyer, Schuller, & Hiratos, 2005; Kain et al., 2004; Patel et al., 2006; Rawlinson & Short, 2007; Sinha, Christopher, Fenn, & Reeves, 2006), preoperative preparatory programs (Campbell, Hosey, & Mc Hugh, 2005), shaping and exposure (McLaren & Kain, 2008), therapeutic play (Child Life Council & Committee on Hospital Care, 2006), recording of maternal voice (Akinici et al., 2008), and hypnosis (Calipel, Lucaspolomeni, Wodey, & Ecoffey, 2005), are some of the most widely used forms of psychological interventions used to manage preoperative anxiety in children (Yip et al., 2009).

Distraction techniques. Distraction techniques make use of disguised medical equipment, videos, games, toys, storytelling, and medical personnel partially or fully dressed in costumes to distract children from their perceived threatening environment. This type of intervention has been tested by using an array of different approaches which can be simple and effective, yet may also present limitations related to time commitment, feasibility and cost (Mac Laren Chorney & Kain, 2009).

Clown doctors. Two different studies support the novel use of “clown doctors” as a treatment for preoperative worry and anxiety in children (Fernandes & Arriaga, 2010; Vagnoli et al., 2005). The methodology for both studies and

inclusion /exclusion criteria were very similar. Fenandez & Arriaga's (2010) study was conducted in Lisbon, Portugal while Vagnoli and colleagues's study (2005) was conducted in Florence, Italy. Fernandez & Arriga's study used children ($N = 75$) between the ages of five to twelve years. Vagnoli and colleagues recruited children ($N = 40$) who were also between the ages of five to twelve years. Both sets of researchers recruited children who were undergoing minor ambulatory surgery with no significant comorbidities or psychological/ psychiatric histories. Children were randomly assigned to the experimental groups in each of the studies. Children in the experimental group were accompanied to the operating room by a clown doctor and one of the parents. Children that were assigned to the control groups were escorted by a parent without the clowns. Although no differences were noted in the level of anxiety experienced by children of both groups in the preoperative waiting area (experimental and control groups), children who interacted with clowns experienced significantly less anxiety during induction of anesthesia (Costa Fernandez & Arriaga, 2010; Vagnoli et al., 2005). Costa Fernandez and Arriaga (2010) also concluded that the clown doctors were not only effective in the reduction of preoperative fear and emotional responses in children, but also on reducing anxiety in their parents.

Hand held-video games. Patel and colleauges (2006) implemented the use of a hand-held video game with an experimental group of children in the preoperative area, with the purpose of testing the reduction of preoperative anxiety in children and induction compliance (Patel et al., 2006). In this study, the efficacy of cognitive distraction on reducing preoperative anxiety in children

during the preoperative period was evaluated with the use of a hand-held video game (VG). This randomized, prospective US study involved children ($N = 112$) ages 4 to 12 years who were undergoing outpatient surgery. The children were assessed for preoperative anxiety in the preoperative period, and subsequently assessed during mask induction of general anesthesia. Preoperative anxiety was measured by using the modified Yale Preoperative Anxiety Scale (mYPAS), and postoperative behavior changes were measured with the Posthospital Behavior Questionnaire (PHBQ). Patients were randomly assigned to three groups: parental presence during the preoperative period and induction of anesthesia (PP) ($n = 36$), parental presence and hand-held video device (VG) ($n = 38$), and parental presence and 0.5 mg/kg of oral Midazolam given to the child approximately 20 minutes before going to the operating room (M) ($n = 38$). This study suggests a statistically significant increase in anxiety in children assigned to the M and PP group at induction of anesthesia when compared with anxiety levels at baseline, but not in the VG group. VG patients showed a significant decrease in anxiety from baseline. This distraction intervention appears to be a promising, cost effective, portable, easy to implement method to reduce preoperative distress in children by involving the child in a familiar activity which decreases anxiety by means of cognitive and motor involvement (Patel et al., 2006).

The use of hand held-video games has also been tested in the field of dermatology in a study conducted in Singapore. Tey and colleagues (2012) used hand-held devices to test children's ability to cooperate with anxiety during pain producing procedures, such as cryotherapy for removal of viral cutaneous warts.

In this particular study, the use of a hand-held video device was intended to rate the usefulness of a non-pharmacological intervention utilized to treat distress in children in need of this medical procedure. This study evaluated 99 cryotherapy sessions performed in preschool children ($N = 35$). Fifteen children received cryotherapy during the pre-intervention phase only; thirteen children received cryotherapy during the intervention phase, and seven children received cryotherapy during the pre-intervention and intervention phases. The researchers concluded that the use of a hand-held video device was able to decrease pre-procedural anxiety levels in children. This intervention was also found to be beneficial in reducing the time spent coaxing children to cooperate and receive treatment (Tey et al., 2012).

Preoperative preparatory programs. Preoperative preparatory programs assist parents and children in becoming familiarized with the perioperative setting and the routines associated with the surgical process. Providing preoperative information, which is customized to the individual needs of the children and parents who are involved in the process is essential (Brewer, Gleditsch, Syblik, Tietjens, & Vacik, 2006; Hatava, Olsson, & Lagerkranser, 2001; Kain et al., 2007; Li et al., 2007). Children who are prepared for surgery and obtain support throughout the hospitalization process recover more quickly and display less distress through the entire perioperative process than children who are not prepared for surgery and who do not obtain support throughout the hospitalization process (Li & Lopez, 2006). A good example of an effective preoperative preparation program has been described by Justus and colleagues

(2006) with the *Meet me at Mount Sinai (MMAMS)* program. MMAMS was created in 1990 in New York City by an interdisciplinary group of professionals that included social workers, nurses, and child life specialists. The professionals incorporated play techniques, psychoeducational and supportive interventions for children and families who were scheduled for surgical procedures. *MMAMS* interventions were designed to address emotional and cognitive preparation tailored to address the developmental needs of the children (Justus et al., 2006). Although this program has not been empirically tested yet, the authors report that most parents expressed great satisfaction since its implementation in 2002 (Justus et al., 2006).

Preoperative preparation and its effect on reduction of preoperative distress in children and parents is also reflected in the work of Fincher et al., (2012). Fincher and colleagues (2012) tested the effects of preoperative education on children and their parents scheduled for elective surgery under general anesthesia in a study conducted in Western Australia. In this single-blind randomized controlled study involving children ($N = 73$) aged 3 to 12 years. Thirty-six children were assigned to the control group where parents and children received no preoperative education prior to surgery, and an intervention group of 37 children who received preoperative education. The preoperative education consisted of: (1) the showing of a photo file to parents and children containing 21 topics of simulated events of a child going through the surgical experience, (2) a demonstration of equipment commonly utilized during the surgical process, and (3) and a tour of the surgical facilities including the induction room. The researchers

included children who were admitted for uncomplicated surgical procedures and excluded children with chronic illnesses or a positive history of prior surgeries. Fincher and colleagues (2012), assessed child temperament, parent and child trait anxiety at baseline; and trait anxiety of parent and child at eight other points: (1) admission to hospital, (2) preoperative holding area, (3) entering the induction room, (4) upon introduction of anesthetic mask to child/parent separation, (5) child in recovery room, (6) upon arrival to the hospital ward, (7) twenty four hours postoperatively, and (8) two weeks postoperatively. The *EASI Temperament Survey* was used to assess the child's temperament at baseline and the self-reported *State Trait Anxiety Inventory (STAI)* was used to measure trait and anxiety state in parents. Child anxiety was measured using the *Modified Yale Preoperative Anxiety Scale (m-YPAS)*. The results of the study showed preoperative preparation was effective in reducing parent's anxiety but not the child's anxiety. No significant differences were found in the postoperative behavior of the children or level of parental satisfaction in either the study or control group. Interestingly, the intervention appeared to have a significant effect on reduction of post-operative pain in the group of children who received preoperative preparation as compared to those who did not receive preoperative preparation (Fincher et al., 2012).

Kain and colleagues (2007) also supported the use of preoperative preparation programs in a study conducted at the Yale – New Haven Childrens Hospital in the US . This group of researchers conducted a large study involving

408 children, between the ages of two to ten years of age. The children were assigned to four different groups: (1) control: children receiving routine care ($n = 104$); (2) parental presence: one of the parents was present during induction of anesthesia ($n = 101$); (3) ADVANCE (Anxiety-reduction, Distraction, Video modeling and education, Adding parents, No excessive reassurance, Coaching, and Exposure/shaping): children and parents received a multimodal family-centered behavioral preparation program before surgery ($n = 100$); and (4) administration of oral Midazolam preoperatively. The researchers evaluated the usefulness of the family-centered behavioral preparation program ADVANCE on reduction of child and parental distress, incidence of emergence delirium after surgery, analgesia requirements, and discharge time from the recovery room. Parents and children in the ADVANCE group exhibited significantly lower anxiety in the holding area and during induction of anesthesia as compared with members of the other three groups. Anxiety levels and compliance with induction of anesthesia was the same for the ADVANCE and Midazolam groups. Children in the ADVANCE group displayed a lower incidence of emergence delirium, decreased analgesia requirements and shorter discharge times from the recovery room as compared with children in the other three groups (Kain et al., 2007). The significant benefit of this intervention as compared to some other types of preparation programs studied could be justified by the utilization of a multimodal approach, rather than a single approach to manage preoperative distress in children and parents (Kain et al., 2007).

Shaping and exposure. MacLaren and Kain (2008) conducted a study in the USA to investigate the effects of shaping and exposure as a non-pharmacological intervention to manage children's perioperative anxiety and compliance during induction of anesthesia (MacLaren and Kain, 2008). The researchers divided the study group of 112 children who were between two to seven years of age into the intervention group ($n = 45$ children) and the control group ($n = 58$ children). Children in the intervention group received shaping and exposure. Children in the control group did not receive the intervention. Shaping and exposure involved early introduction and familiarization with the anesthetic mask, accompanied by researcher's sequential positive reinforcement every time the child engaged in behaviors leading to cooperation with the induction procedure. For example the children would engage in: (1) exploring the anesthetic mask, (2) holding the anesthetic mask to their mouths, (3) breathing into the anesthetic mask while holding it to their mouths independently, (4) breathing into the anesthetic mask as parents held mask to their mouths, (5) breathing into the anesthetic mask while holding it to their noses, (6) breathing into the anesthetic mask while holding it to their mouths and noses, etc., until the children displayed comfort in climbing on the operating room table, holding the mask on their own, and accepting induction of general anesthesia (MacLaren & Kain, 2008). The researchers in this study concluded that children who were exposed to the intervention displayed significantly increased compliance and decreased levels of anxiety at the time of induction as compared to the control group.

Aydin and colleagues (2008) also conducted a randomized controlled study in Turkey to test the effects of shaping and exposure in children three to seven years of age who were undergoing induction of general anesthesia for minor surgical procedures. Children with prior surgeries, cognitive disabilities, seizures, and other chronic illnesses were excluded from the study. The effects of offering conventional verbal information about an anesthetic procedure to children, versus providing verbal information and an anesthetic mask for the children to play with before the surgical procedure was evaluated by this team of researchers. Children ($N = 50$) were pre-medicated with Midazolam, and provided with routine information about the anesthetist, procedures, and equipment to be used during the anesthetic preparation process and induction of anesthesia. Children randomly assigned to the conventional intervention were part of the control group ($n = 25$), while children randomly assigned to the experimental group received the conventional intervention plus the ability to get familiarized with the anesthetic mask prior to the scheduled procedure ($n = 25$). The researchers measured children's anxiety during separation from parents and induction of anesthesia, mask acceptance quality, and total mask time (TMT). Total mask time was defined as the time between the introduction of the anesthetic mask and the loss of lid reflexes, and state of unconsciousness. Anxiety levels in the informed group were much higher than in those children who were allowed to explore the anesthetic mask before induction of anesthesia. In addition, mask acceptance quality and TMTs scores were higher for children who had the

opportunity to play with the anesthetic mask before the procedure (Aydin et al., 2008).

Therapeutic play. Li and colleagues (2007) conducted a randomized controlled study with two-group pretest and repeated post- test between subjects design to test the effects of therapeutic play in 203 Chinese children ages seven to twelve years, scheduled for same day surgery procedures. Children who had chronic illnesses, learning disabilities, or had prior surgical procedures were excluded from the study. Children and their parents in the control group ($n = 106$) received traditional preparation and orientation to the surgical experience (briefing session on pre- and postoperative care, fasting instructions, wound care, and postoperative pain management), while children and parents in the experimental group ($n = 97$) received traditional preparation, an explorative tour of the operating room, and a doll demonstration of induction of anesthesia. The researchers concluded that statistically significant differences were found between children who received additional familiarization with the operating room environment and play time with the doll, and those children who received traditional preoperative preparation. Children in the experimental group were found to be less anxious, and experienced fewer distressing emotions during the actual process of induction of anesthesia in comparison to the control group (Li et al., 2007). This study highlights the benefits of therapeutic play as a tool in restoring a child's overall sense of self-control during surgical procedures (Li & Lam, 2003).

Maternal voice recording. It has been hypothesized that in situations in which the parent cannot be present during a medical or surgical procedure that a recording of maternal voice may actually soothe and reduce children's anxiety on induction and emergence of anesthesia, and also reduce anesthetic requirements of the child (Kim, Oh, Kim, & Kwak, 2010). Kim and Colleagues (2010) piloted a randomized controlled study in South Korea which involved children ($N = 52$) ages 22 months to 14 years of age undergoing cardiac catheterization. The children were randomly assigned into an experimental and a control group to assess the effectiveness of a maternal voice recording in diminishing children's anxiety during a procedure. The study group named mother-voice (MV), was composed of children ($n = 26$), who wore headphones to block all auditory stimulation during the procedure, yet they were able hear the recorded voices of their mothers. The children's mothers in the study group were encouraged to choose the content of the recording which included soothing speech, singing, and prayers as possible options. The control group was also composed of ($n = 26$) children who received headphones to block all auditory input; however, they did not listen to a recording of their mother's voice. Anesthetic drug requirements, hemodynamic changes (blood pressure and heart rate), agitation on emergence and anxiety scores for children and mothers were also measured preoperatively and postoperatively. Findings of this study showed that hemodynamic changes and anesthesia requirements were comparable for both groups; children in the MV group had lower anxiety scores than the control group before the procedure, but not postoperatively. Emergence agitation was also reduced in the MV as

compared to the control group in the postoperative phase. Mother's State-Trait anxiety scores for both groups was the same preoperatively; however, those mothers assigned to the MV group displayed diminished State-Trait anxiety scores after the completion of the procedure in comparison to their counterparts in the control group (Kim et al., 2010).

Hypnosis. Calipel and colleagues (2005) evaluated the usefulness of hypnosis in comparison with preoperative medication (Midazolam) in a randomized controlled trial involving French children ($N = 50$) between the ages of two to eleven years of age. Only children who were scheduled to undergo abdominal surgical procedures were included in this study. Exclusion criteria included : high anesthetic risk, history of prior surgery, and cognitive delay. Group H ($n = 23$) received hypnosis as premedication, and Group M ($n = 27$) received 0.5 mg/kg oral Midazolam 30 minutes before the surgical procedure. Children's preoperative anxiety was measured with the Modified Yale Preoperative Anxiety Scale (mYPAS) at three different points of the perioperative phase: arriving to the holding area (T1), entering the operating room suite (T2), and during introduction of the anesthetic mask (T3). Postoperative behavioral disorders were also evaluated by using the Post-hospitalization Behavioral Questionnaire (PHBQ) at days 1, 7 and 14 after discharge from the hospital. The researchers found no significant differences in baseline preoperative anxiety in both groups; however, children in the hypnosis group were less anxious during induction of anesthesia than those children who had received Midazolam preoperatively. Postoperatively, hypnosis also reduced the frequency of negative

behaviors (fear of separation from parents, aggression, apathy, eating disorders, and generalized anxiety) by 50% on postoperative days 1 and 7 (Calipel et al., 2005).

Environmental. The effects of surgical environment modification have been an area of interest to researchers in understanding the effects of the environment on reducing preoperative distress in children. The implementation of an optimal and soothing perioperative environment via low sensory stimulation and equipment modification appears to be a significant factor in the successful management of preoperative distress in children (Kain et al., 2001).

Low sensory stimulation. The surgical environment can be extremely hectic and overwhelming in visual and auditory stimuli. Such stimuli can be threatening to young children. During the process of the perioperative experience, parents and children are usually exposed to the effects of a rushed environment in which healthcare providers are clothed in unfamiliar surgical attire that covers their face and body. The surgical attire, designed to protect patients from infection, tends to disguise overall personal appearance (Justus et al., 2006; Kain et al., 2001) In addition, it is not unusual for surgical and anesthesia personnel to bring surgical and/or anesthetic equipment close to patients. As patients aggregate in the surgical holding area, the level of noise is high because this is a centralized location where patients, families, and medical personnel gather immediately before the surgical procedure (Kain et al., 2001). It is common for patients and their families to hear the interactions and observe the emotions of other patients interacting with their respective healthcare providers (Kain et al., 2001). Children

tend to be more vulnerable to this complex environment, as they can be more susceptible to developing fear when observing other patients and families in distress (Justus et al., 2006). Although the literature lacks evidence as to which specific type of environmental stimuli is more detrimental to patients, it has been clearly determined the physical healthcare environment, in general, affects the well-being of patients (Dijkstra, Pieterse, & Pruyn, 2006). The healthcare field appears to be in urgent need of establishing well-designed controlled clinical trials to help formulate evidence-based guidelines focused on the promotion of an ideal healthcare environment for patients and their families (Dijkstra et al., 2006).

Kain and colleagues (2001) conducted a randomized controlled trial in the US involving children ($N = 70$) age two to seven years, who were scheduled for outpatient surgery. This study was designed to investigate the effects of low sensory stimulation on children's level of preoperative anxiety during induction of anesthesia. The study group involved ($n = 33$) children who received an intervention which included: (1) dimming of the operating room lights, (2) playing soft classical background music, and (3) only one person (the attending anesthesiologist) interacting with the child during induction of anesthesia. The control group composed of children ($n = 37$) underwent induction of anesthesia in an unaltered surgical environment (bright lights, high noise levels, exposure of surgical equipment, etc.). The researchers in this study hypothesized that a decrease in the sensory input during induction of anesthesia would result in decreased anxiety scores (measured by mYPAS), and increased compliance during induction. Evidence of negative postoperative behaviors was also assessed

via the Post-Hospitalization Behavior Questionnaire (PHBQ) on postoperative days, 1, 2, 3, 7, and 14. The researchers concluded that the LSSG group was significantly less anxious as compared with the control group.

In one of the studies conducted by Kain and colleagues (2004), the effectiveness of interactive music therapy was tested on reduction of children's anxiety during induction of anesthesia. Children in the group who received a standard preoperative sedative were much less anxious than those children who received interactive music therapy or no intervention. Although this was the only intervention reported as ineffective, a small significant therapist effect was found between the two groups of children treated with music therapy. These later findings suggest future testing of music therapy interventions is needed in order to assess the effectiveness of music therapy, and to further evaluate the importance of the therapist as a factor in making this intervention a successful one (Cyna et al., 2009; Kain et al., 2004).

Equipment modification. Equipment modification involves making changes or adding interest to anesthesia delivery systems to make them less threatening and more appealing to children. Children tend to be more compliant with induction of general anesthesia if they are less fearful of the environment and medical equipment utilized in the hospital (Christiansen & Chambers, 2005; Przybylo et al., 2005). Aron and Colleagues (2007) tested the effects of utilizing two different equipment-disguising techniques in the pediatric perioperative setting at an upstate university hospital in New York. The authors evaluated differences in the preoperative anxiety levels in children between the ages of two

to then years who received a “balloon toy” made of the anesthesia reservoir bag and a bubble gum flavored anesthetic mask, versus those children who just received the anesthetic mask with bubble gum flavor (a common practice in most pediatric anesthesia settings). The “balloon toy” was also decorated with either a picture or a sticker to make the device more interesting for the child. The children in this study were randomized into two different groups, with 21 participants in each group. Each child was provided one of the modified equipment 15 minutes before the surgical procedure, prior to entering the operating room.

The anxiety scores of the children who received the balloon toy or the mask were recorded after 15 minutes, when the anesthesiologist returned to the holding area to transport the child to the operating room with parent or guardian. The “balloon” was then separated from the mask and attached to the anesthesia circuit while the patient was instructed to breathe into the mask, which was now attached to the anesthesia machine’s breathing circuit. Subsequently, the anesthesiologist instructed the child to watch the “balloon machine” blow up his/her balloon. The mYPAS scale was used to measure children’s anxiety scores in the holding area and in the operating room prior to induction of general anesthesia. The same procedure was followed for children who were assigned to the anesthetic mask group only. The researchers concluded in this study that children who were exposed to the “balloon toy” were significantly less anxious than those children who just received the anesthetic mask (Aron et al., 2007). The authors further established that children appear to benefit from obtaining more information about the ventilation system when presented to them as toys. Non-

threatening introduction and familiarization with disguised equipment may actually help children to decrease their fear and anxiety during the preoperative process. The researchers also highlighted the benefit of this cost-effective intervention in perioperative settings where resources allocated to pediatric services might be scarce (Aron et al., 2007).

Social. For the toddler and the preschool aged child, significant relationships revolve around the basic family (i.e. maternal figure, immediate family). The basic family plays a crucial role in the development of the child and interactions with other adults that may mimic such familiar relationships are worthy of exploration for their impact on reducing preoperative anxiety or distress.

Parental presence during induction of anesthesia (PPIA). The effect of parental presence during children's anesthetic process has been one area of great interest to researchers and clinicians involved in the care of children (Akinci et al., 2008; Chundamala, Wright, & Kemp, 2009; Kain et al., 2004; Kain et al., 1996; Kain et al., 1998; Li & Lam, 2003; Messeri et al., 2004; Voepel-Lewis et al., 2000; Wheatcroft & Creswell, 2007). Parental presence during induction of anesthesia is one of the methods of reducing anxiety in children and is a common practice in the US and other parts of the world (Akinci et al., 2008; Kain et al., 1998; Li & Lam, 2003; Messeri et al., 2004). The increased need for operating room efficiency, together with the need to fast track patients to accommodate large volumes of patients in need of surgical procedures restricts the ability to address children's psychological needs (Li & Lopez, 2006). Parents have a significant influence on children's behavior during the separation process (when

the child is taken to the operating suite for anesthesia induction and surgical procedure). Young children are more vulnerable to separation from parents and display increased-distress related behaviors when compared to older children (Voepel- Lewis et al., 2000). It is also not surprising that most parents are anxious about their child's surgery, creating a positive feedback loop by which increased parent anxiety tends to augment child's anxiety, increasing parents' anxiety to even higher levels. A child's anxiety is directly linked to maternal anxiety (Kain et al., 1996). The relationship between mother and child anxiety can have an impact on the incidence of negative postoperative behaviors (Kain et al., 1998). Age and child's temperament may be moderating factors with mother and child preoperative anxiety as Kain and colleagues (1998) established that children who were older than 4 years of age with a low baseline activity level and temperament and who had at least one parent with low trait anxiety would benefit most from PPIA .

The decision to include parents in the process of induction can be substantiated by the need of the parent to play a vital role in the care of their child (Himes, Munyer, & Henly, 2003; Kain et al., 2000). Wheatcroft and Cresswell (2007) investigated the relative association between parent and child anxiety, and parent's cognitions about their child in a study conducted in the UK. The researchers surveyed parents ($N = 104$) of children aged 3 to 5 years to specifically assess the relationship between the parent's own level of anxiety, the parents' expectations about child distress and avoidance, and the parents' perceived control over child mood and behavior. Wheatcroft and Cresswell

(2007) concluded that parent's perception of their child's anxiety correlated significantly with parent's locus of control, parental expectations, and perceived control of their child's anxious mood and behavior. This study strongly suggests the need to address anxiety management of parents, and their perceptions of their child's level of distress in order to effectively manage anxiety in children when considering PPIA.

While PPIA remains controversial due to the assumption that parental presence may be of no significant help to anesthesia providers, and that premedication may be a more secure way to reduce anxiety in children (Akinci, 2008; Chundamala, et al., 2009; Kain et al., 1998), other studies support that parental presence has significant value to children. It appears that parents, despite their level of anxiety, still behave appropriately and are able to support their children during a stressful process (Messerli et al., 2004; Voepel-Lewis et al., 2000). Furthermore, mothers more than fathers have a stronger effect on reduction of children's anxiety (Arai et al., 2008; Messerli et al., 2004). Other factors which were not accounted for in the literature and are worthy of exploration to better understand the role of parents in the perioperative setting include: type of hospital setting, type of surgery, degree of illness of the child, and anesthesia provider's degree of willingness to allow parent involvement in the perioperative period.

Communication-based interventions and child-adult interactions.

Communication based interventions or child-adult interactions, are associated with anesthesia provider's tone of voice, body language, etc., and their effects on

children's reactions (Smith & Mishra, 2010; Smith, Pope, Goodwin, & Mort, 2005; Yip et al., 2009).

Anesthesia providers' behaviors and children's coping and distress.

Human communication is ostensive in nature because it is intended to deliver a message to a specific recipient (Kinzler, Corriveau, & Harris, 2011). Young humans are thought to have "natural pedagogy," which indicates infants have the ability to receive adults' ostensive communications well before they develop the capability to learn from these interactions (Csibra & Gergely, 2009). Children are thought to rely much more on adults' cues and verbal report than on their own physical perception of the world (Jaswal & Markman, 2007). This can further be interpreted as a very early capability to make inferences about their world by means of obtaining information from trusted adults. Furthermore, when children receive conflicting, incomplete, or inconsistent information provided by others, they demonstrate the sophistication to trust the most reliable informant with a demonstrated history of past reliability (Birch, Vauthier, & Bloom, 2008).

This supports current practices of involving parents during the perioperative period and induction of anesthesia. Parents are a reliable support system to children, capable of communicating trustworthy information to them during a process which is unfamiliar and threatening to them (Birch et al., 2008). Furthermore, anesthesia providers may obtain critical information and learn from these child-parent interactions, to secure and maintain a position of trust throughout the essential clinical routines utilized during the preoperative phase and induction of anesthesia (Mc Laren Chorney et al., 2009). To date, no study

has looked at the impact of health care providers characteristics and/or behaviors on childrens' distress during the preoperative phase and induction of anesthesia (Mc Laren Chorney et al., 2009).

Adult behaviors which include talk about non-medical topics such as school, hobbies, etc., and use of humor are associated with children's increased ability to cope with medical procedures, while excessive use of reassurance and empathy behaviors were found to produce more distress (Blount, Sturges, & Powers, 1990; Dahlquist, Power, & Carlson, 1995). One of the most important findings in the literature addressing interactions between adults and children is that adult's emotion-driven behaviors such as reassurance, empathy, empathic touch, etc., have a positive effect on the child's level of distress (Mc Laren Chorney et al., 2009). This finding contradicts formal training of anesthesia providers as most anesthesia providers are primarily educated to focus on procedural talk, and/or receiving and providing information (Cyna et al., 2009). A Canadian study lead by Mac Laren Chorney and colleagues (2009) reviewed digital videotapes of 293 children ages two to ten years, who were undergoing induction of anesthesia. The authors investigated the interactions of children in relationship to parents, anesthesiologists, and nurses who were present during induction of anesthesia, and rated their level of distress during this process. Mac Laren and colleagues (2009) concluded that there was a statistically significant relationship between the types of interactions occurring between children and adults and their level of distress. The researchers concluded that when anesthesia providers engage in medical reinterpretation of procedures or the provision of information to children

in a less threatening or fun manner, children demonstrate better coping ability and decreased levels of distress (Mc Laren Chorney et al., 2009).

A study conducted by Wissow and colleagues (1998) described the provider-child interactions which occurred during the emergent care of children with an acute episode of asthma. This cross sectional study examined children ($N = 104$), ages four to nine years and their guardian(s) as they were admitted to the emergency room in seven different cities of the USA. This quantitative study revealed that during emergent situations the communication between the healthcare provider, the parent, and child was overwhelmingly biomedical. The providers spent a very small amount of time on psychosocial issues. Providers' talk to children was primarily supportive and directive, while talk to parents was intended to provide either counseling or information. The researchers also noticed in this study only a small fraction of the children communicated with the providers, preferring to direct conversation to the most trusted adults or parents instead (Wissow et al., 1998). These researchers observations are also beneficial and relevant to the surgical setting, where effective patient-centered communication styles are necessary. Both, parent and child need to be included in the interactions with anesthesia providers to better understand patient's needs and obtain child's cooperation during the perioperative period (Wissow et al., 1998).

The importance of the interactions between the anesthesia providers and children is reflected in a Swedish controlled randomized study conducted by Wennstrom and colleagues (2011) . This group of researchers observed the effects of “perioperative dialogue” between nurse anesthetists and children on reducing

stress in children undergoing day surgery. This study elucidated the effects of explaining to children beforehand the nature of medical procedures and what is going to happen to them as a method of diminishing distress in children. The researchers evaluated saliva cortisol levels in children who were assigned to three different groups. Seventy-nine boys and 14 girls ($N = 93$) ages 5 to 11 years of age were randomly assigned to one of three groups: (a) standard perioperative care ($n = 31$), (b) standard perioperative care including preoperative information ($n = 31$), and (c) preoperative dialogue (PD) ($n = 31$). Saliva was obtained from the children at different points during the pre- and perioperative period (Wennstrom et al., 2011). Children who had received PD as an intervention had a significantly lower salivary cortisol concentrations during the preoperative stage and needed less pain medication during the postoperative stage (Wennstrom et al., 2011).

A limitation of this study was the inability to assess the effects of health care providers preoperative dialogue in children younger than 5 years of age and its effect on management of preoperative distress. Young children's understanding of explanations are different than older children and adults; therefore, explanations and interactions targeted to this group of the pediatric population needs to be relevant and appropriate for their age (Hockenberry & Wilson, 2007). It is essential for healthcare providers to recognize that this group of children need clear and concrete explanations during the course of their interactions with them (Rawlinson & Short, 2007), and that PD in this age group may be more effective by adding the use of props such as children's books, videos

or pictures to reinforce verbal communication and decrease children's distress (Rawlinson & Short, 2007).

Chapter Summary and Gaps in the Literature

This literature review addressed the history and most relevant factors affecting children's coping ability and distress during the perioperative period. An overwhelming number of multinational studies are primarily focused on pharmacological and non-pharmacological interventions, which are quantitative in nature and geared to the management of perioperative distress in children.

Pharmacological interventions such as use of Midazolam during the preoperative period appears to be the preferred mode of management for preoperative anxiety in adults and children (Kain et al., 2004; O'Sullivan & Wong, 2013). More recent research challenges the safety of this medication, especially within the context of pediatric anesthesia. There is compelling evidence that this drug, among other commonly used anesthetic agents, may have unwanted effects on children's neuronal development and learning ability if administered during the early years of life (Bartels et al., 2009; Mellon et al., 2007). A number of non-pharmacological interventions offer promising results in the management of preoperative distress in children; however, these interventions can be time consuming, costly and unattainable in hospital settings with few resources (Cyan et al., 2009).

No descriptive qualitative or quantitative studies were found in the literature that specifically described the types of pharmacological and non-pharmacological interventions utilized by anesthesia providers before and during induction of general anesthesia to reduce preoperative distress in toddlers and preschoolers. No descriptive

information was found regarding: (a) other causes that may be associated with preoperative distress in toddlers and preschoolers, (b) the anesthesia provider's specific choices in the management of preoperative distress in young children, and (c) anesthesia providers' recommendations for best practices to address this problem.

Although there is evidence that the phenomenon of preoperative distress in children exists, information was still lacking about how children's preoperative distress impacts anesthesia providers. The literature focuses on possible solutions or interventions to address the problem, while excluding an in-depth description and explanation of plausible causes for its occurrence. A better understanding of this clinical challenge faced by clinicians on a daily basis will provide knowledge to create evidence-based solutions and new areas of research to explore.

Chapter 3

Research and Design

This chapter will describe the study design, sampling method, data collection procedures, data management, data analysis and protection of human subjects.

Qualitative descriptive research is commonly used to address questions of particular interest by creating a descriptive survey of what, how, where, when, and why a particular phenomenon occurs from the perspective of each participant in a given study (Polit & Tatano Beck, 2012; Sandelowski, 2000). Qualitative description allows the researcher to “stay close to the data, and to the surface of words and events” (Sandelowski, 2000, p. 334). Subsequently the researcher reduces and analyzes all the data generated from the study to describe and/or explain the subject of interest (Ayres, Kavanaugh, & Knafl, 2003; Polit & Tatano Beck, 2012). Qualitative methodology was selected over a quantitative descriptive approach because it is more encompassing and more interpretative, allowing the researcher to unveil a great deal of information and detail that may be missed with quantitative methods (Sandelowski, 2000).

This descriptive qualitative study provided important information about anesthesia providers’, (1) interpretations of the causes for the incidence of preoperative distress in toddlers and preschoolers, (2) preferred type of interventions to manage distress in children, and (3) recommendations for the management of preoperative distress in young children.

Another benefit of using this qualitative approach is the ability to generate a comprehensive summary of an event or a problem, and to better understand the factors or variables that may need to be investigated in future quantitative and qualitative studies.

This naturalistic form of inquiry falls under the umbrella of other forms of behavioral research focused on humans and animals (Sandelowski, 2000). The aim of this naturalistic approach involved the commitment to study anesthesia providers in their natural environment as much as possible, placing emphasis on avoiding the use of preselection or manipulation of variables, with no a priori commitment to investigate the target phenomenon of study (Creswell, 2007; Sandelowski, 2000). This form of inquiry also allowed the primary investigator to interpret anesthesia providers' management of preoperative distress in toddlers and preschoolers to make it more understandable to self and other clinicians who are challenged by this problem in their daily clinical practice (Creswell, 2007; Denzin & Lincoln, 2008).

Qualitative descriptive designs can be eclectic in nature by making use of different approaches to sampling, data collection, analysis and representational techniques (Sandelowski, 2000). The researcher in this study utilized straightforward and minimally adapted qualitative description research questions, which are typically used in descriptive qualitative research projects involving policy or practice topics. Most questions to anesthesia providers revolved around topics such as concerns, thoughts, feelings, attitudes, reasons for using or not using certain interventions, preferences, opinions, beliefs, etc. (Sandelowski, 2000). Sandelowski (2010) placed emphasis on seeing qualitative descriptive studies as thematic surveys, which are constructed as a less transformed interpretation of data than other forms of qualitative research (Sandelowski & Barroso, 2007). In the same fashion, the primary investigator applied this research methodology by implementing thematic surveys in the form of semistructured interviews. The implementation of face-to-face interviews allowed the researcher to connect with the

participants in such a way that participants become active agents rather than passive objects in the research process (Hill, 1997; Kirk, 2007).

Sample, Recruitment, and Setting

Sample

The sampling process in qualitative research is purposeful; therefore, the participants were selected for a specific purpose (Creswell, 2007). The researcher in this study made use of purposeful sampling to ensure the phenomenon of interest was studied across multiple anesthesia providers' cases, to obtain relevant and detailed information about this specialized area of study (Creswell, 2007; Sandelowski 2000; Sandelowski, 1995). The sample size in this study was set at a maximum of 20 participants, point at which data became redundant or reached a saturation point (Sandelowski, 1995). The term "saturation point" implies no new information was encountered or unveiled throughout the data collection process (Sandelowski, 1995). As a precaution the primary investigator planned to interview 2 additional anesthesia providers, if saturation point was not reached after interviewing the 20 participants enrolled in the study.

The qualitative data sample size in this study was determined during the interviewing process using the concept of redundancy or saturation, which determined the number of anesthesia providers interviewed for purposes of this study. Saturation occurred when no new data emerged, indicating that the limits of the phenomena was covered (NIH & OBSSR, 2001). Consequently, saturation of data in this project was achieved after 20 anesthesia providers were interviewed (Creswell, 2007). Demographic characteristics of the study's sample is discussed under the results section in Chapter 4.

Recruitment

The primary investigator issued an invitation email to all anesthesia providers practicing at Jackson Memorial Hospital with the purpose of providing general information about the study, and describe the inclusion criteria to all of those participants who wished to participate the study. The aforementioned email also contained the researcher's contact information (email and phone number) to facilitate contact between the researcher and potential volunteers. The primary investigator is an anesthesia provider who practices at Jackson Memorial Hospital, and had easy access to the anesthesia providers who replied to the initial invitational email, self-reported to meet the criteria, and volunteered to participate in the study. The primary investigator recruited participants for the study and collected quantitative and qualitative data to the point of saturation in five weeks. Six volunteers were recruited after sending the initial departmental invitational email to all the anesthesia providers practicing at Jackson Memorial Hospital. The remaining volunteers recruited for this study were approached by the primary investigator by phone, text, or direct contact. This last methodology for recruitment proved to be effective in recruiting additional volunteers for the study. Another key successful approach for the recruitment of participants in this research project was the ongoing utilization of "Snowball" recruitment, which involved anesthesia providers actively seeking and referring other participants to participate in the study (Polit & Tatano Beck, 2012).

Setting

The participants enrolled in the study practiced in a large urban teaching center located in the heart of Miami Dade County, Florida. Jackson Memorial Hospital is a non-

profit tertiary care public hospital, and a major teaching site for the University of Miami Leonard M. Miller School of Medicine. This 1,550 bed hospital has been classified as the only level 1 adult and pediatric trauma center in Miami-Dade County, FL. Jackson Memorial Hospital is also the home of the Holtz Children's Hospital, one of the largest children's hospital in the Southeast of the United States and the nation. Most of the pediatric surgical cases and procedures which require anesthesia services are provided by anesthesiologists and registered nurse anesthetists, or anesthesiologists and anesthesiology residents working together as a team. While all anesthesiologists and certified registered nurse anesthetists are educated and trained to provide anesthetic care to children, only a subgroup of anesthesia providers interviewed spent the majority of their clinical time practicing pediatric anesthesia. For the purposes of this study, anesthesia providers with a wide range of clinical experience, education, and pediatric expertise were included in this convenience sample to obtain a wide range of information about their practices when providing anesthetic care to young children.

Inclusion and Exclusion Criteria

Inclusion criteria

The anesthesia providers included in this study were anesthesiologists and certified registered nurse anesthetists, (a) who provide anesthesia services at Jackson Memorial Hospital, (b) have at least 2 years of clinical experience, and (c) dedicate at least 10% of weekly practice time to pediatric anesthesia.

Exclusion criteria

All anesthesiology residents and student registered nurse anesthetists were excluded from this research study due to their limited clinical experience and decision-

making ability. Anesthesiologists and certified registered nurse anesthetists who had less than 2 years of clinical experience, and committed less than 10 % of their total weekly practice time to pediatric anesthesia were also excluded from this study. This decision was based on the primary investigator's belief that this subset of professionals did not have enough clinical experience to provide an in- depth description of the phenomenon of study.

Research Procedures and Set Up of Interview Process

After the invitation email was sent by the primary investigator to all of the Jackson Memorial Hospital anesthesia providers, inviting them to participate in the study, potential volunteers who responded to the email and who self-reported to meet the criteria were contacted by email, phone call, or personal meeting with the primary investigator. During this initial interaction with the potential participant, the primary investigator ascertained whether the participant met the established criteria for the study and scheduled a subsequent appointment to conduct a personal in-depth interview to collect data. The researcher also provided the participants with the opportunity to be interviewed during the time of this initial contact. Because the primary investigator also practices at Jackson Memorial Hospital, precautions were taken to avoid creating conflict of interest when setting up appointments or recruiting participants who were also peers in the work setting. All recruitment and research activity occurred when anesthesia providers were not involved in patient care.

During the initial contact with the participant, the researcher provided additional information about the proposed study, and delineated expectations for the research process. Specifically, the researcher explained that the interview process would last

approximately 60 minutes, and a participant's consent to volunteer in the study was going to be required before the initiation of the interview. The researcher also explained to the participants that field notes were going to be taken to collect supplemental data which could have been missed during the interview process. The primary investigator addressed participants' questions or concerns before committing to participate in the study, and maintained concern for the participants' comfort level during the entire recruitment and data collection process. Participation in the study was strictly voluntary and all participants were offered the opportunity to withdraw from the study at any time.

The day of the interview, the principal investigator met with the participant and created an environment which helped the participant feel at ease. During the interview period the principal investigator obtained a participant's consent, and answered all of the participants' question before the initiation of the interview (Appendix A). The primary investigator came prepared to interview the participants with two different audio recorders in case one of the audio recording devices malfunctioned during the interviews. Immediately before the interview process started, the primary investigator reiterated the expectations for the actual interview process and communicated to the participant the following information: (a) the interview was going to be 60 minutes in duration, (b) a participant's demographic questionnaire needed to be filled out before the interview process begun, (c) field notes were going to be taken by the investigator during the interview, and (c) the participant had the opportunity to withdraw from the interview process at any time.

Once the audio tape recorded in-depth interviews started, conversations and interactions occurring between the researcher and the participants were recorded and

saved as raw data. The primary investigator asked the participant a series of open-ended questions (Sandelowski, 2000), and subsequently used branching probing sub-questions to obtain additional information (Appendix D). As the research process evolved and new areas of interest emerged during the interview process, questions in the original interview guide were modified or refined based on the responses produced by the participants during in the study.

Data Collection

Participant's demographic questionnaire

A demographic questionnaire was completed by each participant in the study during the interview day, immediately before the interview process started. The demographic information requested in this questionnaire included anesthesia providers' personal characteristics relevant to the subject of study. Quantitative descriptive data of the participants included information such as: date and duration of the interview process, participant's code number, age, sex, marital status, number of children, and ethnicity (Appendix B).

Other relevant professional information recorded in the demographic questionnaire included : anesthesia provider's title and rank in the Anesthesia Department/Hospital, number of years in clinical practice, specialty/and board certifications, clinical expertise or sub-specialty in anesthesia practice, other degrees obtained in related or unrelated healthcare fields, number of hours per week dedicated to anesthesia practice, percentage of total weekly clinical practice time dedicated to pediatric anesthesia practice, number of pediatric anesthesia conferences or general anesthesia conferences inclusive of pediatric topics which were attended during the last 2

years, and type and frequency of volunteer work performed during the last 2 years. Data collected on this form provided valuable information regarding the background of the anesthesia providers, and the context in which they performed their clinical duties (Appendix B). This demographic profile was kept in a locked cabinet in the primary investigators office to preserve the privacy of the participants in the study. Furthermore, all participants were de-identified and assigned a research code. All 20 of the participants were registered in a linking list with an assigned research code to protect the identity of the subjects in the study.

Face-to-Face In-depth Interview

The primary questions addressed in the interview process was evocative and reflective of the descriptive nature of the proposed study. Qualitative descriptive questions evoke answers which are comprehensive summaries of events in everyday language (Sandelowski, 2000). The primary questions selected for the interview process was minimally structured, and open-ended, to be able to discover the who, what, where, how, and why anesthesia providers manage distress in children during the preoperative phase and induction of anesthesia. An example of a question used for this interview, *Can you please tell me why do you think children ages 1-6 experience preoperative distress during the preoperative phase and induction of anesthesia the most?* Additional sub-questions or probe questions were asked to encourage the participant to expand on a thought or idea. Examples of probing questions, *Can you provide me with examples of challenges you have encountered in practice while managing preoperative distress in this age group? What factors do you believe contribute to the incidence of preoperative distress in toddlers and preschoolers?*

Other questions during the interview were focused on discovering information about the actual pharmacological and non-pharmacological interventions commonly used by the anesthesia providers in the management of preoperative distress in toddlers and preschoolers. Examples of such questions include: *What non- pharmacological methods do you use to decrease preoperative distress in the preoperative area, and during induction of anesthesia when working with toddlers and preschoolers? What pharmacological methods do you use to decrease preoperative distress in the preoperative area, and during induction of anesthesia when working with toddlers and preschoolers?* These grand questions were followed by sub-questions such as: *“Which creative non- pharmacological interventions do you believe work best when attempting to reduce preoperative distress in toddlers and preschoolers? or What drugs you use in the preoperative management phase of these children? What dose and what rout do you prefer?* As the researcher finished exploring participants’ beliefs and preferences regarding the non-pharmacological and pharmacological interventions used by anesthesia providers, and the what, how, and why this phenomenon occurred in clinical practice, the primary investigator also asked other types of questions. Questions were asked about the types of communication styles anesthesia providers use to engage children and obtain compliance during anesthetic procedures: *What type of communication do you use with young children as you engage in anesthetic procedures?* This primary question was followed by other sub-questions such as: *What things do you say or do during this process? Does your communication style change under special circumstances? Could you provide an example?*

Finally, the researcher asked the following question, *“What recommendations do you have for other anesthesia providers who wish to avoid or decrease the incidence of preoperative distress in toddlers and preschoolers?”* Other questions followed, such as: *Which aspects of the anesthesia provider’s individual characteristics influence the incidence of preoperative distress in toddlers and preschoolers? Which anesthesia provider’ qualities or attributes do you think are important to be successful in managing preoperative distress of children in this age group? What type of personality, physical, and professional characteristics are important to succeed in the management of preoperative distress in toddlers and preschoolers?* Other sub-questions related to this final topic area embraced exploring new processes to improve current pediatric anesthesiology practices. *What do you think is missing in the way anesthesiologists and nurse anesthetists are educated to manage young children during the anesthetic process? What changes in clinical procedures and practices do you believe are necessary to improve the management of distress in toddlers and preschoolers? How do you suggest these changes come about?* These type of personal interview questions were not only intended to describe the phenomenon of interest but also to identify potential gaps in knowledge which may exist in this subject area. A detailed profile of the questions developed for the interview process is included in Appendix D.

A separate form was used by the primary investigator to record field notes during or after each interview (Appendix C). Field notes were used to capture other details of the interview process such as description of the environment in which the interview took place, participant’s non-verbal behavior, researcher’s thoughts and comments, analysis of the data and patterns observed, and technical problems encountered during the interview.

Also the interviewer will use the field notes to provide additional data to the researcher regarding undiscovered variables which may unveil tacit aspects of the subject studied (Marshall & Rossman, 2006).

Data Analysis

Qualitative content analysis is a dynamic process in which verbal and non-verbal data is utilized to summarize and form an interpretation of the information received during the research process (Morgan, 1993). The primary investigator analyzed the data by focusing on the obvious, visible, and concrete content aspects of the phenomenon of study, and the latent or symbolic content aspects of the data that emerge from the data (Munhall, 2012). The expected outcome of this qualitative descriptive study was to obtain a descriptive, deep, and organized summary of information that best represented the data collected (Sandelowski, 2000).

After the transcription of the audio tapes was completed by a transcriptionist, the principal investigator dedicated time to review and check each transcript against the actual recorded tape to verify text accuracy. During this procedure the researcher had the opportunity to make use of recorded field notes to further analyze the data and understand the context in which the participants produced the descriptions or answered a particular question. According to Bailey (2008), "Representation of audible and visual data into written form is an interpretive process which is therefore the first step in analyzing data (p. 127)". A certain level of verbal and non-verbal detail shapes the process of communicative meaning (Bailey, 2008). For example, visual information about the room layout, body language and facial expression of the participant (Bailey, 2008; Greatbatch, Heath, Champion, & Luff, 1995) was an important part of the analysis which is was not

captured in the recording and transcription process (Bailey, 2008). The analysis of the transcripts also involved capturing the meaning of utterances, and paying attention to features of talk such as pitch, tone, and speed of voice (Bailey, 2008).

Based on the recommendations of Graneheim & Lundman (2004), the interview text was reviewed and a sequence of procedures was implemented to analyze the data. Relevant excerpts from the original text was extracted from the transcripts of each participant. This collection of words, statements, phrases and paragraphs which was referenced as units of meaning, usually related to a central meaning. Each unit of meaning underwent a process of “reduction” and “condensation,” which refers to the procedure of reducing the size of the information while preserving the core meaning of the data (Graneheim & Lundman, 2004). Each part of the text which dealt with a specific topic was referred to as a specific domain or content area. Each domain was able to shed light on a specific area of the content requiring minimal interpretation.

The next step in the organization and classification of the qualitative data was the establishment of a coding system to label each unit of meaning; thus, a code was used as a label for each unit of meaning. A code is a heuristic device used to label and abbreviate a unit of meaning (Marshall & Rossman, 2006). Codes were assigned for discrete objects, events, descriptions, and other types of existing or emergent categories of data. This procedure of categorizing data is unique and a characteristic of qualitative content analysis. Categories of data were defined by remaining internally consistent, while externally remaining very different from each other (Graneheim & Lundman, 2004). The defined categories usually answered the question of “what” and served as a link among all codes assigned to each unit of meaning. Each category was then constructed from

several sub-categories, or multiple sub-categories which merged to create a new category. This reversible process allowed the researcher to minimize the potential to ignore or miss critical data.

The final step in the analysis of data included the clustering of these categories of codes into emergent themes. Graneheim and Lundman (2004) defined a theme as “a thread of an underlying meaning through condensed meaning units, codes or categories, on an interpretative level (p.107).” Each theme was able to answer the question of how the different units of meaning, codes, or categories were connected to each other, and affected the final interpretation of the data.

The identification of unit of meanings, codes, categories, and themes derived from the various transcripts reviewed required confirmation by a second reviewer or auditor with expertise in qualitative research. This content auditor conducted a parallel analysis of the data with the primary investigator to ensure coding and classification of the data remained true to the description of the phenomenon of study. Once both coders analyzed the data independently, they met to discuss similarities and differences found in the different units of meaning, codes, categories, sub- themes. Once the coders reached an agreement, final categories of information, sub-themes and themes were generated.

Research Rigor

In qualitative descriptive research the investigator reports data, which is classified and organized for interpretation; interference with the trustworthiness of the study’s findings, and validity of the data remains spared and personal bias kept to a minimum (Munhall, 2012). During the interview process the primary investigator ensured that all interactions with the participants remained neutral, open, and free of personal opinions

while collecting the data, to maintain as much objectivity as possible during the interview process

Lincoln and Guba's framework of qualitative research trustworthiness (1985) suggests that all four components of qualitative research: credibility, dependability, confirmability, and transferability are needed to assess the quality of qualitative research. These last four criteria correspond to the four criteria commonly used in quantitative research: internal validity, reliability, objectivity, and external validity (Polit & Tatano Beck, 2012). Evidence of rigor for this study was established by following principles: credibility, dependability, confirmability, transferability, and lastly authenticity

Credibility

Credibility is viewed by Guba and Lincoln (1994) as an overriding goal of qualitative research. This criterion refers to the researcher's confidence in the truthfulness of the data and the accuracy of its interpretation (Polit & Tatano Beck, 2012). Lincoln and Guba (1985) emphasized credibility involves two distinct aspects: (a) conducting a study which supports the believability of the findings, and (b) taking the necessary steps to demonstrate credibility in the reporting of research findings. Credibility can also be described as how strongly the data and the processes utilized to analyze the data addresses the intended focus of research. The primary investigator ensured the credibility of this study by maintaining the expected research procedures which are characteristic of a qualitative research approach. As an example the primary investigator took the following steps : (1) respected the privacy of the participants during the interview process, (2) utilized an interview guide with questions specific to the phenomenon of study, (3) collected field notes during the interviews to add meaning to the audiorecorded

collected data (4) and stored data according to human subjects research protection standards.

The second step taken to ensure the credibility of the study involved selecting a trustworthy process for analysis of the data. Credibility was achieved by selecting the most appropriate unit of meaning in order to support the emergent categories of information and themes driven by the data. In order to maintain credibility the primary investigator collaborated with a second reviewer or auditor with expertise in qualitative research to verify the accuracy of the analysis and the data. (Graneheim & Lundman, 2004).

Another used to help augment the credibility of this study was the use of “member checking”. This qualitative procedure allowed participants to corroborate the accuracy of data collected by the primary investigator, and to further validate if the data collected was congruent with the participants statements and experiences (Carlson, 2010). To assess credibility in this study, the primary investigator provided a copy of the transcripts to five of the 20 participants, and a summary of the major themes, sub- themes, and categories which emerged from the study with the purpose to have them edit, clarify, elaborate, or delete statements made through the interview process (Carlson, 2010)

Dependability

Lincoln and Guba’s framework defines dependability as the stability of data over time and under different context or conditions (Lincoln and Guba, 1985). It is not possible to establish credibility in the absence of dependability. The researcher must provide evidence of consistent practices during the research , such as in the case when a second researcher concurs with the decision path taken by the primary researcher during

each step of the research process (Cope, 2014, Polit & Tatano Beck 2012). The primary investigator for this study ensured dependability through the study by maintaining accurate and consistent documentation of the research process in the form of : a) field notes, b) raw data from interview transcripts, and c) drafts produced during the analysis of the data with the purpose to maintain an audit trail of all the research activity associated with the study.

Transferability

Transferability refers to the potential of applying research findings to another context or situation (Graneheim & Lundman, 2004). In order to ensure findings are transferable to other research contexts, the primary investigator provided clear descriptions of the culture, context, participants' characteristics, and process of analysis to determine the universality and applicability of the research findings in other contexts (Graneheim & Lundman, 2004).

Authenticity

This criterion refers to the degree to which the researcher conveys the reality of the participant's experiences, thoughts, and emotions being described. Guba and Lincoln (1994) believe that an authentic text allows the readers to become immersed in the participants' descriptions , achieving a deeper level of understanding, interpretation, and visualization of what is been described in the text. The primary investigator made use of verbatim quotes to convey participants's thoughts, feelings, opinions, and emotions which emerged from the questions asked during the interview process to provide as much information as possible to the reader.

Ethical Considerations and Protection of Human Subjects

Institutional Review Board (IRB) approval for the study was sought through the University of Miami, Jackson Memorial Hospital Office of Clinical Trials, and Jackson Health System Nursing Executive Council, prior to commencing the study. All participants in the study were given a written informed consent which was stored with other research documents in a locked cabinet in the principal investigator's locked office for a period of 3 years. All participants' research files, documents, and audiotapes were assigned a code number and were secured in a locked filing cabinet for an estimated time of at least of 3 years. The participants' records remain confidential and can only be accessed by the principal investigator.

Anesthesia providers were informed during the consent process all data collected from the study was going to remain confidential. Anesthesia providers' consent was obtained by the principal investigator the same day of the interview (Appendix A). Participant's risk in this proposed study was considered low, since it only involved the audio-recording of anesthesia providers in depth face-to-face interviews to collect descriptive data about clinical practice. The Chair of the investigator's dissertation committee also had access to data obtained during the interview process, as she was involved in the validation of interpreted data.

Transcripts produced after the interviews were handled by a transcriptionist which specializes in research transcription. The principal investigator followed University of Miami and Jackson Health Systems HIPAA regulations, while maintaining adherence to hospital safety policies and procedures.

Chapter Summary

The selection of a qualitative descriptive methodology to conduct the proposed study best fit the aims of this research project in providing an in-depth description of common pharmacological and non-pharmacological techniques used by anesthesia providers to manage preoperative distress in toddlers and preschoolers before and during induction of general anesthesia. This qualitative approach was also suitable for the researcher because it revealed and described the anesthesia providers' own explanations about the causes of this phenomenon. Finally, the anesthesia providers' also provided recommendations to other anesthesia providers, clinicians, educators, and administrators regarding best practices for the management of preoperative distress in young children.

The characteristics of the sample selected for this study, recruitment methods, and setting where the study took place was outlined in this chapter. A detailed description of descriptive qualitative research procedures for the study, plan for monitoring research rigor, and protection of human subjects were also described. The process of analyzing the data was described by delineating the steps required for preparation of data, actual analysis of complex text data, and the final development of topical themes which best described the phenomenon of study (Polit & Tatano Beck, 2012). The first reading of the transcripts involved taking notes, and subsequently assigning a code to label meaningful sentences or paragraphs. After the process of assigning codes, the investigator merged together similar codes to further identify broader categories of information or themes (Creswell, 2013). The themes emerging from the data guided the researcher into producing a descriptive survey of the most compelling points by "telling a story." Finally, the data provided evidence of the what, when, how, and why preoperative distress occurs

in toddlers and preschoolers, through the explanations delivered by anesthesia providers who practice at Jackson Memorial Hospital (Marshall & Rossman, 2006).

Chapter 4

Results

This chapter presents the findings of the data collected from the transcribed narratives of the anesthesia providers provided during the face-to-face interviews. Due to the qualitative nature of this study, the information presented in this chapter is primarily focused on providing a description of the phenomenon of study.

This qualitative study was found to answer the research questions postulated by generating a substantive amount of data which was, gathered, analyzed, and coded under different categories, and subcategories. The convergence of these categories and subcategories led to the identification of five important and overarching core themes: (1) *Non- Pharmacological Interventions Used by Anesthesia Providers*, (2) *Pharmacological Interventions Utilized by Anesthesia Providers*, (3) *Anesthesia Providers' Perceptions of Preoperative Distress in Children*, (4) *Anesthesia Providers Best practices and Recommendations*, and (5) *Anesthesia Providers' Reactions to Parents and Children*. Due to the large amount of data collected in this study only key sections of the five themes identified will be discussed in this chapter under the sections labeled *Research Findings* and *Additional Findings*. The decision to report selected findings of the data generated from this research project was discussed with the dissertation committee Chair in order to fulfill the requirement of this dissertation, and also with the dissertation committee members who were in agreement. Results not reported in this dissertation will be published and presented at a later time.

Description of the Sample

The convenience sample of 20 participants recruited for this study included anesthesiologists ($n = 6$), and certified registered nurse anesthetists ($n = 14$). Both groups of anesthesia providers participating in the study practiced at Jackson Memorial Hospital and met all the inclusion criteria set by the primary investigator. The group of anesthesia providers' ages ranged from 33-59 years of age ($M = 47.85$, $SD = 6.59$). Approximately 65% of the participants were parents. The anesthesia providers reported working an average of 42.95 hours ($SD = 8.54$) per week and spent a significant amount of their clinical time in pediatric anesthesia practice. The demographic data reflected the anesthesia providers' high level of commitment to pediatric anesthesia education and practice. All anesthesia providers attended at least one conference per year inclusive of pediatric anesthesia content, and good number of them also volunteered their personal time locally and internationally to care for children. A summary of demographic information pertaining to the participants in this study is in Table 3, and Table 4.

Recruitment, Collection of Data, and Research Environment

Recruitment

The primary investigator was able to recruit participants and collect quantitative and qualitative data until reaching the point of saturation with 20 participants. After the initial invitation email was disseminated by the primary investigator to all the anesthesia providers working for the University of Miami Anesthesiology Department, and Jackson Health Systems Perioperative Services Department, six volunteers were recruited within one week of receiving the invitation to participate in the study.

Table 3

Personal Characteristics of the Total Sample (N = 20)

Characteristics	N	%
Gender		
Male	6	30
Female	14	70
Ethnicity		
Caucasian	8	40
Hispanic	10	50
African American	1	5
Other	1	5
Children		
Yes	13	65
No	7	35

Note. This table contains a summary of personal characteristics of the anesthesia providers who participated in this study.

Table 4

Professional Characteristics of the Total Sample (N = 20)

Characteristics	N	%
Title / Highest degree ^a		
CRNA	14	70
MS/ MSN	9	64
DNP	3	22
PhD	2	14
MD	6	30
Board Certification/s		
CRNA- Nurse Anesthesia	14	100
MD- Anesthesiology	6	100
MD- Pediatric Anesthesiology	4	70
Job Classification ^b		
Staff	14	70
Faculty	6	30
Administration	2	10
Years of Experience		
>10	16	20
6-10	3	15
2- 5	1	5
Pediatric Anesthesia Hrs/ Week		
75% or >	3	15
36- 75%	2	10
11-35 %	13	65
10 or <	2	10

Note. Titles subdivided into type of providers CRNA Vs. MD and further subdivided into additional education received.^a

The remaining volunteers recruited for this study were approached by the primary investigator by phone or in person. Another successful approach for the recruitment of participants in this study was the ongoing utilization of snowball recruitment; this recruitment technique consisted of anesthesia providers actively seeking and referring other anesthesia providers to participate in the study. The primary investigator was very cautious to avoid interruptions in patient care while recruiting participants for this study.

Collection of data

Because the primary investigator is a University of Miami and Jackson Health Systems' employee the collection of data occurred outside anesthesia providers' work schedule, to avoid conflicts of interest. A total of 11 face-to-face interviews took place by setting up prior appointments with the participants. The remaining face- to- face interviews occurred the same day the primary investigator approached the potential participants to invite them to participate in the study.

Most the research interactions with the participants occurred in an environment which provided privacy during the interview process. Sixteen of the twenty interviews occurred at Jackson Memorial Hospital, two interviews were conducted outside Jackson Memorial Hospital, and two other interviews took place at the University of Miami School of Nursing and Health Studies. The average duration of the interviews was approximately 60 minutes. All the participants signed a participant's consent form prior to the initiation of the interview process.

Research Environment

All anesthesia providers involved in this research study were cooperative and supportive during all phases of the data collection process. Participants were cautious to

avoid interruptions, and were fully engaged with all aspects of the study's research procedures. The primary investigator and the participants in the study felt comfortable and at ease during the data collection process because they had a longstanding professional bond and a trusting relationship with each other, allowing them to engage in open and honest conversations. The majority of the anesthesia providers who were interviewed quickly submerged themselves in the topic and provided detailed descriptions of the phenomenon of interest. The participants' audio recorded narratives were powerful and vivid, triggering emotions of: frustration, sadness, melancholy, joy, anger, and even laughter. The topics, stories, and feelings which emerged from the interview questions were moving and fully understood by the primary investigator since she was able to relate to the stories and experiences shared by the anesthesia providers in her own experience as an experienced anesthesia provider.

Research Findings

The primary investigator identified five major themes which emerged from narratives provided during the anesthesia providers' face- face interview: (1) *Non-Pharmacological Interventions Used by Anesthesia Providers*, (2) *Pharmacological Interventions Utilized by Anesthesia Providers*, (3) *Anesthesia Providers' Perceptions of Preoperative Distress in Children*, (4) *Anesthesia Providers Best practices and Recommendations*, and (5) *Anesthesia Providers' Reactions to Parents and Children*.

These major themes emerged from others subthemes which were supported by verbatim quotations taken from the transcripts produced by the interviews. Direct quotations from the interview transcripts appear as excerpts (indented paragraphs), in which square brackets ([]) indicate information added by the researcher, and ellipses (...) signify items

omitted for conciseness. A diagram which exhibits the taxonomy of each of the emergent themes, sub- themes, and categories of units of meaning has been included in addition to the descriptions of each major theme. Figures 2 displays the five themes and corresponding subthemes.

Non - Pharmacological Interventions Used by Anesthesia Providers

The major theme described as non-pharmacological interventions used by anesthesia providers for the management of distress of young children portrayed the clinical perspectives, positions, and actions taken by anesthesia providers towards the management of perioperative distress in children outside the common routine of administering pharmacological agents to decrease anxiety in patients. Seven sub-themes emerged from this grand theme: (1) *bonding with the child*, (2) *observational skills*, (3) *parental presence*, (4) *environment*, (5) *control*, (6) *distraction*, (7) *informal preoperative preparation*. All of the sub-themes found in the grand themes had (a) children, (b) family, and/or (c) the clinical environment as a primary focus.

The most relevant sub-themes associated with clinical practice that emerged from this theme were: (1) *bonding with the child* (child related sub-theme), (2) *observational skills* (family and environment sub- theme), and (3) *parental presence* (family sub-theme).

Bonding with the Child

The first sub-theme was bonding with the child. Anesthesia providers described bonding as the different ways in which anesthesia providers engage with children to establish

Figure 2. Major Themes

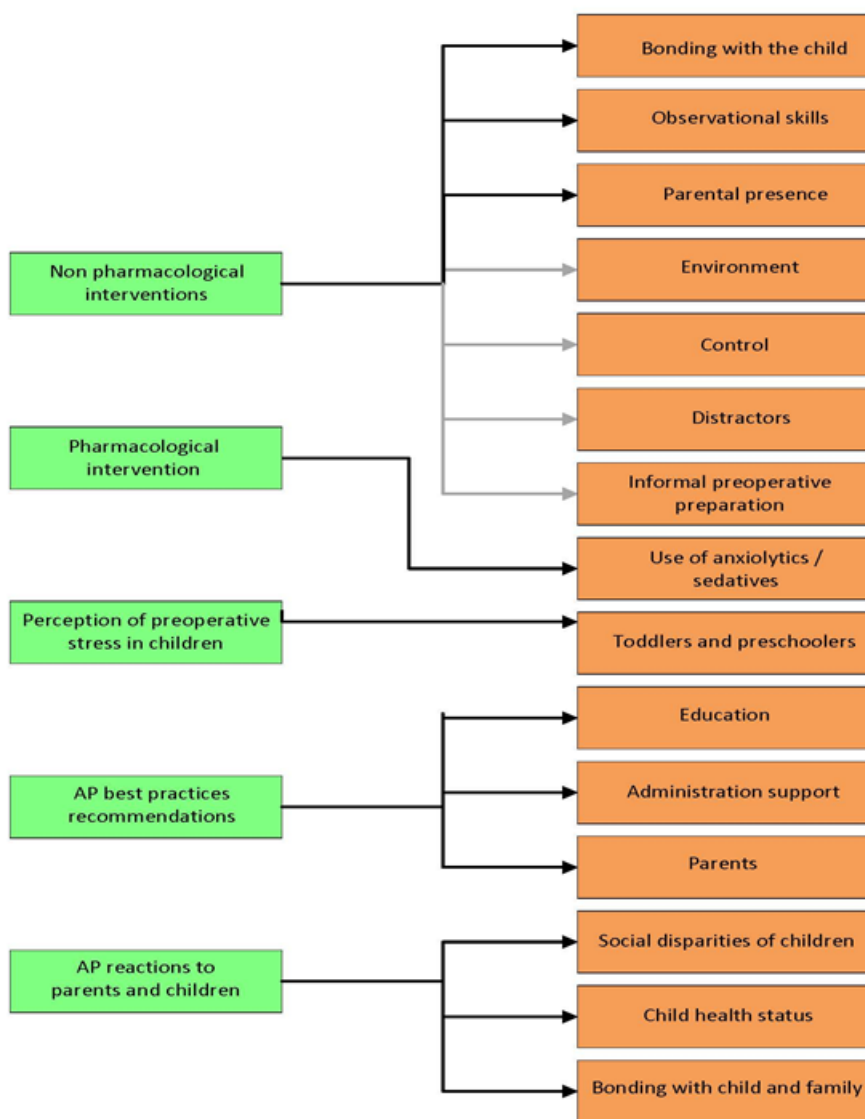


Figure 2. This qualitative descriptive study identified five major themes from interviews with anesthesia providers. This figure displays a summary of the themes.

rapport and obtain cooperation during the preoperative period to the point of induction of general anesthesia.

Communication. Communication was the primary sub-theme and related to the different approaches utilized by the anesthesia providers when interacting with the family unit and/or children during the preoperative phase to the point of induction of anesthesia. Under this sub-theme, the anesthesia providers described many shared beliefs, practices, and stories which related to establishing *verbal communication and non-verbal expressions* with the child and parents to accomplish required clinical responsibilities. The anesthesia providers described these *verbal* and *non-verbal* communication approaches to be of most importance during critical times such as child's separation from the parents in the preoperative holding area, and also during induction of anesthesia with or without parents.

Verbal expressions. This secondary sub-theme refers to the different types of verbal communication anesthesia providers utilize with children to effectively communicate with them. Anesthesia providers may make use of a high pitch voice and short sentences to talk to children because young children prefer short and concise information.

(...) If you hear me talking to kids when they're that young, the first thing I do is I raise the pitch of my voice. I make short sentences just so I can see kind of get their attention. Then when we get them in the OR [operating room] I usually kind of start singing to them, the lullaby things I used to sing to my kids, or Row, Row, Row Your Boat, or Old MacDonald Had a Farm and try to get them to do the dog sound or the cat sound or whatever. (MGO)

Everybody's tone goes up a little bit as far as their voice because they want to sound more like a kid to relate with the kid. We try to use simple words, simple sentences. (JT).

The anesthesia providers stated that children are able to relate better to adults who speak their language, remain calm, and deliver information to them in ways which are appropriate to their age and level of understanding. The anesthesia providers also emphasized the importance of connecting with the child outside of procedural talk to decrease their level of stress.

I carry them, and I just talk in a very soft soothing voice. I don't yell at them [children]. I still tell them what I'm going to do, and I usually sing to them while they're freaking out. I sing. (JM)

I'll make eye contact [with the child] and engage with the child outside of what's happening on the medical end. This is me and you, that [medical procedures] doesn't have anything to do with what's going on over here, and just kind of playing a little bit with them is very helpful (...). (LS).

Anesthesia providers explained the importance of including and acknowledging the child during the initial interactions occurring between the anesthesia providers and the parents because the child was the center of care and the primary focus of their work. It was also evident throughout their descriptions that the most important ingredient in their interactions with children was the utilizations of language and behaviors that children of that age can relate to and understand.

I talk to the child, not just to the parents. When I come in I make them see, Oh, they're talking to me. I'm part of this. I do that. If they have a stuffed animal, a blanket, something that they're comfortable with, I interact with that thing, make it a part of it [conversation]. I talk to them just like they [children] would. (JM). (...) So for a child that age, it's a normal reaction to be under stress, to be to feel uncomfortable with new faces, and new places. For example, if they want to play with you, fine. But if they don't want it, don't force them, let them have their own space. So I say good morning or good afternoon to them first, I introduce myself, I tell them what I do and then later I talk to the parents. The parents will know what I'm doing. (IDL)

Anything that I am going to do to the kid I explain. I try to explain [to the child] that it doesn't hurt, and that I am going to do it to the parent too. So for example, if I want to listen to lungs' sounds I say look, I'm going to listen to mommy's first. So I listen to the parent's lungs' sounds first, or I let them listen to mine too, so I can then listen the kid's lungs [sounds] after. And they do very well. Because if mommy did it then I can do it too (IDL)

The participants also emphasized the importance of using humor and silly talk when talking to children. Speaking in this way, helps to capture their attention and bond with them quickly because children are drawn to people who are lighthearted and entertaining. Humor was commonly used by anesthesia providers to distract children from the sterile and threatening hospital environment.

I definitely look at them [children] in the eye and I definitely uhm... try to speak with them. Sometimes even teasing them and talking to them as if there were adults you know? Just get down to their level [and say] okay now, did you bring your wife? [Referring to the mother standing next to the child]. (LS).

I think just being silly helps. I think tickling helps. Silly magic helps. You get them to light up their finger [placing the pulse oximetry probe on the child's finger and things like that help]. (EH)

Hey, Tommy, how are you? I'm [name]. I'm going to be taking care of you in the operating room." And then I'll point to the mom, and I'll say, "Is this your girlfriend? (DA)

(...) If they have a stuffed animal I put in on my head and say to them, Hey, where did your stuffed bunny go? I don't see it anywhere... Silly things like that (EH)

The anesthesia providers expressed that having prior experience with children or becoming parents themselves was helpful in the process of taking to children; therefore, those anesthesia providers who had worked with children in a different field, had dealt with children before, or were parents themselves had a better understanding about the likes and dislikes of children and were more familiarized with the routines necessary to obtain compliance from children. Many of the female anesthesia providers explained that after becoming a parent they had a harder time managing their emotions prior or after taking care of children but not during the actual anesthetic management of the children, as they were completely focused and immersed in clinical tasks.

Just being able to interact with my own child at certain ages, helped me to know how to interact with other children at those ages. (JM).

So you really have to insulate yourself and be grateful, as trite as it sounds. Just be grateful that these are not your children there [referring to sick children in the hospital], and that you can go home and hug your children, or spend time with your children and be happy for their health. (EH)

I enjoyed doing pediatrics more before I had a child than after I had a child. When I had a child, I think that you relate so much to a parent that you don't want to give them anesthesia. Because now, you're not only dealing with the feelings of a child. Now you're dealing with the feelings as a parent. (BA).

I have family at home and I have children. And when I get home, it just makes me appreciate so much more because I do see kids that are sick. Families that are saddened because of their loss. (LJ)

When I was a new parent [father], and my son was 1 month old, 6 months old, a year old, 2 years old, I always took care of pediatric cases, and I always loved doing it, and sometimes it was very sad. But I was also happy to do it because I felt like my skills set and my capabilities were something that I would want in somebody taking care of my son, if he was having surgery or anesthesia. (DA)

And I think, sometimes, when you become a mother – I'm not saying everybody – but you look at a child and think, "Can I really do that on a daily basis with all these sick kids? (KM)

Most participants credited their negotiation skills as a parent to their success in obtaining cooperation from children in the clinical setting. Children of

this age have a difficulty accepting and taking medication (anxiolytics, or pain medication) in the preoperative phase, becoming a challenge to anesthesia providers who are rushed to bring the child inside the operating room for a scheduled surgical procedure.

So you try to convince them [pediatric patients], and talk to them in the same way you do it with your own kids. Nothing is so simple at home either. So you ask them to take the Tylenol that is in cup, and they say, no. So you talk to them again, you try to convince them and you see what works! (IDL).

So you know more negotiation skills if you're a parent. It's not just what you read and what you saw. (MGO).

(...) He [child] was getting his port [vascular access] put in and he had this little I don't know, little iPhone thing or whatever it was – and I said, Can I have this? And he said, No. And I said, well, didn't you learn sharing in school? And he just stated, Yeah, I did but I don't want you to have it. What the hell? (KM)

A number of anesthesia providers felt very strongly that being a parent was not necessarily an asset when managing or talking to young children, and there were no differences in the ability of anesthesia providers who did not have children to manage or and communicate with young children. Those anesthesia providers who did not have children of their own felt they had acquired those skills by observing mentors, dealing with nieces, nephews, and other children in their personal lives.

Some CRNAs who have had children, and who have done one or two pediatric anesthetics when they came back from maternity leave or shortly thereafter, have

said, I can't do it. I need some time away. Don't give me any more pediatric cases. And then, I saw a CRNA who doesn't have children pick up this child that was in total distress, just emotionally broken, and just totally... [silence], and this CRNA just scooped that contact precaution baby, scooped him up and just carried him and hugged him. It was amazing. It was beautiful. (DA).

(...) So I basically felt like I raised my younger brother and sister. I changed their diapers, I fed them, I got them to take their naps. So I think I had more skills in terms of actual hands-on skills when I gave anesthesia and I didn't have children, than other people [anesthesia providers] did, who didn't have children because I dealt a lot with kids(MGO).

Participants in the study also explained how they maintained informational or procedural type of verbal communication when interacting with parents and children in the preoperative holding area. The majority of their efforts were geared towards explaining the anesthetic process to parents, engaging in discussions with parents about the risk and benefits of the medical procedures, and conducting informal preparatory teaching to parents and children prior to going inside the operating room.

(...) So, you do have to get consent from the parents and you have to explain everything to them but just be very careful that the child is not listening if there is painful part, or something of that kind that scares them. The part that involves the introduction of needles, cuts, incision, or something like that, because they can understand that and they can get really anxious about it. (IDL).

Well, they [parents] know what's going to happen because I explain the anesthetic plan. So I tell them, okay, like if the kid doesn't have an IV, I'll say, We're going to bring him in or bring her[child] into the room, and we'll place some monitors on, and he'll have a face mask on, and he'll go off to sleep [become unconscious]. Once he's asleep, we'll go ahead and start an IV, give him his medicine through the IV, and pass a breathing tube [endotracheal tube]. So I feel like they kind of have a sense of what we're going to do once we go into the room” (TL).

Other anesthesia providers described the challenges faced by anesthesia providers in establishing verbal communication with young children to explain procedures which are about to happen. Most of the participants agreed that toddlers had a greater limitation in understanding what is going on, and that explanations to children in this age group were useless or ineffective. Anesthesia providers explained that as children approached preschool and school age they were more capable of understanding simple explanations when “childlike” language, playfulness, and distraction was integrated in the discussions.

(...) Real young ones [children] aren't old enough to kind of understand what's going on during their first experience here most of the time. They don't grasp the idea that they're into a surgery, into a procedure. It is hard to explain this to a one-year-old, two-year-old, a three-year-old. The older ones now, your five, six, seven-year olds, you can probably try [to communicate] and give them more visual effects when trying to explain what the process is, and what they're going to be going through during this period. (LJ).

I don't think I've ever pulled the parents aside [to discuss procedures]. I do not use threatening words [when talking to children] like pain or knife or something but I would use other type of language that do not make them afraid. (FG)

(...) I'll sit next to them and I'll talk to them directly. I'll introduce myself. I'll tell them exactly what's going to happen. Usually I'll bring a mask with me. I'll let them see the mask. We kind of make it a little bit of play but I'll do that. Their attention span is very short, when they start watching TV or doing other things, then I talk to the mom. (BA)

Regarding having to take the medicine, we refer to it as a magic syrup or potion or what's their favorite superhero and if you drink this, you'll [become the superhero]. I learned also that is helpful is not to give them choices but the options you give them results in what you need the child to do. (FG)

Anesthesiologists also felt rushed and frustrated due to their limited opportunity to have a lengthy communication with the child and the family in the preoperative holding area. The existing pressure to move cases quickly and to start other simultaneous surgical cases, especially those first cases of the day prevented them from having adequate time to bond with parents and children. It was of most importance to the anesthesia providers to spend the short time they had with parents and children in the holding area, in making sure parents understood: procedural expectations, the anesthetic process, and risks to which the children would be exposed.

(...) We talk, we try – hey, to like make it seem like it is fun time. But at this age he was kind of interested more in the toys and the parents than in me. I tend to really

be playful with the kids when they're coming in [the operating room] as time allows. Unfortunately, we don't have enough bonding time with each patient here because we're constantly moving around the rooms [operating rooms]. (LJ).

(...) if I get them in the holding area where we only have several minutes or a time because the OR [operating room] schedule needs to keep moving and you have to bring the patient in the room. If I speak to the parents, I speak to them; I always ask them if they understood [anesthesia provider's explanation of the anesthetic process], and if they have any questions. Hopefully crossing over any barriers that they may feel are there, that impede them from knowing what they need to know before I bring their children in. (JT)

Nurse anesthetists also felt the effects of productivity pressure in their own effort to establish a line of verbal communication with parents and children in the preoperative holding area. The nurse anesthetists' time constraint when interacting with patients was related to having to prepare the anesthesia equipment and medications for their assigned cases, get acquainted with the child's history, and also for removing any operational barriers to initiate the anesthetic process. These anesthesia providers also felt rushed by perioperative administration and other team members to move forward and take the child inside the operating room before the anesthesia provider had a fair opportunity to address adequately the preoperative distress in children and/or provide adequate information to the parents.

I think everybody is rushing to get in the room so you forget to explain to the parents, things. Basically what we said is, we're going to put a mask on the face

and they're going to go off to sleep and then you can walk out. At that moment, we are going to pass the breathing tube [endotracheal tube]. And honestly I don't know if we started explaining in more detail then they [parents] have more questions and then you're late in the room another ten minutes, so now you have the surgeon pacing. He's rushing and the O.R. nurse is going to be late. So, I don't think they allow us the time to really tell the parents what to expect once we get in here in terms of, like you say, the procedures that are going to be done, and that the kid will be fighting [during induction of anesthesia]. [Instead of explaining to the parents] Don't get scared. He [child] will be crying [during induction]. We will have to control him [child] on the table [for safety purposes, etc. None of that is been told to them. (GO)

I just think that sometimes, the time constraint in anesthesia is getting shorter and shorter, and I don't know, with pediatrics.... I think it's going to be lessened because is all about profit. And I think that's sad because here is a child that needs to be taken care of with a little bit more time than an adult. (KM)

The anesthesia providers explained that although empathy and active communication with the child remained unchanged as the child got introduced to the operating room, they described the interactions between them and the children were primarily focused in obtaining a “smooth” induction of general anesthesia and keeping the child safe.

So we [anesthesia providers] make the environment safe, we empathize with the child, we change our tone in our voice, and we try to see through their eyes to connect with them, and try to help them understand [what is going on], and keep

a tempered emotional state. In order for the child not to get more scared than already is (...). If know the parent is going to come in I start telling them briefly, very briefly, the three stages [of induction of anesthesia], and tell them don't worry, I will tell you which stage for you to give a kiss and say goodbye [after the child becomes unconscious] (JT)

I even ask kids when they want to go to sleep, I say, "Do you want to hold your mask? Okay. A lot of them do because, whenever we had our flavored masks, we could do that and it was very nice. And a lot of them like to do it [hold their own mask] until it falls off their hand [once child is anesthetized]. And it is just enjoyable when you have that luxury of time, and you're not trying to really hurry them, and I think it is a pleasant experience for the child (KM)

I think that you try to hurry and get this kid sleeping as quickly as possible. So you may talk a little faster, you may move a little faster. But you're always engaging the child. Before the child goes to sleep, everyone is there [surgical and anesthesia team]. You're not left alone to fend with this child. (BA).

Other anesthesia providers explained the primary goal of verbal and non-verbal communication with children inside the operating room was to provide distraction to children so they did not pay attention to the foreign environment and separation from the parents. These groups of participants also reported efficiency and safety during the induction procedure was a priority when interacting with children inside the operating room suite.

If the kid is cooperating with me and is fine and if he is not crying [when coming inside the operating room], so I just talk to him and explain what the monitors are

for. For example, when I put the EKG [electrocardiogram] monitor and I say, do you want to listen to your heart? Have you ever listened to the sound of your heart? Then they look at the monitor and I explain everything that is going on there. That relaxes them a lot.... But if they are crying, crying, crying, there is no way to calm them down, then put them to sleep right away. Because then I minimize the time they going to feel bad. There is no talking, there is nothing that is going to help [the child] at that point. Maybe the medication [anxiolytic] didn't work, or the parents are not able to come in to the OR [operating room], or the kid's parents are not even around [parents not involved in the child's life]. So in those cases, the sooner you put the baby to sleep, the better it is. (IDL).

Tommy, we're going into the operating room now. Okay, Tommy, everything's going well. How are you doing? Are you warm? Do you feel good? Okay, we're going to move you over to this other bed. Hey, come on over here, Tommy. Come on. And just always coaching them, always talking to them. We're going to put some stickers [electrocardiogram stickers] on you now. Hey, let me borrow your finger. We're going to put another sticker there [pulse oximeter] (DA).

You have to constantly try and distract them [children inside the operating room]. You have to constantly try and play with them and work with them so that you try to get them to that point where you can get them to sleep, and they will stop crying or they will stop behaving the way they are behaving at the time which is usually crying, calling out for their mom, saying that they don't want to go into the operating room, things like that. (BA)

For example, for the pulse ox [pulse oximeter], I just can't say this is ET light thing [movie character], because it doesn't work, they don't know who ET is anymore. I say this is a magical sticker that has a pretty light. Now mind you, this only works with the kids that don't come often. The kids that come often, it's like, whatever. (TL).

And then with the boys (and it always works). I have not seen a kid that this doesn't work for, even with the frequent flyers [chronic children] the muscle tester when using the blood pressure cuff. Yeah. "Oh let me see. Oh my gosh! you have such big muscles [as the anesthesia provider applies the blood pressure cuff on the child's arm]. And then I show them my arm and tell them, Oh, your muscle is bigger than mine! And then what also works..., is putting the mask [anesthetic mask] on them and telling them, Oh, imagine that you're going in outer space, you know, like the astronauts. If you get a funny smell, that's just the spaceship gas. Just blow the gas away. (TL).

I find that I just keep talking the whole time until they're asleep. I'll monitor them and especially if they had Versed[anxiolytic]. I can distract them enough that I'll let them sit and I'll put the mask on them and they'll start breathing Sevoflurane [inhalational anesthetic] until they just go to sleep and they[children] won't fight us at all. Toddler's two years old and under are a little more difficult. They're usually inconsolable, there's nothing you can do. There's nothing. (LR).

Non-verbal expressions. Non-verbal expression refers to the use of non-verbal behaviors to soothe, play, distract, and communicate with the child while establishing a relationship or bonding with the child. The anesthesia providers

described the value of using caring touch and holding in the same manner that a parent would, as an effective tool in calming, and establishing rapport with children. These behaviors were particularly useful during the early interactions with the child in the holding area, during the time prior to separation from the parents, and also once the child was inside the operating room prior to the induction of general anesthesia. The anesthesia providers also described the main challenges encountered as their own clinical non- verbal behaviors became threatening to the child.

Sometimes if they hang on to the parent or put they them here on their chest then, I try to touch them on their back to see if I can get them to kind of separate a little bit. If they separate well, then I hold them the whole time until we get them to the OR [operating room] (MGO).

It is intimidating when you put the face mask on [anesthetic delivery equipment] the children. They [children] think that when you put the mask on, you're suffocating them. They don't have the knowledge to know the air is going to come in and out, and that they can breathe through it. (JT)

Another important aspect of non-verbal communication was the use of non-verbal playful behaviors when interacting with children. The anesthesia providers provided explanations of how children are able to read non-verbal expressions and cautiously start to make a connection with the anesthesia provider.

Oftentimes in the beginning I will come in and it's especially helpful if the surgeon is talking to the mother, I'll make eye contact and engage with the child outside of

what's happening on the medical end. So, even just sticking my tongue, or bringing over a toy early, or just doing things to kind of bond with the child (LS) I try to approach the kid in a kind of friendly fashion, try to play with him, don't mention anything else." (IDL)

Sometimes I blow up a glove to look like a balloon and then the thumb, I'll stick the mask over the thumb and I'll say this is boots from you know Dora the Explorer or whatever we are talking about. (TL).

Everybody has usually some kind of crayon out in the pre-op area for the kids to color with, and I would take the crayon and color on the bed, and I would put their name on it. And then of course I would say now you can't do this at home you know! They would just be amazed that somebody would be writing on sheets. So, that was kind of bonding to them because after writing their name I'd say now this is your special bed, you make sure when you get out this bed you get it back because it is yours. (LS).

I'll play with them, I'll shake their hand, and I'll try and tickle them. I'll try and see how they react to me. (BA)

If they're younger than two, like one to two [years of age] I just kind of like maybe squeeze their little toe and just kind of smile at them to maybe distract them from what's going on. [LR].

Some anesthesia providers also described some of the non-verbal behaviors utilized inside the operating room to protect the children from visualizing the surgical environment because the cold operating room, bright

lights, strange hospital equipment and people dressed in funny looking outfits was a major source of distress to the children.

I'll dance around if there's music in the room [operating suite]. I'll dance around with the monitors in my hand [laughter]. I would not do that if the parents were there of course! I just don't want them looking at the surgical instruments you know. They can be facing me and I'm on the other side, in front of the table of the instruments. I don't want them to see it. (LS).

You give them little jobs. It's all about just keeping them busy. Don't let them figure out what's really happening. (BA)

I like to bring toys or stuffed animals, things like that. Or, easy kind of optical illusion magic tricks, things like that, into the OR. Yeah, like the light up fingers, kind of thing, that distract the kids, and either make them laugh or at least just take their mind off what's going on. (EH).

The information provided by the anesthesia providers described physical and non-physical personal attributes which were important to children in the process of connecting and bonding with the anesthesia providers. Most anesthesia providers expressed physical characteristics or gender was not the most important factor influencing their ability to bond with or connect with children. Personality type and ability to relate to children was a stronger factor in establishing rapport with children. Most of the anesthesia providers agreed that individuals with a playful, cheerful, and genuine love for children were usually more successful in managing children. Being able to turn bad situations into positive experiences for

children were key ingredients to be successful in the task of connecting with children.

Well, I hate to say it. If somebody is not an attractive person who does not present themselves well [to children], the kids respond to that, and that's been shown in the literature, too. Babies go towards the pretty faces [attractive people]. I don't know how would you tell somebody Like, Hey, maybe this isn't for you. Maybe you're scaring the kids. But honestly, I really think it's a personality thing. You like doing kids, or you hate doing kids (SS)

Maybe they [children] relate to me because I'm short and tiny. They think I'm one of them. But I guess if you have a mean look, kids tend to be a little frightened.

Like one particular anesthesiologist that I'm thinking of, who's really a sweetheart, but maybe comes across rough. (LT).

(...) You need [to have] that warm touch. It's not something you can teach somebody. It is something they either have or they don't, in that they can play and interact with the kids and make the kids feel comfortable. You watch. There's some people that just don't have it. (SS)

I guess miserable people [should not take care of children]. And those who can't get down to their [children] level and play a little bit, joke around with them. (IDL).

I think a sense of humor, kindness [is important]. You know, it is also a plus is if you kind of have a key into what kids like nowadays, it is definitely a plus.

Because then they feel like, oh, she knows [what kids like]. They feel like you can

relate to them. There is another anesthesiologist who's great. He does magic tricks. That gets them [kids] all the time. (TL).

I think with kids they need to be able to feel like they're in a safe space and that no matter what they say or do, it's taken in a lighthearted manner. Because what if they have a (...) colectomy, and what happens if their bag bursts or it opens right there? They shouldn't be chastised for, oh my gosh, you have poop on you. It's like, oh, you know, we all do that. I pooped myself the other day. (VB).

I mean, try to find some commonality with the child and physical characteristics. If you are a large person, you can use that to your advantage because you can say look, here comes Mr. Teddy Bear. Look, doesn't he look like a big old teddy bear don't you think? So, I think it's just to use whatever you have to your advantage. And if you're a nice little petite provider with beautiful long hair, you can say, I'm Princess Stephanie. Hello, I'm going to be giving your anesthesia with the fairy dust today. And I think the more outlandish it is I think they love it because they already know (...) hospitals are serious places where you see all these people in these uniforms walking around with very serious faces. (VB)

A group of anesthesia providers felt that anesthesia providers' physical appearance may work as an advantage or disadvantage while trying to bond with the parents as well, because parents want to see confident, experienced, and calm professionals taking care of their children.

I'm [anesthesia provider] kind of petite, so the parents always ask me: how long have you been doing this? It is like the most common question that they ask me. But I say to them, I have been doing it for a long time. And they say, really?

Because it's normal [for parents] to be afraid, when you give your most important thing in life to somebody that you don't even know. (IDR).

I think they [parents] want to see you [anesthesia provider] calm. They want to see you sure of yourself, professional, able to explain the process. Probably to them they perceive it as like... oh, she is very experienced. She knows what she's doing because you're explaining to them exactly what we're going to be doing. And they also probably want to see a good relationship between the team members [anesthesiologist and CRNA] (GO).

Observational skills. Observational skills, a sub-theme revolves around the ability of the anesthesia providers important task of quickly assessing the existing family dynamics between the child and the parents/ guardian in the holding area. It also refers to the importance of utilizing good observational skills to scan the appropriateness and safety of the environment around the child. Observational skills are used by anesthesia providers to create interventions that support an atmosphere of comfort, safety, and reduction of children's distress during the preoperative phase and induction of anesthesia. Secondary sub- themes which emerged from this theme subtheme included: (1) observing parent-child interactions, and (2) observing the environment.

Observing parent – child interactions. The observation of the child-parent interactions provides important information to the anesthesia providers about how to manage the specific needs of a child, and identify the stress level of the child and the parents in the holding area. Observation of parent- child interactions also reveal which parent seems to possess better coping skills to be helpful to the child during the perioperative period and induction of anesthesia. In some scenarios the

anesthesia providers observe the parents and replicate these behaviors to interact with children.

I try to hold them the same way the parent does. If a dad or the mom is holding them with the head up I try to hold them that way. If they're holding them like this, I try to hold them in a cradle form. So kind of simulate what the parent does because that's obviously what the child feels comfortable with or what's worked for the child before. (MGO).

I think you have to look at the parents when you're interviewing them about the child. You have to really notice their cues as to how anxious they are and how they react. (JM).

Some parents are afraid of the OR [operating room] too, and they get really crazy if you want to bring them back [inside the operating room] too [with the child], making things worse. But then, some parents are really fine, and the kids do much better with that. (SS).

Usually they are the ones [dominant parent] that speak up that talk about their child's illness or what's going on with their child, to give the history more than the other person does. The other one kind of stays back in the background. (CR).

The parents also have a lot of anxiety and their anxiety is transcribed to the kids. So I feel that if we decrease the parent's anxiety then the parents are going to feel more calm and the kids perceive that and the kids stay more calm. (GO)

Other anesthesia providers alluded that observation of the family dynamics taking place in the preoperative holding area provided enough

information to the anesthesia providers to help them make clinical decisions that would eventually help their pediatric patients.

But I will tell you that sometimes, it makes very difficult if the parent is not a comfortable, relaxed parent, it can make it more difficult for the anesthesia provider. So I tend to choose my families when I agree to have them come in the room. I start figuring it out; well..., is this as good parent candidate? I personally don't offer to a parent, come in the room with me unless 1) the child is truly screaming and the PO [oral administration of] Versed or whatever sedation medication I've given is not calming them down, and 2) I can see that maybe the parent is like – really comfortable. I'll explain to them [parents] what will be going on and if they do want to come in? That is when I ask; would you like to come in? (LJ)

I think that if the child is extremely stressed than I realize that medication alone is not going to do it. Then I do have the parents – the mother or the father or whoever it is go in with the child. (RR).

Anesthesia providers provided examples of a situations in which missing cues from overly anxious parents may result into a problem the anesthesia provider if the parent is taken to the operating room with the child for induction of anesthesia, and is unable to cope with the anesthetic procedures, creating a problem to the anesthesia provider caring for children during a critical time.

One patient's parent who didn't quite understand that it was a normal process of induction -the patient was doing fine and was breathing fine)- but then the parent said [to the anesthesia provider] please stop! My child is asleep. That's it! You

don't need to give anymore anesthesia. And that's when I had to sort of tell him [parent] again, no sir, this is just the initial process. The patient is asleep but now we're going to put an IV (intravenous access). You need to step aside please. Let us continue doing the work. And then he didn't want to leave! At that point I said, well you don't have to leave but you need to give us our space so we can continue working with the patient. (LJ).

...And one time the parent was so insistent on coming back [inside the operating room] that we allowed the parent to come back, put the guard down and she come back. The child was probably three or four [years old] so a little on the older side, and the mother was the one that was causing the anxiety in the room. When we were putting the mask on the child, she was looking at the mother and she was kind of okay, but the mother started crying, crying, crying, the baby started to get more and more upset. It became you know, just all around very tense environment. We ended up with the baby crying, us doing a "brutane" [forceful induction of anesthesia] induction where you hold the mask to the face, while the mother being dragged out of the room crying and having her arms out-- so it was just terrible "(LS)

The participants also observed that in many instances children chose the parent they want close to them when facing extreme fear or distress. Children know which parent can provide the support they need during difficult times. A very descriptive example was provided by one of the anesthesia providers. *This reminds me of a scenario in which, the mom actually, seemed more of the dominant parent. The one with maybe a little bit more of the stricter role. And the*

father was more of the one who plays with her [the child] and makes sure she's okay and happy-go-lucky. So mom said hey, Dad will take her [the child] into the operating room. And so, we're trying to do this [medical procedure] with minimal sedation as this point. The dad [who accompanied the child inside the procedure room] couldn't calm her [the child] down. So I think the relationship that the baby had with the dad which was playful, this, that, and the other, changed when it came down to Oh! Oh! We have to do this now [medical procedure]. She didn't want the father, and she wasn't really wanting to cooperate with the dad. So I basically had to ask mom to come in and help out. Then as soon as mom came in - mom was not very nurturing-, mom gave her the rules and said, you need to do this. She spoke fairly sternly, in a nice confident manner. [the mother of the child said] you'll see, everything's going to be great. Let's do this. (LJ)

I think from being a second parent at home there's something that you learn when you are a parent, the child is going to want their mommy. So I think that is how that the parent who goes in the room for induction gets chosen. I don't think that [mothers] they're particularly more helpful than the dads. I just think that it is a known thing that when the baby is sick they are going to want their mommy, and that's who's going to go in. (LR).

Observing children's environment. Observing the environment refers to the ability of the anesthesia provider to detect the appropriate environment and interactions for a child who is subjected to the stress caused by the perioperative experience. These observational skills are needed to identify potential environmental and relational threats to the child during the perioperative period.

The anesthesia providers stated that in many situations they were required to make decisions that were in the best interest of the children and the parents. The anesthesia providers described themselves as playing the role of a “mother” “protector”, “pilot”, or “guardian angel” of children, while also acting as the main “supporters” of parents who also experienced severe distress during their children’s illness, surgery, and hospitalization. Anesthesia providers verbalized a strong commitment to the comfort and protection of children and their parents.

I guess it’s the mother-child relationship that I have with my patients, be it a nine-year-old, a two-year-old, a premature patient, or a 60-year-old. I look at my relationship with my patient as a mother- child nurturing relationship. I know what’s going to be good for you, allow me to do this for you because at the end it’s going to be good for you, (...) my approach is universal to all my patients. (JT).

(...) Protector’s a good word. Yeah. Protector. Guardian. Pilot. Any of those [terms]. So, sure. You’re controlling what their body can’t control because of what you have done to them. (EH).

I think the system is always pushing us to rush, but I think it is our obligation to treat this person as a human being and to realize that it is an honor for you to be taking care of them. The fact that this person is actually letting you take care of their child is huge. (RR).

We try to have the rooms not too cold. I always make sure I take a warm blanket with me on my shoulder and if it gets cold then I make a big deal about the fact that it’s cold and that we need to make them [children] warm...and keep them comfortable. (MGO)

I personally feel [the anesthesia provider], whether the patient is one day old or 80 years old, I am their protector. And that whoever I'm taking care of, I need to make sure they get the proper anesthetic care. (CR)

Strong observation of the environment in which anesthesia providers provide anesthetic care is critical in maintaining the safety of the children, even if it requires keeping the parent away from the child under certain circumstances.

The kid was doing fine but the kid had some [chest] retractions during induction of anesthesia] which was – I mean, that's not even a complication, and the mom would not leave the OR [operating room]. The mom said I'm not leaving. And so in the middle of the induction [general anesthesia], we had to call security to escort the mommy out because she would not leave because she did not like the way that the kid was breathing. The induction process was supposed to be normal, and really it was delayed because we ended up doing things around the mommy. We didn't want her there during the intubation [of the child], partly because we thought she was going to be more scared. At the very end she [the mother] became the child. (IDL)

Parental presence. Parental presence was a sub-theme which provided evidence of the impact that parents have in the emotions of children who are ill or require a medical or surgical procedures. This sub-theme also relates to the great contributions that parents provide as liaisons between the anesthesia providers and the children. This sub-theme was subdivided into other secondary sub-themes: 1) *mothers and fathers' involvement*, 2) *source of information and child experts*, 3) *learn how to touch child from the parents*, 4) *behaviors that do not help children*, and 5) *behaviors which help children*.

Mothers' and fathers' involvement. This sub-theme described the level of involvement of mothers versus fathers have during the preoperative phase and induction of anesthesia. Most anesthesia providers agreed that mothers more than fathers appear to be more willing to in the process to soothe the child, and accompany the child into the operating room with the anesthesia provider for induction of anesthesia.

Some of the anesthesia providers described that the traditional role of fathers has changed over time and increased involvement of fathers with their children was noticed during the perioperative period. It was also added that these involved fathers were as caring and involved as mothers in the task of helping their child cope with preoperative distress. The anesthesia providers actively sought out to find the parent with least amount of anxiety to come in with them inside the operating room or procedure room to assist the child during induction of anesthesia.

Because the way our culture's changing, I see fathers interact with their children a lot more now than I did 30 years ago. Nowadays, sometimes I see the father coming in [inside the operating room with the child], if only one [parent] can come in. I see the father coming, not the mother, which would have never happened 30 years ago. (MGO)

So when you see that the majority of the moms are the ones that are coming in and calming the baby down, that is when you would say, Oh, the mom is nurturing. But when I've seen the father come in and calm down the child, they've

done just as good of a job, honestly. However; fathers don't volunteer themselves more frequently than a mom (LR).

Finally, the anesthesia providers highlighted that when the family has a child with a chronic illness who requires frequent hospitalizations, the mother of the child becomes more visible and involved in providing care and support to her sick child. Parents of the chronic children were also found to be either overinvolved or not involved with their sick children, and several anesthesia providers provided examples of how parents behave under these circumstances. *About 90 percent of the time I think the parents are a help. Specifically, the kids that keep coming back over and over and over again. Because the child having the parent there makes them more comfortable, the parents can handle it, the parents don't freak out, and the parents can tell us what the preference is of the child. And 99 percent of the time they're correct. (MGO)*

The familiar voice, the familiar phrases that they use with each other, and just the fact that there is somebody there that's taking care of them [children] and watching them that they are used to. I think it's just the physical presence [of the parents] and that their usual relationship that continues [helps] (JM)

I've seen a lot of moms sitting at the bedside, waiting for the child to go to surgery, and they're distracted on their phones, on their whatever, doing whatever. They barely answer questions, or they answer questions without even making eye contact. (CR)

And I was asking her [patient's mother] questions. I'm trying to speak to her, and she's on the bed. The baby's with her on the stretcher, and she's on the phone. She

was not even paying attention. But then also I'm thinking maybe she's just been through so much with the child because, as I said, it was a frequently flyer [chronically ill child]. So maybe she just kind of had enough. (TL)

I've been doing the kids in radiation oncology lately, and this particular mom, she hasn't been bringing her son. I think he is 20 months. She hasn't been bringing him for treatment. The last time that I spoke to her, she was saying to me that she thinks that it's not working because his speech is becoming more slurred. She has been feeding him so that he [the child] is not NPO [fasting prior to anesthesia], and she hasn't been bringing him. So maybe she just gave up. (TL)

The anesthesia providers also explained special circumstances that apply to many of the children who receive anesthesia services at Jackson Memorial Hospital. Many of the chronically ill children who are hospitalized and suffer from chronic illnesses which require frequent procedures do not have the social support typically seen in healthy children cared for in community hospitals. Many chronically ill children do not have parents present during scheduled surgical procedures, and in some instances the parents are not available by phone. *I think that we may be in difficult place [Jackson Memorial] to pin down what generally happens because we're so unique here. But first of all, we have so many [pediatric] patients that come to the OR [operating room] without a parent. Right? And it's not a judgment on the parents, because a large portion of our population is not wealthy. They're probably working jobs where they can't take a day off. Maybe they don't have transportation to get here. (DA).*

Not everybody lives the life that we live as CRNAs or as an attending anesthesiologist, as an educator professional. They can't take the time off. They don't drive a BMW. They're depending on a bus. They're depending on a taxi. Maybe they have, like you said, other children at home. Maybe they have a boss that won't give them a day off no matter what. (DA).

I think with the sick children who come for repetitive surgeries, sometimes they come without parents. That's really hard for me because you'll see a child in special procedures sitting in a hallway in a crib. They're all alone [silence] ...It's really sad. Because the parents are not there. You begin to wonder are they there because they don't care? Or Are they not there because they've had so many surgeries and it's a working parent, they can't risk their jobs by taking off? (BG).

The anesthesia providers stated that children cope with the lack of parental presence by “adopting strangers” as family members to help them cope with the loneliness that is associated with hospitalization.

With that particular child, he had a foster father, which I have seen before. So I think he is involved [with the child], but maybe he had work or something [so he was not there for the child the day of surgery] (TL)

(...) That kid also called grandma and grandpa [the hospital volunteers], you know? The elderly people that come by? [Hospital Grandparents Volunteer Program]. To him that was his grandpa and that was his grandma, and you could not tell him otherwise (LR)

Source of information and child experts. This category refers to the dependence of anesthesia providers have on parents to obtain medical information about the

children's routines or medical needs. This topic area also refers to the process by which the parents become a bridge between the child and the anesthesia provider in providing information about the likes and dislikes of the children. The information and/ or demonstration of behaviors which help children during stressful times are sometimes adopted by the anesthesia providers and carried on in the perioperative continuum as they assume responsibility for the child.

They [children] don't trust you the first time I see you which is normal. So if you interact with the parents and you do the things with them, I think it is better. "And then you have other parents that are super, super, and helpful. Parent's that for example, when you put the baby to sleep, they sing the common song that they sing at home and you can see the difference how the child relaxes and is more comfortable and they even sing back to the parents. (IDL)

...And then I see how they [children] interact with the parents. So kind of simulate what the parent does because that's obviously what the child feels comfortable with or what's worked for the child before. (MGO).

If the parents are there, then you're always going to ask questions, but you also are going to do an assessment of the child and you're going to review the record, and you're going to come up with a picture from all that information that is hopefully consistent with the picture that the parents are giving you. (DA).

Behaviors that do not help children. This topic area revolves around the impact of anxious parents on the anesthetic care of children and how some of these negative behaviors have negative effects on the child by adding more stress to the child. The anesthesia providers expressed that very anxious parents may become

very disruptive to the care of children, adding more pressure to the anesthesia provider who is primarily focused on providing safe anesthetic care to the child. Anesthesia providers also added that the parental anxiety sidles the emotions of children who are already in distress, and anesthesia providers who are pressured to provide good care to this high risk population of patients.

Sometimes the parents don't even want to come in and they prioritize their feelings above the child's feelings, and they don't want to – for whatever reason – they don't want to see what's going on or it just upsets them, and so they distance themselves and don't come in. Clearly, that's a parent you don't want to force to come in because it's not going to be helpful to anyone. (EH)

I had another one in which the mother got on the side of the bed and put her head down like praying and started praying out loud. And that freaked the child out. So every now and then I think the parents are not helpful. (MGO)

You either have those that are so emotionally and physically overwhelmed, that they detach and they really can't provide the support for their child that the child needs, or they are so overprotective and over-engaged that their anxiety then is projected onto their child. (VB)

...But if the mother and dad are terrified, it comes through on the kid, also” (KM).

Behaviors that help children. This secondary sub-theme refers to the positive behaviors which help children in coping with the perioperative experience and diminish distress associated with the preoperative period. Parents who are calm,

affectionate, and provide a relaxing space for the child within an already hectic environment help their children to remain peaceful and in control.

For the most part, parents have been pretty helpful, as far as having their kids comply. Like if I need them to take Versed[sedative], the parents are usually helpful in giving them that and so forth. (TL)

The best parents are the ones that are calm, that ask directed questions, and are interested in what's going on, and realize that they're there to serve a purpose, and serve that purpose. (EH)

You have to work to make sure that the family and the mother and dad are calm. (KM)

...Definitely, for me having the caregiver involved up until the moment of unconsciousness is a big help, rather than have the parent wait outside. (EH),

Stand where you're going to feel comfortable [anesthesia provider talking to a parent] and do what is best for your child." Do singing, or praying, or whatever you want to do that is going to calm you and the child, is the best thing you could do. (EH)

A great deal of knowledge and rich information was gleaned from the interviews regarding non-pharmacological interventions. Figure 3 summarizes and displays the sub-themes, primary sub-themes and secondary sub-themes.

Figure 3. Non-pharmacological Intervention Sub-themes

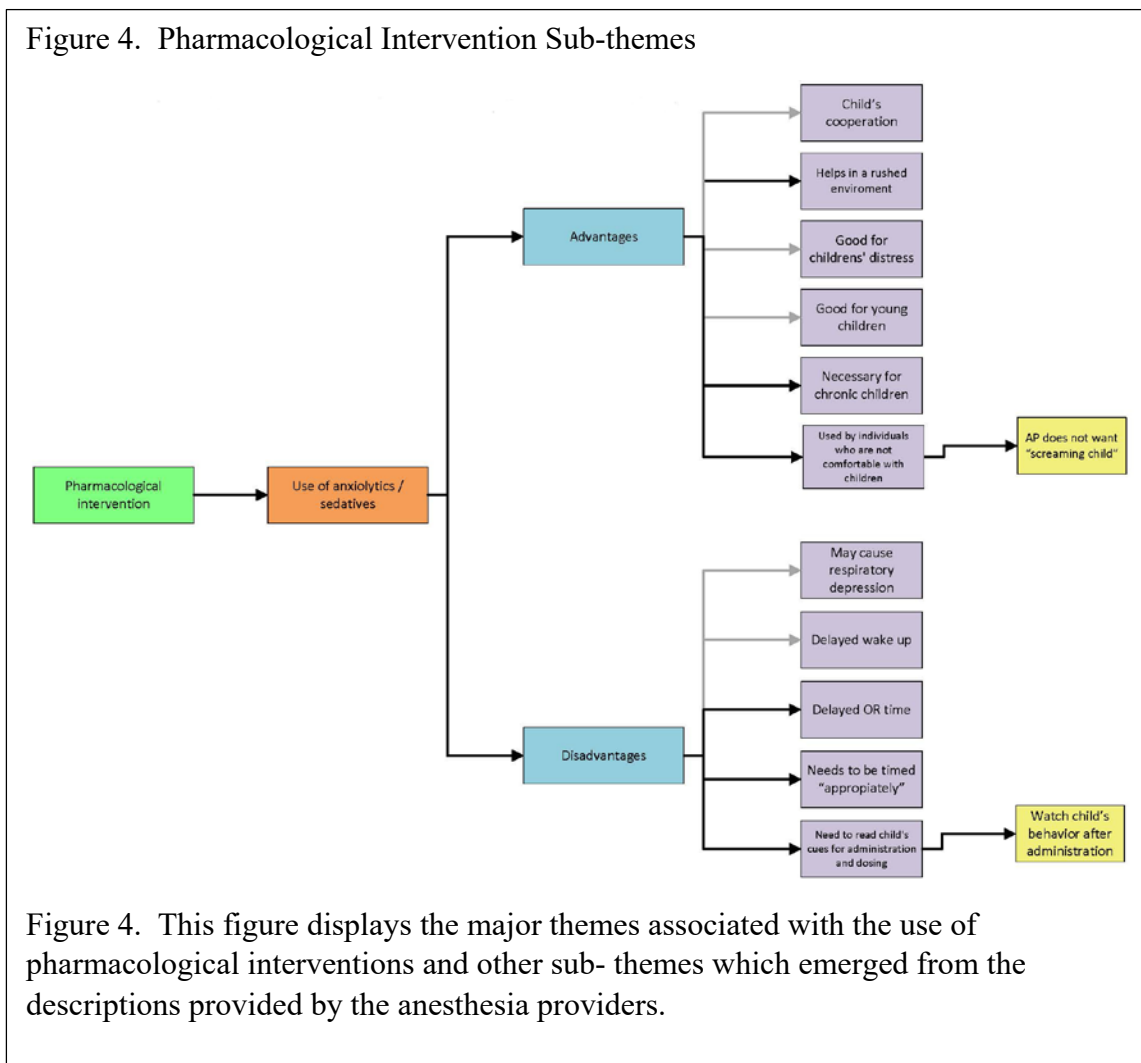


Figure 3. This figure displays and summarizes the sub-themes of non-pharmacological interventions used by anesthesia providers.

Pharmacological Interventions Utilized by Anesthesia Providers

The use of pharmacological interventions was a major theme among the anesthesia providers. This theme included a description of the *sedatives and anxiolytics* typically used by anesthesia providers to control preoperative distress in children. All of the anesthesia providers described PO [oral administration] and IV [intravenous] Versed as their preferred anxiolytic/sedative in their daily practice to manage preoperative distress in children. Many of them also used intravenous Ketamine (Ketalar) to produce sedation, memory loss, and pain control in young children. Other sedatives such as Methohexital (Brevital) (rectal administration), Dexmedetomidine (Precedex) (nasal administration), and trans-mucosal Fentanyl Lollipop (Actiq) were mentioned by very few of the anesthesia providers. These less utilized agents were used by the anesthesia providers at other institutions, but not at Jackson Memorial Hospital. The description of the pharmacological agents utilized by the anesthesia providers at Jackson Memorial Hospital were focused on providing information about the *advantages* and *disadvantages* of using these agents in daily practices, and also in describing their motivation for their use. Figure 4 showcases the major themes associated with this topic and other sub-themes which emerged from the descriptions provided by the anesthesia providers.

Use of Anxiolytics/ Sedatives. The anesthesia providers stated Midazolam (Versed) was the primary pharmacological agent utilized to produce anxiolysis, amnesia, and reduction of preoperative distress in children. Under this theme the anesthesia providers expressed they relied heavily on the use of this agent to prevent and control distress in children. Most of the anesthesia providers stated that Midazolam was the medication that proved always to be effective and safe under most circumstances. Some



of the anesthesia providers shared having experience with other types anxiolytics/ sedatives such as Ketamine (Ketalar), Methohexital (Brevital), Dextmedetomidine (Precedex), and trans-mucosal Fentanyl Lollipop (Actiq); however, Midazolam was the agent of choice at Jackson Memorial Hospital. Although the anesthesia providers were divided in regards to their opinions as to what specific age Midazolam use was mostly beneficial to children, they all agreed children in the toddler years needed it the most because toddlers had such limited understanding about surgery and anesthesia.

(...) Is there any particular situation you can think of that comes to your head where you say: You know what, it's not a Versed day? No. It is good all the time. (JM)

(...) if I give him[child] sedation and is somehow he is in the state of anxiolysis, I don't think the baby would cry as much as opposed to those children that are in the parents' laps holding on... you can see their fear (...). (JT)

(...) Umm, pure Versed is the most common drug I use. Because it works! (LS)

I like to, if at all possible, pre-medicate [use Midazolam] because I'm thinking next time this kid sees somebody in green scrubs and a hat, they're going to freak out if we don't pre-medicate them today. (DA).

I think for the most part I give them all Versed[anxiolytic] preoperatively except for the children that are in radiation/oncology because in radiation/oncology which is where I spend a lot of time. So, that's the only time that I don't give it, because to me bringing the mother in [inside the radiation treatment room]" is like pre-medicating the child." (RR)

(...) And it's not just with Versed it is also Ketamine that we use in radiation/oncology [to manage distress in children] (RR)

(...) Not here in Miami, but in Pittsburgh we did use it [Clonidine to sedate children]. I felt versed was a little superior. (RR).

I have no problem giving some Versed[anxiolytic] beforehand. Yeah. If they need I. I think it's got so much going for it, in terms of the fact that it, for the most part, doesn't burn on injection like Valium does. It can be given – if you're interested in giving it PO or intranasal [administration]. Although, I don't choose to do it that way. It provides not just anxiety but amnesia, which is great. (EH).

What I have used and it was pretty effective was umm... intra-nasal Precedex back in one of the facilities I worked at, and that went great. We would give 2 mcg per kilo intranasally, umm... but they [children] hated it going in [laughter]. (LS)

Let them have it [Versed]. It doesn't hurt anything. If it makes them feel better, and it's not going to hurt anybody, it's not going to hurt the situation, it's safe, let them have it. That's how I feel. (SS).

Versed or Versed mixed with Ketamine is what I use a lot in the toddler age. (FG).

(...) And by bringing the parent in [inside the operating room with the child], I have seen that they're even more relaxed when their children have the [Midazolam] on board. (LR).

I'd say more than 80 percent [of the time] we use pre-medication [cardiac pediatric patients]. More so on the one-year-olds because they're the ones that are going to have separation anxiety. Sometimes even the bigger kids you think are going to be okay. Then, we leave the parents, and that's when all the tears come because they're not as grown up as you think they are. (BG)

(...) We used to give them nasal versed [in another hospital]. I don't know if they would even do that here, but that would calm them down a little bit. Or [give them] a lollipop [trans-mucosal fentanyl], or something to just get them to calm down. (KM).

A lot of the children, received a little sip of cherry whatever mixed with the Versed and they took it, they had no problem taking it [anesthesia provider recalling practices in other places]. Most kids will take a cherry versed. (KM)

Where I trained in Philadelphia it wasn't as common as it is here [Using Midazolam as premedication]. They used different agents but I think Versed is inexpensive, it is safe, it is effective, it's relatively quick acting. It's oral so you can give it without an IV. (FG)

I can't remember the last time I had to use IM[intramuscular] or rectal drugs [referring to use of rectal Brevital]. They are just...It is barbaric when you are trying to calm a child down and then you jab them with a needle, or give them a rectal drug. It's just not the way to build a rapport with children. (EH).

Advantages

This secondary sub-theme contributes information about the reasons why anesthesia providers chose to administer anxiolytics/sedatives to children. Six different types of rationales or categories were identified under advantages: (1) premedication is important in obtaining *child's cooperation*, (2) use of premedication helps clinicians to be more effective in a *rushed environment*, (3) use of anxiolytics/ sedatives is *good for children in distress*, (4) anesthesia providers found that premedication used was especially *good for young children*, (5) anxiolytic/sedative use was also necessary when managing *chronic children*, and (6) anxiolytics are used by *individuals who are not comfortable with children*. For the purposes of this dissertation the primary investigator will focus on the three categories which contribute knowledge to the existing gap in the literature: (2) use of premedication helps clinicians to be more effective in a *rushed environment*, (5) anxiolytic/sedative use was also necessary when managing *chronic children*, and (6) anxiolytics are *used by individuals who are not comfortable with children*.

Use of anxiolytics help clinicians to become more effective on a rushed environment. The anesthesia providers explained the use of anxiolytic agents such Midazolam (Versed) during the preoperative phase was necessary to improve efficiency in the OR [operating room]. Some of the anesthesia providers added that they resourced

to pharmacological agents to reduce anxiety in children because they knew this intervention was effective in controlling the children's emotions when they were feeling pressure to proceed with their clinical routines and take the child into the operating room quickly to proceed with induction.

(...) [participant explaining the reason why anesthesia providers chose to administer Midazolam to children in the preoperative area to treat preoperative distress in children]. I think there's a number of reasons. I think one is we're in a rush to move cases through the OR [operating room] (DA).

(...) We could be more efficient and have the kids lined up already ready [in the preoperative holding area]. So before we're finishing up with the previous one [surgical case], somebody [and anesthesia provider] could go and see the next patient. Like the anesthesiologist, could write the order for Midazolam (Versed) so by the time we are done [with the first case] and ready for the next child, you know, they [children in the preoperative area] could be already sedated, so we would take them quickly [inside the operating room] (GO).

(...) I think personally it would be better for the child [to come in with the parent inside the operating room]. I think because a lot of times we're a little bit rushed, so having the parents get dressed to go into the OR [operating room] takes time. It is easier to just push medications [anxiolytics] and take the child into the operating room. (RR)

Necessary when managing chronic children. This particular sub-theme refers to the need to control preoperative distress in children who were exposed to repeated surgical or procedural experiences which typically resulted in the development of an aversion to the surgical environment and anesthesia providers. The anesthesia providers

also remarked that eventually these children become desensitized to the surgical, anesthetic routines, and surgical personnel because the children were able to learn that administration of anxiolytics/ sedatives helped to reduce their anxiety. Once these children had experienced the benefits of these pharmacological agents they become a participant in the decision to either take the medication or assist the anesthesia provider in the administration of the pharmacological agent.

Whether those kids that have multiple experiences in the OR or multiple anesthetics, and those kids that have only one single anesthetic, are they all going to have learning issues and stress after? Probably. But that one kid who never comes back to the OR to have anesthesia is going to forget about it. The other kid is going to see it every other week. So I think it's more important to pre-medicate those kids. (DA)

(...) The kids that just scream [addressing the chronic children], I get out the Versed because most of them have an IV on them, and I just give them some Versed because they're so scared. (SS)

(...) If the child has been here multiple times... You can give maybe PO medication and have the parent come in the room [operating room], or PO medication [oral administration of an anxiolytic/sedative] and have the parent not have to come in the room. (LJ)

(...) So they [chronic children] know exactly [what they want]. You just get amazed... If you ask him how much medicine are you on [amount of anxiolytic/ sedative the child takes with each visit to the operating room], and he'll tell you the dose. Today I'm okay, I only need 2mg [of Midazolam]. Or he will say I'm really anxious, give me 3mg [of Midazolam]. He will just talk to you that way, and he is just five years old. (IDL).

(...) And I think what also happens with these kids is we make little junkies out of them because the first day they're really reticent to do anything. They're very closed off, they're very self-protective and very self-aware. And then once, especially if you are the same provider throughout the course of their treatment, I think that in and of itself, the gift of your presence and being able to develop a relationship with these kids helps to ease their anxiety. And their pre-op Versed is what they long for. (VB)

You [the anesthesia provider] know what they like and you know what they don't like. So you know which ones complain when you touch the IV. You know which ones would prefer to have them push their own meds. I've done that before, I would let a little kid, you know, "Go ahead and say, "Okay, go ahead and push it [administer their own anxiolytic/ sedative]. You know, you involve them more in their own care (TL).

Anxiolytics are used by individuals who are not comfortable with children.

This sub-theme focused on the decision to administer an anxiolytic/ sedative to children to help reduce the anesthesia provider's own stress in watching children or their parents in distress. Administration of preoperative anxiolytics/ sedatives was also found to be helpful to anesthesia providers who did not feel comfortable interacting or taking care of children.

So for me it's really just all about the experience and if they don't remember the bad experience, then we're good. That's kind of how I see it. That's why I like the Versed. And you see it when you give the patient Versed. They're happy. So maybe we like the result much more for us when we actually give it to the child. Because we're the ones that are enjoying the results (BA).

(...) So if you give the kid Versed [anxiolytic] then you don't have to interact with them, you don't have to talk with them (...) (MGO).

I think [giving Midazolam (Versed)] it is a safety net. I think we feel better giving the Versed because I've had Versed. I don't know if you've ever had it, but I've had Versed, and it's wonderful. You don't remember anything. You're happy. You don't remember the OR [operating room]. It's a great feeling, and I think it makes us comfortable because we think we're doing it for the kid. It is more for us than it is for them. (BA)

(...) But if you have a CRNA, who doesn't like to take care of children, they're the ones that are going to give the kids Versed every time. So I think Versed is used by individuals that are not comfortable with children. (MGO).

Disadvantages. The anesthesia providers' opinions about the disadvantages associated with the use of anxiolytics/ sedatives were derived from their common experience in administering IV or PO Midazolam (Versed) to the children they cared for on routine basis. The anesthesia providers' made a distinction between disadvantages associated with the pharmacological side effects of Midazolam, and those disadvantages which were related to the operationalization and timing of the drug. Overall most anesthesia provided expressed the advantages of using Midazolam or any other anxiolytics/sedatives to decrease distress in children outweighed the disadvantages of this classification of drugs. The anesthesia providers listed disadvantages in the following areas or categories: (1) anxiolytics/sedatives may cause respiratory depression, (2) anxiolytics/ sedatives may cause delayed wake up, (3) anxiolytics/sedatives may cause delayed OR time, (4) Midazolam administration needs to be timed appropriately, (5)

anesthesia providers' need to read child's cues in making the decision to administer a preoperative Midazolam to their patients. For purposes of this dissertation, three categories of anxiolytic/ sedative disadvantages will be presented: (1) anxiolytics/sedatives may cause delayed OR time and (2) Midazolam administration needs to be timed appropriately, (3) anesthesia providers' need to read child's cues in making the decision to administer Midazolam to their patients.

Anxiolytic/sedatives may cause delayed operating room time. This category refers to the anesthesia providers' perception that administration of Midazolam may slowdown the efficiency of perioperative services. Administration of Midazolam requires a 20-30-minute wait time to take effect. This waiting period can delay the surgical schedule and prevent the surgical team from starting surgical cases on time, and complying with the demands of a very extensive surgical schedule. As a result of this potential disadvantage, anesthesia providers bypass advantageous clinical practices which are in the best interest of the child. Anesthesia providers stated that the current pediatric preoperative system does not allow for extra time or additional anesthesia personnel to arrive to the preoperative holding area early enough to administer Midazolam to the children without causing a delay on the schedule.

The way we have it here I think sometimes nobody gives the Versed because maybe the attending was in another room and they couldn't get to the preoperative area on time, and then by the time they got there then it's time to go back in the other room. They [anesthesiologists] just don't have the time to order it, and I think that for the Versed thing to work you have to have a commitment to

it, and you have to have a system in place to make sure that every child gets it.”

(LR)

I think because of quickness [of the surgical room’s turnaround time] and time restraint. I think that people don’t administer Versed... because you also don’t have the personnel to watch the child that has been pre-medicated [in the preoperative holding area], and also we don’t have monitors to do that]” (KM)

I think that it has to be administered properly and you have to have the patience to wait for it to really start working. I think that it’s a very nice way to bring the kids in the room. I think they’re more cooperative when they’ve had the Versed. But if you don’t have the resources or the time to wait for it to start working or to administer it at the right time so that it doesn’t delay the room or whatever then it’s useless. You just filled the stomach with fluid. (LR)

Sometimes they [surgical team] don’t want wait long enough. Depending on if the surgeon is pushing, they won’t wait as long [as is needed for Midazolam to take effect]” to take the kid back [inside the operating room] (BG)

Anesthesia providers’ need to read child’s cues in making the decision to administer Midazolam to their patients. This category refers to the anesthesia providers’ ability to judge when it is appropriate to administer Midazolam to patients to obtain the full benefit of this drug, and also in making sure that the pediatric patient receives an adequate dose at the approximate time to work. This category of information also explains the specific instances in which an anesthesia

provider may choose to give or not to administer preoperative medication in the best interest of the child.

I don't see a reason not to give it unless taking the Versed itself is causing the child more distress. (LR)

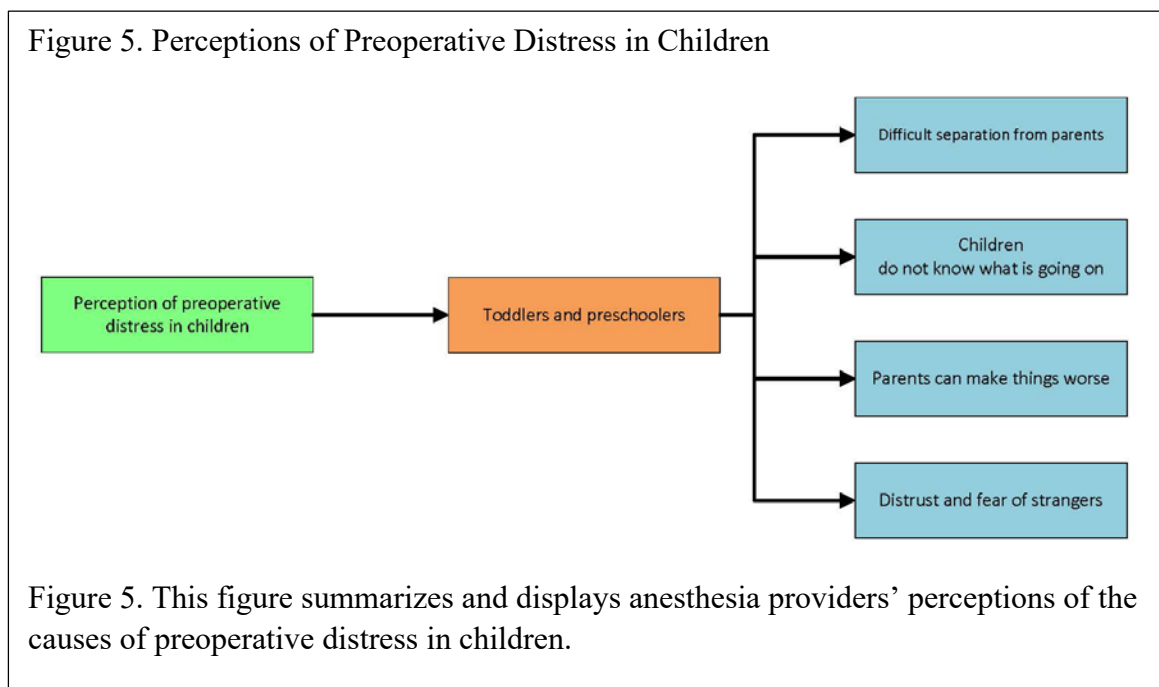
If there's any element of distress in the child – I will give them Versed. I have no problem giving some Versed beforehand if they need it. My experience with PO Versed is not as good. I find that it is unreliable. The children don't like drinking it, even if you mix it with cherry Tylenol, or mix it with whatever. They don't like drinking it. It takes a while to work and then it can be unpredictable. (EH)

(...) and it had to be dosed right [referring to administration of oral Midazolam], and the dose that is typically ordered is half milligram to one milligram per kilo [Kilogram] PO [oral administration]. I know a lot of pediatric anesthesiologists write these orders ahead of time before I get out [to meet the patient], and if they under dose the child and go to the half milligram per kilo [Kilogram] I just don't think it's as effective as the one milligram per kilo[dose]. I believe the reason for doing it is that they don't want to delay discharge from the PACU [recovery room] when is a short procedure, but as far as pre-op anxiety [is concerned] it really doesn't seem very effective. (LS)

And then depending on their[children's] level of anxiety is when I would choose okay, I'm going to give him PO Versed, or IV Versed today. (LR).

Anesthesia Providers' Perceptions of Preoperative Distress in Children

Anesthesia providers' perceptions of preoperative distress in children was a major theme that addressed the major causes of preoperative distress in toddlers and preschoolers. The anesthesia providers provided explanations from their perspective as to why children experience severe distress during the preoperative phase when they are introduced to the perioperative environment, the anesthesia providers, and/or other members of the healthcare team. All of the anesthesia providers agreed the primary reason for distress in young children was separation from the parents and fear of the unknown. Figure 5 summarizes and displays the sub-themes that emerged from this topic.



Most of the anesthesia providers described children in the toddler years as having a more difficult time separating from parents as compared to preschoolers since they did not possess a true understanding about the hospitalization process and the surgical environment. A good number of anesthesia providers felt that although toddlers may have

a reduced capacity in comprehending the surgical experience, somehow they still had the ability to sense they were in an unfamiliar environment, where something was about to happen. All children in the toddler and preschool age were described to be suspicious of strangers who they met in the hospital. The children drew emotional strength and support they needed to cope with the hospitalization process from their parents and caregivers.

Finally, anesthesia providers made a distinction between children who were exposed to surgery and the hospital setting for first time versus children who were exposed to surgery and or other procedures multiple times. Some anesthesia providers stated that children who had surgery or were hospitalized for first time experienced less preoperative distress because they did not know what to expect, while children who had repeated surgical experiences had stronger reactions to the surgical process because they understood what was happening to them.

So the first-time experienced patients, they tend to maybe not understand or realize that this is going on. So their level of anxiety may be less until they come back for multiple procedures. Because they tend to realize where they've been, what happens to them when they're in this environment and this setting. And so they tend to become more anxious as they're exposed more to the hospital environment and [surgical] settings So you have to take into consideration the age of the patient, the amount of times of exposures to hospital setting, surgical environments. (LR)

A group of anesthesia providers provided an opposing view regarding first time children versus chronic children who required frequent surgical or special procedures. This subset of anesthesia providers stated that first time children and their parents needed additional support because they did not what to expect; therefore, their level of

preoperative distress was much higher than those children who were accustomed to repeated surgical procedures.

And I got the impression [from observing a child who was having surgery for first time]at one point that he [the father] thought if the baby was going to continue to crying he was just going to walk out of the hospital with the baby and not do the surgery.

(MGO)

A lot of times, paradoxically, they [chronic children] are easier because you don't get that wide-eyed scared uncontrollable crying, I don't know what's going to happen, kind of child. You get a child that often times has resigned to what is going on. (EH)

The sub- theme which identified sources of distress for Toddlers and Preschoolers, was built from four different categories of units of meaning: 1) Difficult separation from parents, 2) Children don't know what is going on, 3) Parents can make things worse, 4) Distrust and fear of strangers.

Difficult Separation from Parents

This category refers to the process by which young children start showing signs of preoperative distress once they are separated from the parents in the preoperative holding area to go inside the operating room. Most of the anesthesia providers' efforts in the preoperative holding area are geared towards preventing or diminishing upset in children and behaviors such as crying, screaming, and fighting. In cases where the child is uncooperative and displays severe separation anxiety from the parents the anesthesia providers opt for providing preoperative sedation, or bring one of the parents inside the operating room, or implementing both interventions.

There are times when I think Versed is almost necessary, such as with this child with the separation anxiety that actually feels the parent's separation. (MGO)

There is probably is a difference between toddler age and the preschool age because in the toddler age [children] probably deal more with the separation anxiety from the parent. (LS)

Probably that age group has more of separation anxiety. I think that's when they start to know and feel more that they are being separated from their parents, but there isn't enough comprehension on their part as to why they're leaving them. You can't explain to them what you're doing, and if you do, they may not completely grasp that concept. (JM)

I think that letting go [of parents] causes less anxiety in older children, school-age children versus toddlers. (JT).

Two, three, four, five-year-olds? Because they have not yet matured emotionally, psychologically, to understand that separating from their environments, their parents, would not cause harm. (BA)

Children Don't Know What is Going On

This category refers to the uncertainty that children experience when they first arrive to the hospital and the preoperative holding area. Children are in an unfamiliar, rushed environment with strangers wearing unusual clothes, who have expectations about how they are supposed to behave. The children also have physical contact with anesthesia providers, and other healthcare personnel who are interested in obtaining the child's medical history, vital signs, and complete a health assessment.

I think the most difficult ones are the ones with the separation anxiety, like lets' say (...) probably a year to two, two and a half, three years, where they don't understand what's going on necessarily. (MGO)

The younger [children] ones really will not – the real, real young ones aren't old enough to kind of understand what's going on in their first experience here most of the time. They don't grasp the idea that they're into a surgery, into a procedure. (LR)

(...) Whereas, I think, uhm, and once you get over that hump [and a child enters preschool age], you can bring him into the novelty of the situation. They [children] sometimes become more engaged, and in the preschool age I think children have fear of the unknown. (LS)

(...) It is fear of the unknown. They [young children] don't understand that [surgery]. They're not able to process it. I think.... we need to help them try and visualize what their experience is going to be like. (BA).

(...) I think in this age group; they're trying to figure out their bodies. They're going under surgery and they have fear of unknown. (KM)

Parents Can Make Things Worse

This sub-theme refers to the great stress than parents feel when they are exposed to the surgical environment. As anesthesia providers explained, parents also experience anxiety and are fearful of the hospital environment. All of the anesthesia providers stated that children's negative emotions and distress were directly fueled by the parents own anxiety, and that children relied on their parents' ability to manage their emotions to cope with stressful situations.

Some of them do well if you take mommy and daddy into the operating room, and then sometimes they don't. Sometimes the parents actually seem to make the situation worse.

(SS)

(...) There is always parents anxiety that can be also exhibited towards the environment, and then the babies or the children can also sort of feed off of that. [This] May increase the level of anxiety on the child. (LR)

You can tell when the parents are scared of the hospital, too. But usually, if the parents are calm and relaxed, the kids will be more calm and relaxed, too, I think. That's what I see (SS).

There are children whose parents are so much in control of their kids' environment that again, [once the family is in the hospital environment] they[parents] transfer that fear [of been exposed to a foreign environment] to the kid, and the kid doesn't want to let go [of the parent] (JT)

Well, I think the father was so freaking anxious that he was passing it on to the kid

(MGO)

Distrust and Fear of Stranger

This sub-theme related to the lack of trust that children develop towards the anesthesia providers and other hospital personnel. During the hospitalization and surgical process, the children need to establish new relationships with strangers in a very short period of time. The children are exposed to strangers who primarily communicate with parents by utilizing medical terminology, move very fast, and are dressed in hospital attire. The anesthesia providers provided explanations of how difficult it was for the children to leave the parents behind to go inside the operating room with a healthcare

provider/providers who were complete strangers. The participants in the study also explained children in this age group can make associations between new and prior experiences with medical personnel, resulting in more distress to the children

So to me, it's making the kids feel comfortable and getting them to trust you so you can separate them from the parent, I guess, so to say, so they don't view you as some big scary entity. (SS).

(...) [An anesthesia provider explains children's reactions to the hospital environment] Different environment, different people and on top of that, in most of the cases, we also create pain and uncomfortable situations for them. If we don't create the pain pre-op, we create it post-op maybe and then they remember the next time they're going to be here. (IDL)

And so we're taking them away from a situation that they're comfortable with, into this big room with unfamiliar faces. A lot of them have gone to the doctor quite often for their vaccinations and so forth, because that's usually the age range when you're going to a doctor quite frequently. And they already have a fear of doctors and nurses. (TL)

I think kids are tense because of the unknown and people [around them] all in green [hospital scrubs] – it's frightening seeing all these people wearing these funny hats on. Kids get a little leery when you're coming into a strange place like this [hospital] (KM).

Anesthesia Providers Best Practices and Recommendations

This major theme refers to the anesthesia providers' perceptions of what is needed to improve the management of preoperative distress in young children. The anesthesia providers focused on three different topics or sub- themes that had a very strong impact

on their practice: (1) education, (2) administration support, and (3) parents. Each of these sub-themes were subdivided into two or three categories of units of meaning.

Due to extensive amount of information generated from this topic area, for the purposes of this dissertation only those sub- themes, categories, and subcategories of units of meaning which the anesthesia providers' identified as requiring most attention for improvement will be presented. The results pertaining to categories of information not discussed in this section will be published and disseminated in a future publication.

Although education emerged as an important sub- theme, the most predominant sub- themes and categories of information provided by the anesthesia providers revolved around factors which affected their ability to successfully manage young children and to the barriers they encountered in establishing best practices to care for children. In the process of discussing ways to improve clinical practices the anesthesia providers also verbalized feeling powerless and frustrated about lack of resources, time, and the provision of a "childlike" environment for children. The anesthesia providers emphasized the need for administrative changes which improved the hospital *environment* for children and support for improvement models of evidence based *practices* and patient care. The anesthesia providers also verbalized the importance of improving communication and preparation for parents whose children need surgery and anesthesia services at Jackson Memorial Hospital. The parents were perceived as needing support, education, and guidance in order to support their children in the hospital setting. A graphical representation of this major theme, associated sub- themes, and categories of information is presented in Figure 6.

Figure 6. Anesthesia Providers Best Practices and Recommendations

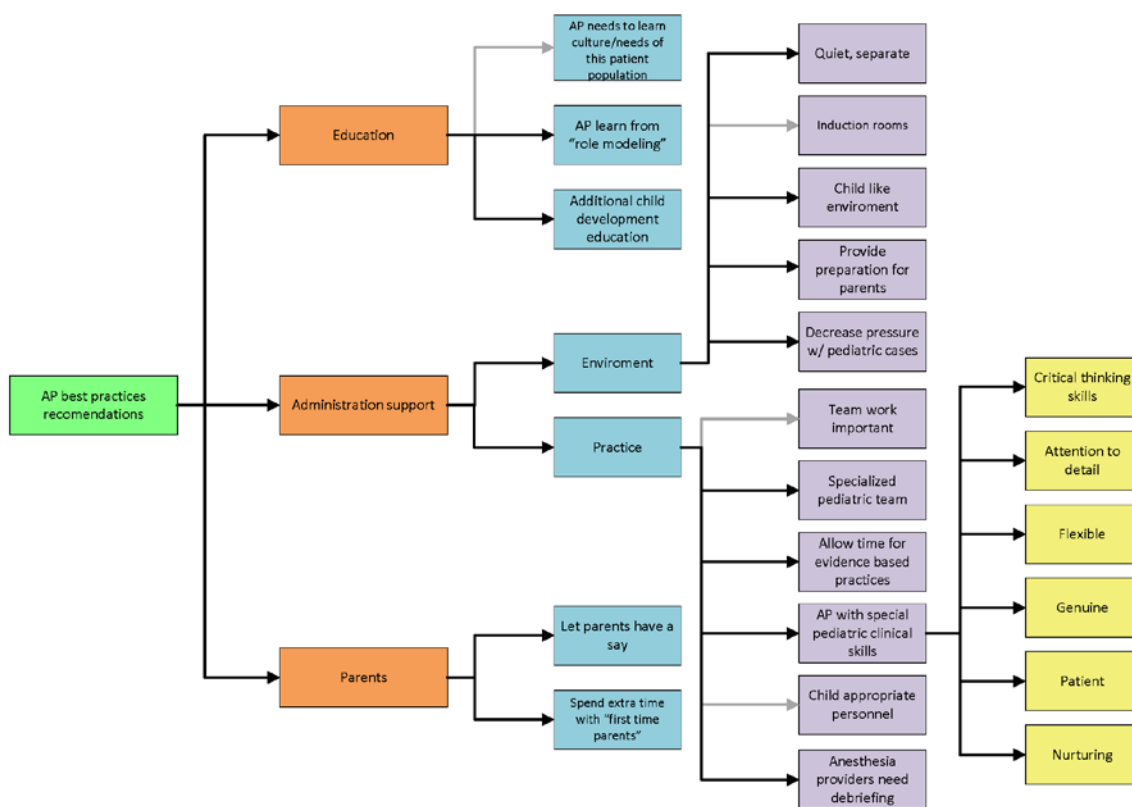


Figure 6. This figure summarizes and displays the three primary themes and sub-themes that anesthesia providers reported had the greatest impact on their practice.

Education

This sub- theme was centered on the quality of education and preparation which anesthesia providers receive during their training to prepare them to care for young children. All anesthesia providers agreed their graduate education was primarily focused on understanding the physiological and pharmacological management of children. The anesthesia providers maintained that child development curriculum remained very basic or not “as important” as learning how to provide anesthetic care to children. All anesthesia providers emphasized that their highly specialized education lacked depth in

the area of psychological management of children. The physicians who had received additional education in the form of post-residency fellowship and were board certified in pediatric anesthesiology stated they had received additional education on child development which otherwise they would have not received during their residency.

So I think the fact that I did one entire year of pediatric anesthesia specialty helped me a lot. To take the time to see what's going through their mind and to deal with them, to how to approach them, how to make them feel comfortable with me. (IDL)

Yeah, I learned it [child development] studying from pediatric anesthesia boards. It was just part of the curriculum. But, absent from that, unless you're actually doing that, if you're just taking care of kids, but not board certified, I don't know that it's part of the general anesthesia curriculum. Unless you seek it out yourself, yeah. (EH)

Certified Registered Nurse Anesthetists also felt that their education and training in pediatric anesthesia did not provide enough content in the area of management of psychological needs of young children. This subset of practitioners explained they had received child development coursework as part of their undergraduate degree but not during their graduate education. Most anesthesia providers agreed additional education in the area of child development and management of distress in children should be formally added to their education.

I don't think it even is in our curriculum. No, because remember when I used to work for the school and I used to teach that class and it was science and pharmacology. Not once we touched too much – the only thing we talked about when we talked about Versed and the need for pre-medication in the kids that had separation anxiety, but that's about it – two lines about this aspect of children's care. (GO)

I don't remember having a thorough child development education. You know, when you get a child this is what you should do. I felt like I had formal education on how to take care of the anesthetic drug-wise. That's different than actually learning how you interact with a kid. We don't teach that. I don't know if we can teach that but we definitely don't teach that, or my curriculum didn't teach that. (CR)

As far as CRNA School [nurse anesthesia education] is concerned that subject was never touched upon that I remember and if it was, it was very brief. I remember [pediatric content] it being more technical. As far as the rest of the staff is concerned I think that if there is a circulator in the room they should have that training also and they should also be able to comprehend what children in this age group are like. (LR)

A significant amount of anesthesia providers expressed that psychological management of children and management of preoperative distress was not something that should be formally introduced in the classroom because most anesthesia providers learned to address children psychological needs by interacting with them outside the surgical setting, or by learning from other anesthesia providers who served as mentors and/or role models. Some of the anesthesia providers also argued the ability to show empathy towards patients was something that “could not be taught”. The ability to portray empathy towards children was not a learned behavior but rather a personal quality that typically was found in those individuals who were warm, nurturing, and enjoyed children.

I think that the standard [of care for children] is mechanical but beyond that, there are moments when we need to turn into something a lot more personal (...), so at the end it actually serves the patients good whether it be [spending more time [with parents and

children] or[providing an additional] explanation, a[giving] larger dose of preoperative sedation, allowing the parent to come in[the operating room, discussing more risks[to the child], or disclosing more issues (...). But identifying when to do that, and how to do that, it is done in practice. It's not a one-day class. It's not a two-hour session. It's during the practice and through mentoring that you learn that. It's working through identifying the mentors that you like. How they approach things and hopefully learning from them. (JT)

I don't know if that's something that can be taught, that caring – what I call the hand holding. You need to be comfortable because if it doesn't come out genuine, I think children can tell that. It can't be forced. You have to want to be able to help this child no matter what drug they had. You have to be able to want to really, really comfort them, and that, I don't know, if that empathy can be taught. (JM)

What I think that makes a difference is you have like the residents or the nurse anesthesia students see for themselves how things can work with someone with a pediatric anesthesia provider that's caring and compassionate and then having the contrast of having someone that's not. I think that's the only thing that we can do. We can teach someone to say – listen you need to be humble, and you need to talk to the parents like they're your friends, and at the same time you need to show that you know what you're doing. (RR)

Additional child development education. This categorical unit of meaning describes the anesthesia providers' recommendations for additional education in the area of child development psychological, and non- pharmacological management of children. Anesthesia providers suggested the use of different teaching tools to improve knowledge

and awareness of anesthesia providers in the area of child development and psychological management of young children.

I could see maybe developing some videos of case scenarios where somebody did the various techniques used [to interact with children in the preoperative area] so people [anesthesia providers] could see them. Like using spraying scents in four by four's [gauze] so the kids can choose you know, [so the child can choose a scent to be sprayed into the anesthesia mask]. So maybe just scenarios like that can be put into a video on your phone. (LS)

Well, I think in my program they definitely covered the different age groups and specific anxiety situations that can occur. I thought that was fairly well covered so I was prepared for that separation anxiety, loss of control and that kind of thing that was important in different stages of a child's life related to the anesthetic process. One thing that I didn't get though and that might have been really helpful is (...). If you have a child who spends the majority of their life in the hospital, their personality and their interaction with health care providers is completely different than a child who's coming in for their tonsils and never been to a hospital before. (LS)

In education I think that everybody gets in the program the didactic and the pharmacological portion [of anesthetic care of children]. The interaction portion [with the child] is probably where the programs could work on. Let the person [preceptor] examine you [and see if] they [learners] feel comfortable with children. If they don't, what you can do is, maybe go to more in services, go to more workshops. (MGO)

Administration Support

This sub-theme was made up of two different categories: 1) environment for children, and 2) practice support for anesthesia providers caring from children.

Environment. This sub-theme included the descriptions of the ideal hospital environment in which young children do best. The anesthesia providers discussed the importance of the physical environment, and also on the relevance in maintaining a nurturing environment for the parents and children when they were experiencing preoperative distress. The anesthesia providers added that parents and children also needed especial time and attention from the anesthesia providers, which is not adequate under the current practice environment. The five categories of environmental changes recommended by the anesthesia providers were enumerated as follows: (1) provide a quiet and separate environment for children, (2) create space for general anesthesia induction rooms outside the operating room, (3) create a childlike environment for children and parents, (4) provide adequate preparation for parents before surgery, and (5) decrease efficiency pressure on anesthesia providers when involved in pediatric cases. For purposes of this dissertation, three of the most prominent categories of information will be included in these findings: (1) create a childlike environment for children and parents, (2) provide adequate preparation for parents before surgery, and (3) decrease efficiency pressure on anesthesia providers when involved in pediatric cases. All other results associated with the categories of information not discussed in this chapter will be presented in a later publication.

Childlike environment. This category reflected on the importance of creating a hospital environment that is less rigid and threatening to

children. The anesthesia providers described the importance of maintaining a physical environment that was appealing to children by incorporating critical child development elements such as play and distraction. The anesthesia providers added that even when children were hungry or in pain, a playful environment “kept their minds off” from whatever was happening on the medical end. The anesthesia providers supported consistent utilization and involvement of Child Life specialists to address the psychological needs of children. The participants felt that making use of music, play, and distraction was a powerful tool in the management of preoperative distress in young children.

(...) But just bring them [children] to dance, and let music play, so they [the children] forget about it [forget they are having surgery]. It should be like you are going to a birthday party in holding [preoperative holding area], but you just don't want them to eat or drink.” (IDL)

So I think Child Life makes a difference. I think they should be here and they should be seeing every child before they get an anesthetic. I arrive [to the holding area] in the morning, but they're not always there, or they're there and they've already come and left. So I think that we probably should have more child life people here. So I think that would make a big difference. (CR)

(...) [Anesthesia provider makes reference to Jackson Memorial Hospital preoperative holding area] It is getting better but it could be more relaxing or fun for the child so it looks less like a hospital and more like

something else. Yes, more like something bright, colorful and less threatening and rigid.” (FG)

I think that if the environment looked less like a hospital it would help. For example, if we created a better holding area environment, with Disney characters walking around, or have a big boat there or something where they could play. They wouldn't feel so scared. (IDL)

We use child life specialists [professionals hired by hospitals to implement age appropriate activities for hospitalized children] at Jackson and I think they really did play a big key in helping to alleviate some of the [children] anxiety, because they bring in an element of play and everything is age appropriate. (VB)

Yeah, even like when I see pictures of Joe DiMaggio [a local pediatric hospital] in Hollywood [FL] how they had their MRI machine. It's like you're going through a ship. I mean, it just makes the kid feel more at ease (BG)

A few of the anesthesia providers were skeptical about the positive effects of the perioperative environment on decreasing preoperative distress in children. This small subset of anesthesia providers highlighted that making the environment more “child friendly” did not really help the children because children were still able to recognize an unfamiliar and threatening environment despite their young age.

I think you can paint the walls any color you want and put Mickey Mouse on everything and it's still going to look like an operating room. There are

still going to be instruments in there. There's still going to be an anesthesia machine and it's still going to be completely foreign. I think they don't really know an anesthesia machine – they may not know what it is. All they know is that they're surrounded by a bunch of strangers and somebody is putting a mask to their face. (LR)

You are never going to fool the kid and make them think that they are at Chucky Cheese. They're always going to know, no matter what you put on the walls, they're always going to know that they're in an operating room. I think it's what we do what counts, but I wonder if what we do to the environment also is more for ourselves than for the kids. Like if the kids even care! (EH)

Quiet and separate environment. The majority of the anesthesia providers agreed that the hospital had made changes to improve the pediatric surgical environment for children; however, additional work was needed to improve the centralization of care for children. Within this discussion the anesthesia providers expressed that the physical layout of the preoperative holding area and operating room was not ideal because children were not completely isolated from adult patients. The anesthesia providers sensed children and parents needed to be in their own private space, within a soothing environment without unnecessary stimulation and/or stress throughout the course of their perioperative stay.

But I think the better the environment is, the less you have to work at overcoming the human factor. So if you're walking into a very noisy, cold

OR then it is up to you as the anesthesia provider to have to overcome that either by warming the room or hugging the child and keeping them safe or warm, and saying, oh, isn't it so loud in here and what is going on? Is your house like this? So if it can be at an optimal condition before you walk in, then it's more time for you to really focus on the child rather than focusing on fixing the environment. (VB)

So I think we have to really make sure that our environment is not noisy, that it's very smooth, and people aren't really moving too quickly. Kids don't like to move quick. They like things slow and they like to do it in their own time. (KM)

Right now, we're in the back of the OR. We have to go through all the way through the whole holding. We see all these other patients, all these other people. If you have one child that's screaming, the other kids are like, "Why are they screaming? What's going on with them?" So I think that environment is an issue. Everything is so wide open. You can hear anything that's going on. We say privacy and stuff. There's no privacy. I think if it's the first time that they've been to an OR, I think that helps the parents out a lot. (JM)

We don't have a separate area just for children. You get mixed in with the adults. And it should be just a room for just kids. (CR)

(...) But if you have an environment that is just for kids, where there is playing, music, and games, then it will decrease [child's stress] a lot. (IDL)

(...) So they may be with a child life specialist in the pre-op holding area and then 15, 20 minutes before their procedure they're given some quiet time. Then they go into a nice warm, calm, dimly-lit room [operating room] and then they go off to sleep. So you're kind of setting them up for that natural transition as opposed to just having Bonker the Clown over there winding them up and then having to go put them to sleep.” [Anesthesia provider describing an ideal environment for a child about to undergo a surgical procedure] (VB)

Sometimes the baby's crying. And then everybody [surgical personnel] is doing something else. And they're screaming to each other. Where are the instruments? The instruments are not ready!! So that just creates more stress for the kid. The kids don't really know what the instruments mean and what they [surgical team] are screaming for. They think somebody's having an argument. (IDL)

Decrease efficiency pressure. This category describes how interactions between the anesthesia providers, children, and parents suffer as consequence of the pressure exerted by the operating room environment, in the ongoing effort to maintain efficiency in the management of a large volume of surgical services.

I think that recently since we've been pushed from administration to have the first case start time be on time and we're so scrutinized by OR times. And I think that there are things that can be done. Either the anesthesia provider can arrive a little bit earlier [to meet patient in the holding area],

or we maybe should be a little less lenient with that start times for kids [pediatric surgical cases] (RR)

I don't know if we're going to be able to improve that aspect [referring to be able to teach learners how to manage preoperative distress of children and parents] so soon, because as long as administration is rushing us.... their priorities are other. You know, other priorities, and not the wellbeing of the kid, the parents, and their [family] emotional experience. (GO).

Forget about that you have to go at a specific time and just sit with them [children]. If you have to color a book, you color a book with them. Or if you have to watch a movie with them, just for five or ten minutes, do it. That means a lot for them.] (IDL)

(...) They [anesthesia providers] may be more disenfranchised in the middle of the day cases versus the first cases of the day [when anesthesia providers are able to spend more time with their patients], and then you have the last cases of the day, or the cases that get handed over to other providers that don't have the same kind of care. (JT)

I have a patient that every time the patient comes here, the mom wants to come with me so I have taken care of the patient probably like 15 times. So he doesn't like the mask [anesthetic mask]. He hates the mask. But that's the only way we have to put him to sleep [anesthetize the child] because he doesn't have any veins. I let him hold the mask himself. So I try to talk to him, I and then I say let's do it slow [induction of anesthesia]. But then the other day, he was trying to prolong it just a little more, and more. Then I

was like come on, come on, let's do it. And then he said my name, and he was so cute, because he said to me, You have no patience with me today! What's wrong with you? He just told me that. And he was right because I had another OR waiting for me. They know. (IDL)

Practice. This sub-theme mirrored the factors that improved clinical outcomes for pediatric patients in the setting where the anesthesia providers practice. According to the anesthesia providers' recommendations: (1) team work among the anesthesia and surgical team was important, (2) specialized pediatric teams are safer, (3) the hospital should allow time for evidence based practices, (4) anesthesia providers taking care of children should have special clinical skills, (5) child appropriate personnel to take care of the psychological needs of the pediatric surgical patient, (6) anesthesia providers need debriefing after negative clinical outcomes. For purposes of this dissertation the results for three categories of practice will be presented in this section: (1) specialized pediatric teams, (2) anesthesia providers taking care of children should have special pediatric clinical skills, (3) anesthesia providers need debriefing after negative clinical outcomes. The results pertaining to the remaining categories associated with this sub-theme which have not been presented in this chapter will be presented at a later publication.

Specialized pediatric teams. This category refers to the importance in creating specialized teams of anesthesia providers who are proficient and comfortable delivering anesthetic care to children. This category also accounts for the conflict of opinion which exists among anesthesia providers when discussing this subject area. Although all the anesthesia providers who were interviewed recognized that having a dedicated team

of pediatric anesthesia personnel was the best practice model to care for children, it was not a practical option from the administrative and practice point of view. The creation of a pediatric anesthesia team which was solely composed of a small number of anesthesia providers, limited the clinicians' ability to maintain other clinical skills which were necessary to provide anesthesia services to a wider range of surgical cases and patient populations. This category also provided information about the amount and quality of involvement provided by other members of the pediatric surgical team. Most anesthesia providers praised the high level of commitment and experience provided by the pediatric circulating nurses working at Jackson Memorial Hospital. This group of professionals were set as an example of how personnel consistency is essential in securing stability for the pediatric surgical team.

So, I think that when you're working with the same team in anything, in pediatrics, in adults, in anything – when you work with the same people everybody knows what their roles are and what to expect. And everybody knows what I'm going to be doing, and I know what other people are going to be doing. And I think that the nice thing about Jackson is that we have circulating nurses [operating room nurses] that are specific to children, and you know that they're excellent. (RR)

And I think that because we're having a lot of high turnover a lot of times we are working with people that we don't even know. Someone could be hired without having had children experience in the last five years. And

then expected – obviously not expected right away, but having gone through a little orientation- to deal with children. I think that can be very stressful when you have gone on for a certain amount of time not taking care of kids (RR).

I think everyone is standing around [surgical team]. I don't know if they're actively trying to engage the patient, but unlike with adult inductions where it's you and the attending trying to induce the patient and everyone is off doing I don't know what – I think like here you see a lot of the circulators [OR nurses] and even some of the attending surgeons – not all of them but some of them – are attentive. They are at the bedside and they want to see what's going on. I find people are there. (LR)

A lot of the pediatric nurses [pediatric surgical nurses] are very engaged and if they're needed, I think they're right there readily available for helping with an IV or something that is difficult. (FG)

The practical is to have everyone be able to do everything and that's not right. It's not right because it's not what's best for the patient. And I think at this point we are not even thinking of what's best for the patient. We are just thinking of what's more convenient, and what it is more convenient is to have someone that as little experience as they might have taken care of pediatric patients. (RR)

I think, definitely, having a dedicated team of people that feel comfortable and enjoy doing pediatrics, and allowing those who don't have to, is helpful. I think forcing it on everyone to say, "You have to do kids over

eight or something,” is not helpful because even at eight years old, they can still have a mentality of a younger child and require the patience of someone who is pediatric trained or pediatric friendly versus someone who is not. (EH)

Right now, the OR [operating room nurses] has a specialty pediatric team, but if they should throw something else or put something else [adult surgical case] in their room [pediatric room], they’re kind of lost as to everything else. I think you lose a lot of other skills when you do team them up like that together. I think you should have more people that are role models in that area. I don’t know. I’ve never really thought about it, but I think you tend to lose skills if you’re specialized. (BG)

Special pediatric clinical skills. This category explains the specific skills which anesthesia providers must possess in order to provide effective clinical care to young children. Although critical thinking skills, quick decision making, and rapid adaptability were personal positive attributes frequently mentioned by the anesthesia providers, all anesthesia providers stated the ability to project empathy towards parents and children was most essential. Furthermore, the anesthesia providers also stated patience, calmness, and playfulness was also a well-regarded quality when taking care of young children.

I think it has to be somebody friendly with the children, somebody calm, and somebody that can be flexible because things happen, you know. Like Dr. [name] – he’s the best because no matter what happens the kids don’t

get scared. "And no matter what happens, he fixes it with a smile. Okay, let's do it like this. Let's try that. (GO)

I mean you have to be good with airway; you have to be good at starting IVs [intravenous access] in small children. (JW)

I feel like you have to be well-tempered to be a very quick thinker as far as critical thinking capacity should be there. Full empathy no matter what patient you have and I think definitely responsible to oneself as far as emotional, physical and mental health. (JT)

In order to deal with the pediatric population, it's different and you need some skills. You have to be patient. First of all, I think it's compassion, patience, empathy, gentleness – well, compassion is more important I think. (FG)

So I think being prepared is the most important thing when you give a pediatric anesthetic. (CR).

(...) Someone that is going to be empathetic, compassionate, genuine, and just someone that no matter what their skills are and no matter how smart they are they're still humble [for the sake of children]. (RR)

I think that if I could think of one person that I've seen do that really well here it would be Dr.[name]. He comes in with his little light-up finger, and he's doing magic tricks for the kids. He is very personable with the parents and able to explain things to them. He portrays a sense of compassion, like just a split second of compassion without going overboard. (LR)

Then kind of getting down to their level height-wise so they feel less threatened and a little more connected. Being gentle in the way you do the physical exam or help them get comfortable in their situation, you know, the bed or the lights or something. So, just showing care and compassion and concern for their well-being. (FG)

Anesthesia providers need debriefing. This category describes the process by which anesthesia providers grieve for the patients they care for. In many instances the children are critically ill and despite the anesthesia providers' efforts to provide the best possible care, there are a good amount of negative outcomes for this group of patients. All of the anesthesia providers described the very ill and chronic children as having a significant effect on the anesthesia providers' clinical practice and personal life. All of them were challenged with the difficult task to provide optimal anesthetic care for these children while maintaining a healthy emotional distance from their patients. The anesthesia providers reflected on how difficult it was for some of them to deal with the sadness and the loss of health that parents and children experience, and also with the eventual passing of these children. The anesthesia providers also described there was no formal method for discussing or debriefing negative clinical outcomes, and/or child's life loss in the operating room environment. Each individual experienced a very unique process in managing their own emotions and grieving. All anesthesia suggested that having a formal process to discuss specific cases outside the medico- legal perspective would be helpful to

them, since receiving non- judgmental support and feedback from other colleagues is essential to recover from bad clinical experiences.

But we grieve and we have to empathize with the parents and grieve with them and debrief with professionals also. I think it's really important.

Going over an event is very important. Making sure that we have everything we had for the event helps with the grieving process because then it leaves off a lot more guilt. I think it's important for part of our own emotional stability. (JT)

I don't cry in front of parents. I don't cry in front of parents.... but there's times that I've felt like crying in front of the parents. And I'll hug them and I'll hug the child. But for me to cope with it emotionally, I talk it out with colleagues. And on occasion I do go to church to the chapel and I pray for the health or improvement of the babies that I treat every day. Especially some that I know have a pretty bad prognosis. So that's how I deal with it. (LR)

We could have a patient that dies in the OR [operating room], and I think that it's so cruel to ourselves that there is something wrong in our field when we have a patient that dies and we are expected to go back and do the same thing the next day. And it's not fair because we're not the same person when that happens. We're not at our best. (...) No one asks us "Are you okay?" after something like that happens. At least say "How are you doing?" On the contrary it's like then all of a sudden like a detective thing

comes up like: What happened? What did you do? Oh, no, we need to do a Quantros report and get risk management involved. (RR)

So really, I don't feel sorry, I don't feel anything. I just take care of the patient and do whatever has to be done. But once the case is done, then it hits me again. And then sometimes I realize I've been thinking about the patient the entire day, the entire night, and a week after. I'm still thinking about the kid, how is he doing?" The only time I don't feel it is when I'm taking care of them. Before and after [thinking about the child] kills me. (IDLT)

And then when I'm here [in the hospital] I don't feel ... I just do the job. Then I debrief when I get home. (CR)

Nobody ever says; okay – this Thursday we're going to talk about this adverse outcome and how it made us feel, and what we could have done differently, you know? (LR)

We don't have a debriefing like firefighters or police officers do. I was just talking to one of the anesthesiologists about that today. She had a bad experience. Someone passed away. I think it's because the nursing part of it is more of a female profession. We don't think about that, but I think we need a debriefing to talk about it. We just kind of bottle it up and let it go (BG)

Parents

This subtheme provided information about the need to allow the parents to be active participants in the hospitalization, surgical preparation, and anesthetic process.

Most anesthesia providers stated parents did not know how to participate or what to do because many of them were experiencing distress or personal struggles themselves.

Some anesthesia providers stated that parents of terminally ill children were difficult to communicate because they were so lost in their grief that many times the parents were not even interested in hearing anything that they had to say; still the anesthesia providers made use of empathy, silence and non-verbal communication to support the parents.

Some examples of quotes which reflect the challenges faced by anesthesia providers when dealing with parents are stated below. The two categories which emerged from this main topic included: (1) let parents have a say, and (2) spend extra time with first time parents.

The number one thing I've wanted to see changed since I started working here has been to have more parents involved in coming into the OR with their kids. So, I think that there's nothing you can do more for a child than give them their parent to comfort them, or their family members, or somebody that they know (KM)

And then, of course, their child is going for procedure or for surgery and they're upset about that, so I think there's a lot going on with the parents that we probably could do a better job. We're very good about telling them all the risks of anesthesia and what can go wrong, but I think we need to be good about telling them how important they are [to their child] and the role they play (EH)

The parents of those kids with chronic and serious problems, they are not interested in what you have to say. I don't think it matters what you say. They are suffering so much. What can you say? Sometimes a look, you know, like making eye-to-eye contact, a look of

compassion, says more than trying to say something to them. They just want to wake up from that nightmare that they are living with these kids (GO)

The world doesn't stop just because their child is going for a procedure unfortunately, ideally they'd like to be there for [their child], but they have other children. They need to get to school, they have jobs (EH)

The anesthesia providers highlighted many of the parents were very young, with limited education and low socioeconomic status. Most of these parents needed special attention because many times they did not understand the medical explanations provided to them, limiting their ability to help their child or participate in the care of their children. The anesthesia providers also stated the parents knew the child more than anyone else and yet they don't have a voice when decisions were made for the child in the hospital and/ or surgical environment. Despite the challenges presented by this special population of parents, the anesthesia providers felt strongly that parents needed to be empowered to be responsible, caring, and active participants in their child's care.

I think what it is, it's not so much that the parents don't care to be there for the children, but that sometimes the parents feel subordinate, or they've been made in the past to feel subordinate to the physicians, and nurses, and anesthesia providers – whoever is there (EH)

And, even sometimes, they should have a little video to explain what's going to happen for the family prior to [surgery]– a little disc to throw in and watch something [to prepare first time parents]

It's overwhelming to these young parents. They are single parents, and they just have no right to be taking care of children at their age and their level of maturity. Even healthy

children are hard, and then when they are saddled with a chronically ill child, it's too much for them to take (EH).

I find it makes the parents feel better; to incorporate them, and they appreciate being incorporated and empowered. And, so, it's kind of a win-win for everyone (EH)

And so, they feel like they don't want to get in the way. I hear that a lot. "Just tell me where to stand, I don't want to be in the way." And, I tell them, "You're the priority. You – stand where you want. We'll work around you." But, I think a lot of times, maybe they've been marginalized in the past, and so they don't want to feel they are intruders (EH)

Let parents have a say. This category referred to allowing the parents to provide input to the anesthesia providers when they are taking care of children because they know how to manage the child under stressful situations. Most of anesthesia providers also shared that exceptions were made when the parent was too anxious or fearful, in which case the anesthesia provider needed to make decisions in the best interest of the child.

To be flexible, really get the parents involved. As a parent, that's what I would want. I would want to be able to be involved. "Let me comfort my child the way I'm used to comforting them. Tell me what you need me to do and I'll do that, but let me be the one comforting because that's what they're used to. (JM).

I think what upsets parents is when they tell you something and you totally ignore them, and they know their kid better than anybody else. So even if you may not be able to do what the parent says. I'm still going to have to give them the medication, but it's acknowledging to the parent that, "I hear what you say, I'm going to do what I can to

make it as comfortable as I can [for the child] and yes, you know your child and you have as much control of your child as long as you possibly can, okay? (MGO)

Spend extra time with first time parents. This category includes information about how anesthesia providers should proceed when dealing with parents who are exposed to the hospital and or surgical environment for first time. According to the anesthesia providers these parents require extra time in delivering procedural information, and they also may need additional instructions on what they need to be doing for the child once they go inside the operating room. First time parents may need repetition of information and or very concrete direction as to what is expected of them because typically they are overwhelmed with the perioperative environment.

I think, for the parents, definitely, if they have an idea of what the process is. They probably feel they have more control as to what's happening than just being thrown into and just – like their hands are up in the air, and somebody else has to take care of everything. If they have time to process it before – “Okay, this is what we're going to do,” when they see it happening, “Oh, this is normal. This is what's supposed to be going on. (JM)

(...) if it is their first time and they're going to come in with you, I think you have to communicate with the parents. [You will] go in the room [operating room suite], the room is going to look like an OR room, it is not going to be warm and fuzzy. But you focus on your child and keep talking to your child and that will help me the most (MGO)

It amazing how the parents feel just when you've gone that extra step and that you've done something in addition to your normal routine, and that you've gone above and beyond what you would normally do. And to them it shows that you care (RR)

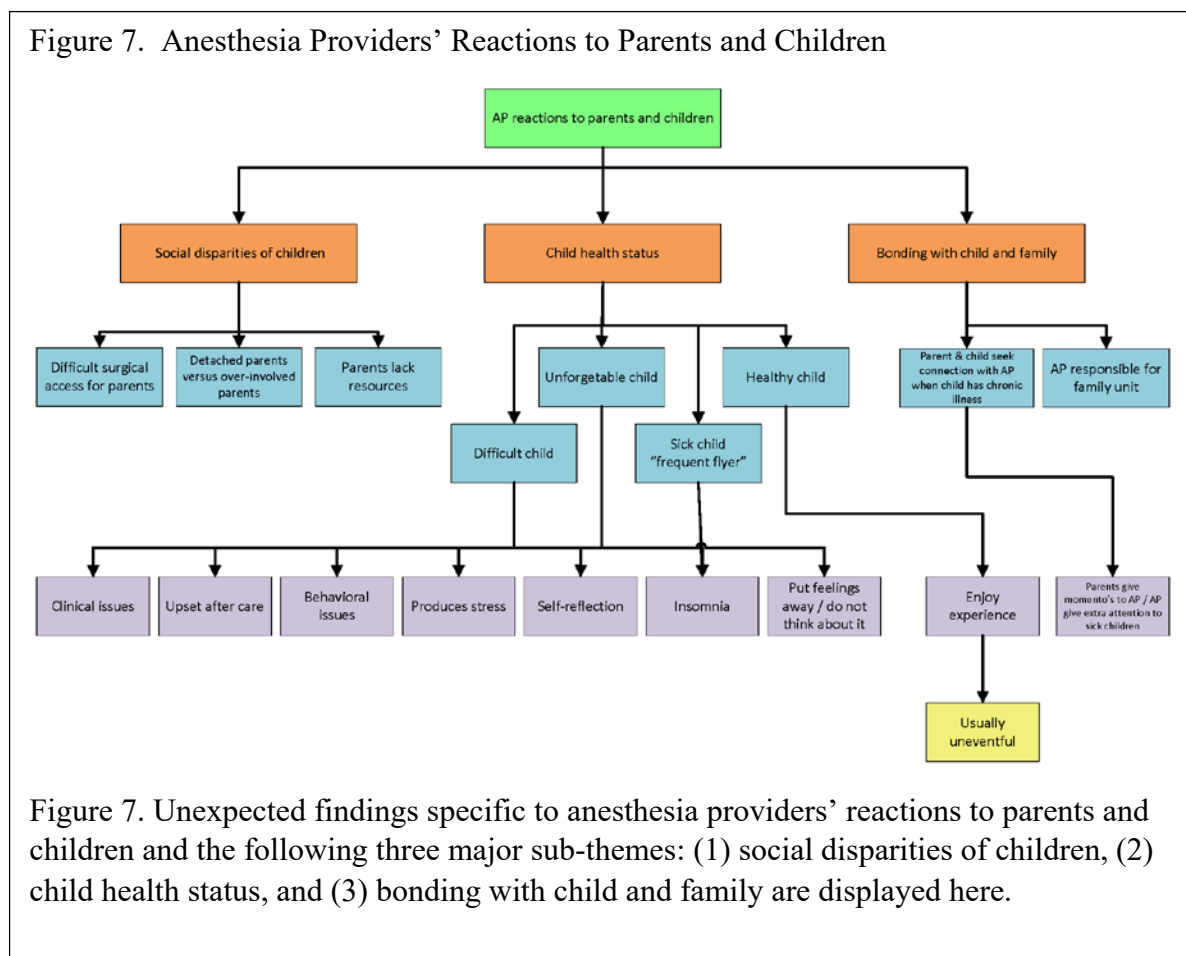
Well, what I think would help the parents would eventually help the child. A nice quiet room with a nice recliner, soothing music, a couple of drinks. We need to – sometimes the sedative that we give the patients the parents need it too! [laughter] (BG)

Unexpected Findings

Anesthesia Providers' Reactions to Parents and Children

This core theme was an unexpected finding which revealed additional information about the context in which anesthesia providers perform their anesthetic duties at Jackson Memorial Hospital. This overarching theme describes the special population of parents and children who are cared for at this major medical center, and the challenges faced by anesthesia providers when managing this special category of children. The anesthesia providers described this population of sick children, or the “frequent flyers” because the children were chronically ill and had multiple exposures to the surgical environment. Through their descriptions it became evident the anesthesia providers also related to these children differently as compared to their interactions with healthy children. The anesthesia providers explained how they were unavoidably more involved with these children and their parents because they got to know them well during their extensive time the children and parents spent in the hospital. It was described a special bond was created between the parents and their children which in occasions extended beyond the hospital boundaries, and beyond the child’s short life span. The effects of those experiences with sick children also had personal repercussions, since negative outcomes, death, and grieving associated with some of the children they care for stayed with them. Finally, the anesthesia providers also described the special socioeconomic disadvantages these children experience as compared to healthy children,

who are exposed to less invasive surgical procedures in middle class community hospitals. The children who received anesthesia services at Jackson Memorial Hospital faced barriers related to access of care, family support, economic provisions, and had parents with low educational levels, which made their illness process more difficult and challenging. Figure 7 illustrates the Anesthesia Providers' Reactions to Parents and Children, followed by the three major sub-themes: (1) social disparities of children, (2) child health status, and (3) bonding with child and family. For the purposes of this dissertation only the findings of one category under each of the three aforementioned sub-themes will be presented in this chapter. The remaining categories will be discussed in a later publication.



Social disparities of children. This particular sub-theme refers to the existing socioeconomic disadvantages of the children who receive surgical services at Jackson Memorial Hospital. Children who are hospitalized and require surgical services also experience a great deal of abandonment and lack of family support thorough the course of their hospitalization period. One of the categories which highlights the different socioeconomic challenges children face during their hospitalization is depicted in the subcategory, Parents' Lack of Resources.

Parents lack of resources. This category describes the possible reasons why parents are unable to attend to their children's needs while they are in the hospital. In many circumstances the anesthesia providers could not pinpoint the reasons for parents 'absence or lack of involvement. In other cases, the anesthesia providers shared stories as examples of the challenging backgrounds the children come from, or provided examples of the special circumstances around the children while they were cared for at Jackson Memorial Hospital.

Sometimes you just know that they [parents] are not going to cooperate. Either they don't want to be there [in the hospital], they don't want to see it, they have something else to do. Maybe. Sometimes it's not that malignant on their part, it's just they have other responsibilities. They have other kids at home, they can't be there. In that case, you just go with it and do what you can.

The OR desk called me and said "There's a child that's been stabbed in trauma and we need a pediatric anesthesiologist." So, I ran over there. I

called two other pediatric anesthesiologists. The three of us went because I didn't know what was going to happen. Okay, so, basically what had happened was the mother's boyfriend was trying to stab the child. In the process he stabbed the child, stabbed the mother, killed the mother and the police came in and killed the stepfather and the little girl was there this entire time. (...) but this girl watched her mother get killed, and watched the police come in and kill the stepfather. To me that's horrible. This is a social environment our patients come from (RR)

(...) And a lot of them [children] are wards of the state here [Jackson Memorial Hospital], literally. So I don't know... the kid is lost. Those kids are really sad, you see. And they look at you like, "Ah..." like they want a dad or a mom (KM)

Child Health Status. This sub-theme relates to the different categories of patients which anesthesia providers provided care for based on their type health status. The anesthesia providers described four different types of children based on their health status from their own clinical perspective: (1) healthy child, (2) difficult child, (3) unforgettable child, and (4) sick child “frequent flyer.” For purposes of this dissertation the category Sick Child “frequent flyer” will be presented as a relevant example of the rich clinical data which emerged from this sub- theme.

Healthy child. The category Healthy Child primarily included anesthesia descriptions which supported the reactions of healthy children to the hospital and surgical environment. Although these set of children had better clinical outcomes and were less challenging from the clinical point of view.

These children were viewed as having less traumatic experiences in the hospital setting, therefore they were easier to distract or deceive than children who had repeated exposures to the hospital environment. The anesthesia providers mentioned healthy children appear to have stronger reactions to separation from parents and induction of anesthesia because the process was unknown and uncertain to them.

Difficult child. The category of *Difficult Child* included descriptions of the clinical challenges which anesthesia providers face in the context of their clinical practice environment at Jackson Memorial Hospital. These category of children included children who had a very complex medical history, and/or induced a great deal of stress to the anesthesia provider while managing their anesthetic.

Unforgettable child. The category *Unforgettable Child* includes the anesthesia providers' descriptions of special children who have changed them or have produced a significant impact on their professional lives after caring for them. Some of the anesthesia providers also provided descriptions of situations in which they experienced sadness and/or uncertainty about the end product or final clinical outcome for some of these patients.

Sick Child "frequent flyer". This category reflects the care and challenges encountered by anesthesia providers when caring for children who frequently require anesthesia services. These children who are recurring patients are commonly called by anesthesia providers and other

surgical personnel as “frequent flyers”. The descriptions of the anesthesia providers included information about how these clinicians interact with these children, and how they react to them in their clinical environment. The clinicians also included very vivid descriptions of their experiences of this group of children. The children who fit into the category of Chronic Child or “*Frequent Flyer*” may also share the characteristics of children who fall under the categories of *Difficult Child* or *Unforgettable Child*. *The whole anxiety thing [describing clinicians’ anxiety] and the whole culture of, oh, you’re a sick child. So I think you have to be able to look at them as just a kid. You’re just a kid coming in for a treatment, and not feed into the bigger process (VB)*

I think that our profession does an awful job of doing anything about it [anesthesia provider describing how she feels after caring for a frequent flyer child] because, again, it’s the production pressure of, okay, next case. Go set up for the next case. You have to deal with what’s coming next. You never get a chance to process in real time. It’s always after the fact like when you’re driving home that night or when you are alone and you get to express your own grief about a child that you’ve probably been with for weeks or months and they’re gone. And you like to think that what you did helped, but sometimes it doesn’t. And you just hope that you’ve not been a part of the process of debilitation but yet you’ve been part of the healing process (VB).

(...) This three-year-old child has vocabulary that even a 12-year-old doesn't have because he's so used to the medical lingo [anesthesia providers describing a frequent flyer child]. That's really hard for me to accept. You kind of treat them [sick children] – not like a three-year-old child. I treat them [sick children] like an older child. You're more honest with them [sick children]. You don't use big words, but you can talk to them like they're more of an adult. (BG)

These are kids that stay in the hospital for weeks at a time or months at a time compared to a healthy child might be one or two times having surgery. You tend to treat them [healthy children] more like a child. More like their age – a two, three, or four-year-old. You kind of talk down to them in language they understand. With a sick child, you're using bigger terms because they understand it. (BG)

Some of the inpatient kids who have been sick, or they know the routine a little bit more are easier to deal with, because they're not so scared of everything. (CR)

The kids that have been here for a long time that are frequent flyers, they're tough. They know why they're here. They're trying to get better and they seem to be more cooperative with the treatment. (CR)

I still remember a kid that I took care of. A kidney transplant patient that died here [Jackson Memorial Hospital}. He was just four years old.... and that was 12 years ago. I still remember his name. [Kids name]. He was from Greece and he came over to have a transplant, and he did fine, got the

kidney in, and then, Dr. [Doctor's Name] came in [brought the child back to the operating room] to do something. I don't remember exactly what he was doing, but he was cleaning up a couple of things [performing surgery] and they [surgeons] lost control of a couple vessels, and kid started bleeding, and ended up arresting. (...) It was like a three-hour code and the kid passed away. That was a rough one. (JW)

But of course there's going to be the few occasions where, no matter what you do, you can give them [describing a frequent flyer] the world – they don't want to hear from you. They don't want to see you. And it's usually the kids that come frequently. You know? So they already know what to expect.

They see behind all the smoke, the mirrors and everything else. (TL)

I think naturally we do treat them [frequent flyers] differently, and we relate to them differently because, as I said before, you can't fool them. You're used to this. So you kind of have to be more direct with them. And you know what they are like from taking care of them so often. You know what they like, and you know what they don't like. So you know which ones complain when you touch the IV. You know which ones would prefer to have them push their own meds [medications] (TL)

The things that come out of some of the frequent flyers' mouth – like I can think of one little 2-year-old now, it just surprises you. So he was in contact precaution, and was playing with another little boy, so they [nurses and doctors] have been stopping him from playing with another little boy next to him. So he saw the GI doctor, Dr[X], and he asked her, "Why is it that I

can't play with so and so anymore?" ... And she was like, "Well, because you have an infection right now, and we're trying to treat that.". You know, he's been on antibiotics. So he says, "Well, what have you been doing for the past couple weeks? Isn't this thing that you give me in my IV supposed to treat it? (TL)

Bonding with Child and Family. This sub-theme addresses the special bond created between the anesthesia providers and the families of chronically ill children. Typically, anesthesia providers have a very brief opportunity to establish relationships with patients, due to the short time in which their interactions occur. As the anesthesia providers become more acquainted with children and their parents who repeatedly visit the operating room and special procedures, the quality of their relationship and interactions evolve. Knowing the children and their families help the anesthesia providers to provide patient centered care, because repeated exposure to this, patients help them understand the specific needs of the patients they care for. Specific routines, procedures, and child responses are easier to manage in the context of the hospital environment. Unavoidably the anesthesia providers also experienced greater attachment to these group of patients and loss one these patients were gone.

And we've done radiation oncology kids up until the point where as soon as they finish their treatment they pass away. And then you're dealing with family members, usually mothers that have been with them the whole time that are going through their own grieving process and still come back and give you pictures or give you little mementoes, but it sucks (VB)

You know I worked outpatient for a long time, too, and that's more like a factory. I mean you had to do 10 TNAs [children's tonsillectomies and adenoidectomies] and 10 ears [children's insertion of myringotomy tubes], and you just go bang, bang You know knock them out. You don't have as much time with the children. You don't get to know the parents. (...) It is more like a production line. You know get them [children] to sleep, get them [children] out. Whereas here [Jackson Memorial Hospital], you might see the same family, and you might know them [family members] for years. You've seen them a lot of times. You kind of develop more of a rapport. (JW)

There was one little kid here, (...) she had biliary issues and she needed a liver transplant. And this was all so sudden for the family. I actually I did keep in touch with the family. They started a GoFundMe account. I donated to that. She got her liver. I spoke to the family afterwards. She was doing great. So I did actually keep in touch with her mom. I don't know (...) I took care of that little one a few times, so I developed a rapport with her mom. We actually ended up being like Facebook friends. So I can't just forget them. I just can't. (TL)

Chapter 5

Discussion

This qualitative descriptive study addressed the following research questions: 1) What non- pharmacological and pharmacological interventions anesthesia providers use to reduce preoperative distress in toddlers and preschoolers?, 2) What are the anesthesia providers descriptions and explanations about the plausible causes of preoperative distress in toddlers and preschoolers?, and 3) What do anesthesia providers recommend as best practices to manage preoperative distress in toddlers and preschoolers?

This final chapter includes a discussion about this qualitative study findings, strengths, limitations, and future implications in the areas of education, practice, and research.

Discussion of Findings

The experienced anesthesia providers who participated in this study provided detailed information about their practices, during the in-depth interviews, demonstrating a great deal of knowledge about management of preoperative distress in children. The information collected offered consistent patterns of information which were congruent with evidence found in the literature, and also provided a substantive amount of descriptive qualitative information about the anesthesia providers' clinical routines, not found in other publications. All the participants felt very confident in the use of pharmacological, and non- pharmacological interventions to control distress in young children (Kain et al., 2000; Kain et al.,2006; Kain et al., 2007; Kain et al., 2001; Finley et al.,2006; Vagnoli et al.,2005). The participants in the study communicated through their narratives the important role parents play in controlling preoperative distress in young

children. Parents' behaviors and their effect on children were addressed by the anesthesia providers in almost all of the subthemes, and categories which emerged from the data (Akinci et al., 2008; Arai et al., 2007; Kain et al., 2004; Voepel-Lewis et al., 2000; Varughese et al., 2008; Wheatcroft & Cresswell 2007).

A good amount of participants interviewed did not show evidence of having full understanding about published postoperative psychological and clinical negative outcomes experienced by children, potential side effects of Midazolam on learning and memory (Bartels, Althoff, & Boomsma, 2009), and availability of less traditional non-pharmacological based interventions which they were described in prior controlled randomized studies (Akinci et al., 2008; Calipel, Lucaspolomeni, Wodey, & Ecoffey, 2005; Kain et al., 2001; Przybylo, Tarbell, & Stevenson, 2005). This situation could be related to the fact that most of the anesthesia providers interviewed in the study practice in a hospital which provides surgical services to a variety of surgical services, in an environment not exclusive to pediatric surgical patients. In addition, most of the anesthesia providers verbalized their education in their field of expertise was pharmacologically, physiologically, and procedurally driven, placing very small emphasis on the psychological and developmental needs of children (AGME, 2007; COA, 2015; Rosenbaum, Kain, Larsson, Lonnqvist, & Wolf, 2009). Anesthesia providers who were certified in the subspecialty of pediatric anesthesiology were found to have added knowledge in the subject of study because their preparation for their pediatric anesthesia certification board provided additional education on the subject of children and parents preoperative anxiety (Peterson, Carek, Holmboe, Puffer, Warm, & Phillips, 2014).

The five themes identified in this dissertation: 1) *Non- pharmacological Interventions Used by Anesthesia Providers*, 2) *Pharmacological Interventions Used by Anesthesia Providers* , 3) *Anesthesia Providers' Perceptions of Preoperative Distress*, 4) *Anesthesia Providers best Practices and Recommendations*, 5) *Anesthesia Providers Reactions' to Parents and Children in Children* provided a substantive amount of information about the most important factors influencing preoperative distress in children (Kain & Caldwell- Andrews, 2005; Li& Lam2003). It was noted during the analysis some of the categories and subcategories emerging from each of the themes and subthemes were closely related, and impacted other categories and subcategories of information found in other themes. This dynamic process of having similar data in multiple categories of information added complexity to the analysis of the data, while providing evidence of the relationship existing between all the themes, subthemes, and categories explored in this study. As an example, *parents* became a subtheme in each of the themes presented in this study. Another example, *bonding with the child* and *distraction* were two different subthemes very closely related under the *non-pharmacological interventions used by anesthesia providers* core theme.

Data which derived from each of these subthemes or categories were very similar in nature, providing information which could be allocated to either one of those categories. The anesthesia providers provided examples of distraction techniques which were commonly used as means to bond with children. In other cases, the anesthesia providers provided information in which bonding with the child was used to distract children. Three subthemes emerged from *Non - Pharmacological Interventions Used by Anesthesia Providers* core theme: *bonding with the child*, *observational skills*, and

parental presence. These subthemes focused primarily of the interactions existing between: anesthesia providers- children, anesthesia providers - parents, anesthesia providers- family, and children- parents. These findings provide great insight regarding the important role the interactions play in the management of the preoperative distress in children.

Bonding with the child is another subtheme which described the ongoing efforts of the anesthesia providers to create a connection with the child to build rapport to perform their anesthetic functions. The anesthesia providers utilized very distinct verbal and nonverbal means of communications to engage the child. While the anesthesia providers primarily engage in procedural talk with adult patients or parents, communication with children is different. The anesthesia providers communicate with children in a maternal or paternalistic fashion (Dutt-Gupta, Bowen, & Cyna, 2007). Participants highlighted the importance of the language to avoid negative emotional content with children. For example, words which address pain, incision, wound, procedures, etc. should be carefully discussed with the children and their parents in order to decrease children's fear. This approach in communication is extremely important in the context of children who fall under the ages of 1-6 (Dutt- Gupta et al., 2007; Hockenberry & Wilson, 2007; Salmela et al., 2010). While toddlers rely on parents' reactions and emotional cues for interpretation of medical terminology and explanations, preschoolers make literal interpretations of terminology commonly used in the perioperative environment. As an example telling a child "you are going to sleep now" may not be understood as the process of receiving a general anesthetic but rather as a "forceful nap" intended to exert control over them and separate them from parents (Cyna

et al.,2009). The anesthesia providers also mentioned the use of short and simple sentences and child language, as an effective methodology to communicate with children (Mc Laren Chorney et al.,2009). Preschoolers are particularly very responsive to having choices within reason. As anesthesia providers described their methods of communication, they provided the children with choices or options which resulted in desired behaviors. As an example, giving a child the option to hold the anesthetic mask themselves or have the anesthesia provider do it for the child increases the child's sense of control (McLaren & Kain, 2008).

The anesthesia providers also described the importance of using empathy to communicate with parents and children (Cyna et al., 2009). The ability to demonstrate empathy towards children and parents is one of the most important personal strengths anesthesia providers must have to communicate with children and parents. Adult's emotion driven behaviors such as reassurance, empathy, and empathetic touch have a positive effect on children's distress (McLaren Chorney et al., 2009).

In addition, the anesthesia providers described use of humor and playful talk as types of communication's styles which were well received by young children when "breaking the ice" and child cooperation was needed. When anesthesia providers engage in language which provides reinterpretation of medical terminology in a non- threatening and fun manner, children demonstrate better coping ability and decreased level of distress (Cyna et al., 2009; McLaren Chorney et al., 2009). The participants described the use of humor, singing, and use of animal sounds as effective communication tools when interacting with children.

The description of non- verbal styles of communication with children in the perioperative context is an area not well document in the literature. The anesthesia providers talked about how they used touching holding, and play to interact with the children (McLaren Chorney et al., 2009; (Himes, Munyer & Henly,2003; Aron et al., 2007; Johnson, 2012; Li et al.,2007). Many of the anesthesia providers described how gentle touch, keeping the child warm, or holding a child in the way parents do helped children feel reassured and safe in a foreign environment (Dijkstra et al, 2006; McLaren Chorney et al., 2009; Messeri et al, 2004; Voepel –Lewis et al.,2000). Some of the anesthesia providers also used of playful facial expressions in the same way children do, to seek bonding with the children. Sticking the tongue out, making silly faces, and winking an eye were typical behaviors described by the anesthesia providers.

Observational skills sub-theme addressed the importance of the anesthesia providers' to quickly decode the family dynamics between the parent and the child when they meet the family for first time in the preoperative holding area. The anesthesia providers explained they observe the level of anxiety and or distress of the children and the parents while quickly analyzing the existing interactions between them (McLaren Chorney et al.,2009). It was during this time that the anesthesia providers were able to assess the anxiety level of the parents and also made the decision to bring or not the parent inside the operating room for induction of anesthesia. Parents who demonstrated to be anxious were not invited to bring the child inside the operating room and participate in the child's induction of general anesthesia, because these parents were unable to cope with the surgical experience themselves (Kain et al., 1996). This inability to cope with

the surgical experience did not help the children during time of distress (Voepel -Lewis et al., 2000; Wheatcroft & Cresswel, 2007).

The anesthesia providers provided examples of positive and negative behaviors of parents in the holding area as indicators of parents' readiness or willingness to help the child (Arai et al., 2008). The anesthesia providers described pacing, crying, asking too many questions, or detachment as negative parents' behaviors. Positive examples of parents' behaviors included, showing affection to the child, rocking them, and talking to them in a soothing tone. No qualitative descriptive studies were found in the literature to support the observations made by the anesthesia providers in this study (Arai et al., 2008; Messeri et al., 2004). Observations of parent- child interactions assist the anesthesia providers in obtaining important information about the influential effect of parents' behaviors and familiar routines on reducing children distress in the preoperative setting. This specific area of the study is innovative in providing information about how the participants in the study used their observational skills to reduce child preoperative distress. Some of the behaviors and routines learned from parents included empathetic touch, singing lullabies, talking to them softly, and holding the child in the same way parents do.

The anesthesia providers observed the appropriateness of the children's environment to ensure the children were safe under all circumstances. They also described themselves as taking the role of "mother", "father", and/or "protector" of their patients by ensuring they provided adequate anesthetic care, and a comfortable environment free of danger and stress (Cyna et al., 2009). The anesthesia providers were continuously scanning the child's environment with the specific aim to protect and

comfort the child. As an example, the participants promoted a soothing environment for the child, requested to warm up the operating room suite for the child, and kept the rest of the surgical team focused on the child (Dijkstra, 2006; Kain et al., 2001). In other scenarios, the anesthesia providers restrained the child when combative behavior jeopardized the patient's safety (Kain et al., 2000). Similarly, the anesthesia providers who participated in this study provided evidence of protective behaviors used to support the wellbeing of their patients (Cyna et al., 2009).

Parental Presence and the role parents play in supporting their children during the preoperative period and induction of anesthesia was a dominant theme throughout the research process. Most of the subthemes, categories, and subcategories of information regarding the children also included information about the parents. Data in this sub-theme merged with data findings pertaining to the sub- themes: *observational skills, helpful and unhelpful parents' behaviors, level of parent involvement, and parents serving as a source of information and child experts.*

The anesthesia providers agreed mothers more than fathers were willing to soothe the child in the preoperative area and support the child during induction of anesthesia. This finding is not congruent with the studies conducted by Arai et al. (2008), and Messeri et al. (2004), where mothers were found more effective than fathers in supporting children during time of distress. Furthermore, participants in this study stated they have observed changes in traditional roles of mothers and fathers, and found higher levels of fathers' involvement during children's illness and hospitalization.

An important research finding to highlight is related to the children's ability to choose the best parent to support them during times of distress. Children who are

typically more attached to the more nurturing parent, under stressful situations they select the parent who is “able to do the job,” or possess better coping skills.

The anesthesia providers also characterized the mother- child bond during stressful situations, and further validated the presence of high levels of children’s dependency on the mother to obtain reassurance and safety, especially during the toddler years (Mahler, Pine & Bergman, 2000). Although preschoolers are still very dependent on parents for support, security, and reassurance they typically have completed the separation – individualization process and are more willing to socialize with medical personnel (Hockenberry& Wilson, 2007). The anesthesia providers also verbalized children with chronic illnesses were more dependent on mothers and mothers were more involved with their children.

A salient theme which emerged from the data provided evidence many of the children who suffered from chronic illnesses, and were hospitalized at Jackson Memorial Hospital lacked the parental support typically seen in other children. The anesthesia providers provided multiple examples of situations in which parents were uninvolved or were not present for the children during difficult times. As an example the participants in the study described situations in which parents did not respond to phone calls from healthcare workers, or did not come to the hospital when the child had a scheduled procedure. These specific group of children experienced a great deal of isolation and depended on the support of anesthesia providers and other healthcare personnel to meet their emotional needs. It was also stated in the descriptions of the anesthesia providers, the hospital personnel and volunteers were usually more involved with these children since their frequent visits to the hospital promoted stronger adult- child bonds. This last

finding is similar to the results reported by other researchers. In the absence of parents, children rely on healthcare providers to help them cope with fear and separation from parents (Favara- Sacco, Smirne, Schilirio, & Di Cataldo, 2001; Jan, 2007). Although the anesthesia providers were consciously building emotional boundaries with the children, attachment to these children sometimes was unavoidable.

The participants in the study also viewed the parents as an important source in providing medical information about their children and the children's routines. In some scenarios the parents were perceived as an important bridge between the child and the anesthesia provider by guiding the anesthesia provider on how to approach the child. As an example parents assist the anesthesia provider in supporting their child through the various preliminary steps leading to the induction of general anesthesia.

Parents were helpful to anesthesia providers when they assisted their children to comply with the anesthesia providers' requests, remained calm, asked directed questions, and supported the child by asking what they could do for the child. Parents who were not helpful in this process were parents who intimidated the child, remained distanced from the child, or scared the child by showing displays of excessive reassurance, yelling, crying, or passing out. Some of these behaviors may exemplify descriptively what anxious parents look like in the perioperative environment (Voepel- Lewis et al., 2000; Wheatcroft & Cresswell, 2007).

Two sub-themes emerged from *Pharmacological Interventions Used by Anesthesia Providers*: 1) *advantages*, and 2) *disadvantages* of using anxiolytics/ sedatives such as Midazolam (Versed). The anesthesia providers described the use of Midazolam (Versed) as the primary agent used to control anxiety in the perioperative

setting. The second most widely used agent to control distress in children was Ketalar (Ketamine) (McCann & Kain, 2001), and in some situations a combination of both agents. The anesthesia providers described Midazolam as an effective and consistent method to reduce preoperative distress in children when all other non-pharmacological interventions failed (Wright et al., 2007). The anesthesia providers also showed preference for pharmacological management of distress in young children as reported in prior studies. These studies suggest administration of Midazolam is a common choice among anesthesiologists in most surgical settings across the USA (Rosebaum et al., 2009; Kain et al., 2004; Kain et al., 2007), while clinicians outside the USA use other agents such as clonidine to control distress in children (Rosebaum et al., 2009). Only four of the 20 participants in the study mentioned having experience using other agents such as Methohexital (Brevital), Dexmedetomidine (Precedex), and Oral Transmucosal Fentanyl Citrate (OTFC), most commonly referred as Fentanyl “lollipop”.

In regards to Midazolam, whenever the anesthesia providers were asked why they depended on the use of Midazolam to control children’s anxiety, they replied “because it works”. The participants listed respiratory depression, operating room delays, paradoxical reactions, and bad taste as the primary draw backs for using this agent (Finley et al., 2006; Kain et al., 2007; Kain et al., 2006; Von Ungern-Stenberg et al., 2009). Two important conditions were described for this medication to work appropriately. Midazolam needs to be administered to the child with enough time to secure its amnestic effects, and it should be used in the appropriate environmental context (Kain et al., 2000; Rosebaum et al., 2009). Interestingly, the anesthesia providers did not provide information about the less known side effects caused by this pharmacological agent:

motor imbalance, gastrointestinal discomfort, paradoxical agitation, and restlessness which can last up to 24 hours after having a procedure (Malviya et al., 2005). Nor, the anesthesia providers addressed some of the most recent findings in the literature linking administration of Midazolam before three years of age to the incidence of learning disabilities in children (Bartels, Althoff, &Boomsma, 2009). No descriptions were obtained regarding the possible neurotoxic effects of this agent on children's synaptogenic activity and subsequent sequel on learning and memory (Mellon, Simone, & Rapaport, 2007).

The advantages of using Midazolam as described by the anesthesia providers included: *increased child cooperation* (Kain et al., 2000), *helps anesthesia providers to expedite management of children's distress in a rushed environment* (Rosembaum et al, 2009), *it is good for children's distress* (Rosembaum et al, 2009; Wright et al, 2007), *it is good for young children* (Wright et al.,2007), *it is necessary to administer to chronic children*, and *it is used by anesthesia providers who are not comfortable with children*. Although most of these findings were supported in the literature, for purposes of this dissertation those categories of information which provided new data are discussed in this chapter.

The participants in this study reported a different perspective on the utilization of Midazolam as a tool in facilitating operating room efficiency. Prior studies suggest administration of preoperative anxiolytics/sedatives such as Midazolam promote operating room delays while waiting for this agent to work, and also delays in hospital discharge times (Kain et al., 2000). The anesthesia providers in this study supported use of premedication as a tool which supports operating room efficiency because

premedication allowed them to focus on other important clinical tasks and move faster. These professionals also reported the use of non-pharmacological means alone to manage distress in children were more time consuming and caused more delays in the operating room. Most of the anesthesia providers explained this was a pressing factor in their daily practice since they felt pressured to move quickly in the surgical environment. Although some researchers propose there are not delays associated to administration of Midazolam (Viitanen et al., 1999), a good number of anesthesia providers chose to avoid administration of Midazolam to children to prevent surgical delays and recovery discharge times (Kain et al., 2006). This is an important area of research which should be addressed in future studies.

The second important contribution which emerged from the data involved the use of Midazolam to support chronic children. According to the participants in the study, these children were more familiarized with the surgical environment, developing an aversion for procedures and clinical routines which they were exposed to on routine basis. These children required pharmacological interventions more frequently than “first time” healthy children. These chronic children were typically so distressed before the possibility of having a repeat procedure that in many instances they did not fear the administration of Midazolam. Chronic children understood this medication helped them cope with their fears. Finally, the anesthesia providers found the use of Midazolam advantageous in the management of preoperative distress in children when the anesthesia providers did not feel comfortable around young children, and in those cases where clinicians did not tolerate to watch a child in distress. This is an example of ways in

which the anesthesia providers' personal emotions and perceptions influence the decision to use premedication in children during the preoperative period.

Anesthesia Providers Perceptions of Preoperative Distress in Children

Five sub- themes emerged from the core theme Anesthesia Providers' Perceptions of Preoperative Distress in Children: (1) difficult separation from parents, (2) do not understand what is going on, (3) parents make things worse for children, and (4) distrust and fear strangers.

The anesthesia providers described separation of parents and fear of the unknown as the two primary causes for children distress in this age group. These findings are consistent with the established cognitive expectations for children who are 1- 6 years of age (Johnson, 2012; Mahler et al., 2000). Toddlers are highly dependent on ritualistic behaviors and depend on parents for comfort and reassurance; thus, they struggle with separation from parents and adaptability to strangers (Hockenberry& Wilson, 2007; Stafford Ford, 2007). Toddlers also tussle with impulsivity and the ability to regulate their own emotions (Erickson, 1950). The struggle to separate from parents together with their inability to adequately cope in a foreign environment makes children of this age group particularly challenging to anesthesia providers. While the anesthesia providers described the preschoolers as more likely to socialize with the anesthesia providers and other medical personnel, they found the preoperative management of toddlers was more complex. Children who were 2-4 years old had most difficulty in separating from parents, and typically required the use of premedication to decrease their anxiety. The anesthesia providers also described themselves moving faster once the child was in the operating room for induction of anesthesia, because once the toddler was separated from the parents

and found themselves in a strange environment they were more likely to lose control (Kain et al., 1996).

Participants also described the preschoolers as having fears of separating from parents; however, they were more skilled at developing temporary relationships with them and engage in playful behavior and distraction. This subgroup of children was more likely to cooperate in the process of induction of anesthesia; however, they were more fearful of being harmed. The participants described once they were in the operating room with the child they committed to using continuous communication and distraction techniques to minimize children's fears. Childlike communication was used to introduce the children to equipment, monitors, and other medical procedures in order to distract the child and obtain child's cooperation. Preschoolers were found to respond well to the use of empathetic communication, reassurance, and playful behaviors (Cyna et al., 2009; Salmela et al, 2010; Windich- Biermeier et al., 2007)

Although all the anesthesia providers described toddlers had more limitations in understanding what was going on around them, they still were able to recognize uncommon routines and unfamiliar environments "Children know what is going on." Children in this age group were very suspicious of medical personnel who gravitated around them and dressed in hospital attire. Children who are toddlers and preschoolers can make simple causal inferences to construct an accurate relationship between events (Sobel and Kirkham, 2006). According to the anesthesia providers, toddlers and preschoolers are able to recall past experiences with medical personnel outside the hospital environment and bring those experiences to the hospital setting. Having past

negative experiences with medical personnel predisposes the children to become afraid of nurses and physicians in the hospital setting.

The participants in this study highlighted the differences between children who came to the operating room for first time and those children who were chronically ill, also referred as “frequent flyers”. These children were more familiarized with medical procedures and showed two different types of reactions to the surgical environment. Some chronic children were very cooperative and engaged with the anesthesia providers, while other chronic children were very distressed because they understood what was going on.

Toddlers and preschoolers need to be encouraged to engage in collaborative or therapeutic play with adults in the hospital environment (Johnson, 2012). Participants explained play is an integral part of children’s development and helps the child to develop the necessary coping strategies to manage distress when confronted with the unknown. For example, playing with the anesthetic mask, playing with toys, or watching a video kept them occupied during the time medical procedures were taking place. Play in the context of the hospital environment allows the child to regain control over their environment by fostering interactions with others in a supportive and unconditional way (Johnson, 2012).

This subtheme “parents make things worse” described again the great impact of parents’ behaviors on their children’s emotions during the preoperative period. All anesthesia providers described difficult parents as those parents who could not control their own emotions, anxiety, and fears in front of their children. According to the anesthesia providers, parents and children establish a symbiotic relationship in which the

parent and the child feed from each other's emotions. Some of the anesthesia providers provided vivid experiences of situations in which parents lose control during the time period leading to induction of general anesthesia. Children who watch their parents cry, raise their voice, or get upset in front of them became more anxious and distressed. Parents who make things worse for their children become a challenge to anesthesia providers, since the negative behaviors displayed by these set of parents tend to be disruptive to their clinical routines, jeopardizing the smoothness of the interactions with the child. This sub-theme's findings provided a great deal of information about the type of negative behaviors parent displayed, making things worse for the child.

Anesthesia Providers Best Practices and Recommendations is one of the core themes which emerged from this study and it is represented by three subthemes: (1) Education, (2) Administration, (3) Support, and (4) Parents. Due to the extensive amount of data provided by this theme and associated subthemes, only areas of knowledge which are less prominent or not existing in the literature are discussed in this chapter.

The *Education* subtheme provided information about how anesthesia providers prepare to manage the psychological and developmental needs of young children undergoing surgical procedures. Both groups of anesthesia providers, anesthesiologists and certified registered nurse anesthetists felt their clinical education did not offer extensive education in the areas of child development, psychological needs, and non-pharmacological interventions. Only those anesthesia providers who were board certified in pediatric anesthesiology felt they had an advantage over the rest of the anesthesia providers because they had spent time reviewing this subject while they were preparing for their certification exam. This perceived deficiency of knowledge in this topic area was

also described by other group of researchers who felt anesthesiology residents do not receive enough information about the psychological management of young children in the operating room (Rosebaum et al., 2009). The participants expressed the ability to successfully manage the psychological needs of children grew with added experience, and exposure to mentors who were skilled in pediatric anesthesia. The anesthesia providers who were certified registered nurse anesthetists described their education to be primarily focused on pharmacological interventions, physiology, and pathophysiology with minimal emphasis of child development concepts. Most of the anesthesia providers who were certified registered nurse anesthetists explained they received child development content while they were completing their undergraduate education, but additional education was needed at the graduate level. All anesthesia providers mentioned psychological management of young children is something which cannot be taught. According to the participants, individuals who were successful in managing young children were naturally apt to do the job; therefore, these individuals were perceived as either “having it [in them] or not “. Anesthesia providers’ solutions to remediate deficiencies in education included: creating instructional computer based modules to teach clinicians how to manage preoperative distress in young children, showing educational videos, pairing learners with strong clinicians who are comfortable managing young children, and adding child development content and psychological management of children to both medical and nursing curriculum.

Administration support recommendations included providing conditions for practice which promote best practices for the clinical managing young children. Some of the suggestions provided by the clinicians focused primarily in fostering a child friendly

environment, quiet, and separate from adults (Kain et al., 2001; Schwartz, Albino, and Tedesco, 1983; Wright et al., 2007).

The anesthesia providers described some of the physical challenges encountered when managing the anesthetic care of children. Descriptions of the physical layout of the operating room, and the environment where they practiced provided evidence of: limited knowledge of available clinical resources to them, and decreased access to pediatric clinical resources commonly typically found pediatric hospitals (Brewer, Gleditsch, Syblick, Tietiens, & Vacik, 2006). Limitation of resources made their anesthetic care more challenging at times.

Despite their perceived lack of resources, the anesthesia providers demonstrated to be very resourceful and committed to provide compassionate care to the hospitalized children. All of anesthesia providers rated time with their patients and family- centered empathetic care far more important than the quality of the physical hospital environment (Brewer et al, 2006; Olsson & Lagerkranser, 2000). Although the pediatric environment and current hospital resources did not affect the quality of anesthetic care, having a child friendly environment help clinicians to provide better care (Care, 2006).

The anesthesia providers described the ideal environment for children as a place where children and parents have their own private space, time to adjust to the new environment, and care by specialized pediatric teams. When reflecting on the ideal perioperative environment for children they described the utilization of music, play, mascots, and children' characters as an ideal environment for children (Lambert, Coad, Hicks, Glacken, 2014). As best described by one of the anesthesia providers "*we need to*

create an environment that looks like a big birthday party without the drinks or the birthday cake.”

The participants also supported the utilization of Volunteer Services, and Child Life specialists to meet the needs of the pediatric surgical patients. According to the anesthesia providers, consistent use of child life specialists is helpful in providing the children with distraction and support for their psychological needs.

The participants in the study acknowledged the importance of using specialized teams of anesthesia providers who felt competent and comfortable managing the anesthetic needs of children. As a drawback they stated creation of specialized pediatric teams restrict the anesthesia personnel's scope of practice. Typically, the anesthesia providers alluded to the great skill pediatric anesthesiologists and pediatric surgical nurses possess. Consistent use of specialized personnel was viewed as key factors in securing the smoothness of the surgical process and optimization of clinical outcomes. Although use of specialized teams was recognized as the best model for practice, it conflicted with the need to maintain the skills of the anesthesia providers who commonly administer anesthesia services to a varied pool of surgical patients.

The participants in the study also addressed the importance of maintaining adequately prepared personnel to meet the anesthetic needs of their pediatric patients. The anesthesia providers dispensed new information about the important characteristics anesthesia providers must have to meet the clinical needs of their pediatric patients. The descriptions of the ideal anesthesia provider included key personal attributes, and highly specialized clinical skills (Merlo & Matveevskii, 2009). Personal characteristics attributed to successful pediatric anesthesia providers included: ability to establish

rapport with children, ability to demonstrate empathy towards patients and their parents, ability to adapt quickly, calm and relaxed demeanor, ability to have patience, and playfulness. The current literature provides very broad descriptions about the type of anesthesia providers' behaviors which are helpful to children; however, it is not clear which types of anesthesia providers "personal attributes" are most important in the successful management of preoperative distress in young children (Cyna et al., 2009; Dutt-Gupta et al., 2007; Kopp & Schafer, 2000). The participants also described the ideal clinical skills which were critical to this group of professionals: critical thinking ability, quick decision making, meticulous attention to detail, and good airway management skills (Merlo & Matveevskii, 2009). This information becomes relevant to clinicians and administrators who need to select highly skilled personnel to provide anesthesia services to pediatric patients. All of the anesthesia providers agreed, individuals who did not like children, did not feel comfortable with children, or refused to take care children should not be providing pediatric anesthesia services (Rathi Hernandez & Purnima, 2007)

A new area emerging from the anesthesia providers' practice environment relates to the anesthesia providers' ability to recover from difficult clinical scenarios or situations which lead to negative outcomes or loss of life. All the anesthesia providers felt institutional, administrative, and peer lack of empathy when facing difficult clinical situations. Restraining and controlling emotions of grief or sadness was a common experience described by the participants. Anesthesia practice requires discipline, psychological fitness, and self-control and it was always expected from patients, administrators, and peers. The anesthesia providers also reported, no outlet for a debriefing process was formally available to them. Most of the anesthesia providers

relied on friends, family, exercise, pets, and other coping mechanisms to overcome grief. All anesthesia providers agreed non-judgmental departmental peer debriefing process, and time to recover from bad outcomes was of most importance to maintain psychological fitness and prevent fatigue and burnout. This finding is supported by prior researchers who described the devastating effects or “hidden damage” which occurs after a catastrophic event (Iacono, 2002). Current practices support the use crisis intervention debriefing processes led by a crisis management expert who is qualified to help clinicians recognize healthy and unhealthy coping skills, and to help the affected individuals who may require ongoing help (Kessler, Cheng & Mullan, 2015).

Parents, the anesthesia providers made recommendations to allow parents to become active participants in their children’s hospitalization and anesthetic care (Rathi Hernandez & Purnima, 2007). Most parents experience distress and fear, just like children do; therefore, they need preparation and support during the perioperative continuum (Campbell et al., 2005). While first time parents require more preparation for the surgical environment, parents of chronically ill children need ongoing support (George, Vickers, Wilkes, & Barton, 2006). In many cases parents suffered and grieved the absence of their child’s health, and engaged in negative behaviors which were not helpful to the child (Kain, 1998). As an example the anesthesia providers described parental detachment or parental over involvement, as frequent negative behaviors occurring when children were chronically or terminally ill (Bowlby, 1961). Furthermore, the anesthesia providers differentiated parents who had a stable home environment, adequate economic resources, and education, versus parents who had a different situation. These parents were described as younger in age, with low socioeconomic status, low

educational levels, and very unstable home environments. The participants recommended the need for family centered education and preparation programs appropriate for the context of practice (Rathi Hernandez & Purnima, 2007).

Preparing first time parents and teaching them what to do when they are around their children is an essential intervention to decrease anxiety and distress for both parents and children. As best described by an anesthesia provider, the anesthesia provider- parent relationship is misunderstood. Most parents do not understand the how or what anesthesia providers do (Brewer et al, 2006; Hatava et al., 2000, Kain et al., 2007, Li et al., 2007). Just like children, parents get intimidated by the fast paced environment, and wide variety of healthcare personnel who approach them in the preoperative holding area. Many times parents feel subordinate to healthcare professionals, not understanding their value on reducing their child's distress. Parents who are prepared know how to help their child, ask appropriate questions, and are involved with the child in the specific manner which only a parent can do (McLaren Chorney et al., 2009). Most of the anesthesia providers reported formal family- centered educational programs were of significant value to parents and children (Kain et al., 2007). The participants explained the rushed surgical environment, prevent them from spending enough time in the preparation of parents and children. The value of family centered preparatory programs have been supported by multiple researchers (Brewer et al., 2006; Hatava et al., 2001; Kain et al., 2007; Li et al., 2007).

Anesthesia Providers Reactions to Parents and Children is an unexpected core theme which emerged from this study, and is well represented by three subthemes: *social disparities of children, child Health Status, bonding with the child and family*. This core

theme was an unexpected finding for this dissertation and provided strong evidence for the need to conduct more research in the area of preoperative distress in children. Most of the data found in this core theme revealed information about the context in which anesthesia providers practice, the different types of children they care for on routine basis, and the types of relationships they form with the children at Jackson Memorial Hospital. This core theme also revealed information about anesthesia providers' great deal of connection and compassion towards the young children they manage. A discussion of the most relevant categories of data found in this unexpected them will follow.

Social Disparities of Children and specifically *parents' lack of resources* were described the socioeconomic disadvantages which prevent parents from becoming active participants in the medical care of their children (George et al., 2007). According to the anesthesia providers, this population of parents faced significant personal challenges which included lack of transportation, lack of support from family members or employers, dysfunctional family dynamics, and limited understanding about the complexities of their children's disease process (George et al., 2007) Furthermore, the participants' also explained absence of parents was related to other factors: exhaustion, parents' inability to cope, and simply lack of interest.

A good amount of children lacked parental presence at the bedside to support them during medical and surgical procedures. As a consequence of these special scenarios the anesthesia providers, staff, and healthcare workers provided the support these children needed. This active involvement of healthcare providers to replace the support of parents has been documented in the literature (Cataldo, 2001; Jan, 2007).

Some children relied on familiar strangers to adopt the role of surrogate parents or grandparents. As an example, an anesthesia provider told the story of a chronically ill child who established a strong bond with a senior hospital volunteer, and started to address him as “grandpa”.

Child Health Status and specifically sick child “frequent flyer” provided important categorical information. The anesthesia providers explained the population of children at Jackson Memorial Hospital were different than children typically found in other community pediatric hospitals. Many of the children who received anesthesia services at this large teaching institution were sick children, and were commonly addressed as “frequent flyers”, because they experienced repeated surgical/medical procedures. The frequent flyers possess special characteristics; therefore, they are usually treated differently from a psychological and relational point of view (George et al., 2007; Meleski, 2002). These children have a deeper level of understanding about their medical needs, and in many instances the anesthesia providers talk to them as if they were talking to an older child. In some scenarios these children prefer to become active participants in their care, and become more aware about what to expect from the surgical environment. Some of sick children are complex or difficult from the clinical management point of view, creating special clinical challenges for clinicians. The sick child (frequent flyer), who in many instances has a very short life, produces a great deal of undisclosed reactions such as: sadness, stress, insomnia, concern, and self-reflection (Soto& Rosen, 2003). As the anesthesia providers related stories about these children they displayed signs of melancholy when remembering the stories of these special children. The need for

self-care, self-protection, and delineation of emotional boundaries was very important to them in order to be able to continue taking care of children (Soto & Rosen, 2003).

Bonding with the Child and the Family, supplied information about the type of special relationship or bonding which exists between the anesthesia providers and their chronic patients. For purposes of this dissertation the category which provided most information is discussed in this chapter.

Parent and chronic child seeks connection with the anesthesia provider, category describes the special relationship between the anesthesia providers, parents and children. These relationships are different as compared to the relationships which exists between anesthesia providers and families in other clinical settings. Many of the parents who have repeated exposure to the same anesthesia providers develop lasting relationships. In some instances, anesthesia providers and families stay in touch after the child leaves the hospital or the child dies. This connection between anesthesia providers with the children and their families do not represent the true nature of the existing relationship between anesthesia providers and other types of patients. Most anesthesia providers described their relationship and interactions with their patients short and transient, decreasing the possibility of bonding with patients as it occurs in other clinical specialties. All of the subject areas found under this theme convey new information which need to be explored in future studies

Study Strengths

Management of preoperative distress by anesthesia providers and preschoolers is the first qualitative descriptive study documenting the clinical activities of anesthesia providers who provide anesthetic care to children. This study provided rich descriptive

data about the what, when, and how this phenomenon of study occurs. This qualitative descriptive study provided a substantive amount of qualitative data to conduct future qualitative and quantitative studies.

Study Limitations

This study provided qualitative descriptive data about the management of preoperative distress of young children in a very specific context or research environment. All anesthesia providers who volunteered in this study were all seasoned anesthesiologists and certified registered nurse anesthetists who worked as a team in providing care to children; however, a higher number of certified registered nurse anesthetists volunteered to participate in this study. A possible limitation for this study is the overrepresentation of one group of anesthesia providers versus another. Future research projects should address anesthesiologists underrepresentation in this study by increasing the number of this subset of anesthesia providers

Implications for Education

The results of this qualitative study supports the need to better prepare anesthesiologists and registered nurse anesthetists in the areas of child development and psychological management of children during the preoperative phase. Although the anesthesia providers were very familiar with the phenomenon of study, receiving additional education would be beneficial to fully address the preoperative needs of children who are 1- 6 years of age. As described by the anesthesia providers during the interviews, anesthesiologists and certified registered nurse anesthetists primarily learned from mentors and preceptors to manage all the clinical needs of children in the hospital setting. Educators and clinical leadership should consider adding relevant clinical experiences

and didactic information about management of preoperative distress in children in the medical and nursing curriculum, and also as part of professional continuing education.

Teaching anesthesia providers how to communicate and relate to parents and children from a family centered perspective does not only benefit the clinicians, it also helps children and their families to feel more confident in their healthcare providers. Great opportunities exist in creating venues to improve communication between anesthesia providers and patients, and to educate parents about the surgical experience exists through the implementation of multidisciplinary, multimodal preparation programs.

Other interventions suggested by clinicians included the development of short films, videos, and learning modules for parents and anesthesia providers who wish to be more effective in their interactions with children in the perioperative setting. Lastly, children may also benefit from early educational interventions to better prepare them for the surgical experience. Children in the toddler and preschool years are able to process basic concepts of the perioperative process, if information is presented to them in a visual, playful, non-threatening fashion.

Implications for Practice

This study impacted the area of practice the most by providing clear evidence of best practices to manage preoperative distress in children. The data derived from this study also showcased the opinions of seasoned anesthesia providers who are in a position to make recommendations relevant to pediatric practice. Improvements for practice were identified in three different areas: 1) hospital environment for parents and children, 2) pediatric anesthesia practice model, family centered preparation programs, and debriefing meetings for anesthesia providers.

Parents undergo a great deal of stress when exposed to the surgical environment. An effort to meet the needs of the children and their parents must be a priority despite the ongoing pressures to maintain efficiency in the operating room environment. Utilization of medical or nursing personnel to screen the pharmacological and non-pharmacological needs of children needs to occur very early, immediately after the patient arrives to the holding area. As supported by the findings in this study and other published studies, administration of anxiolytics must be implemented with enough time so children can receive the full amnestic benefit of these agents.

Non – pharmacological Interventions, such as consistent support of Child Life specialists in the perioperative settings was found to be helpful for children in reducing their distress. Other researchers have found interactive play to be most beneficial to children between the ages of 1-6. The availability of additional hospital personnel to support the emotional needs of the children assists the healthcare providers to improve their clinical efficiency and focus in other important clinical tasks.

Creating more flexible practices in the scheduling system of pediatric cases may alleviate the time constraint and pressure experienced by anesthesia providers providing care to young children. There is a need to initiate a cultural change in the pediatric surgical environment, to allow anesthesia providers to spend additional time preparing their patients. As suggested by the literature non- pharmacological interventions such as the implementation of multimodal Preoperative Preparatory Programs, were found very helpful for parents and children. These specialized programs help parents and children to become more familiarized with the hospital and surgical environment. Preparation

Programs also provide parents with the opportunity to ask questions before hand, and prepare themselves psychologically for their child's surgical experience.

Providing centralized services for the pediatric surgical patient in a child- like, quiet environment, away from adult patients helps diminish stress and fear for both parents and children. The introduction of a child friendly environment where the developmental needs of children are met increases parents and children satisfaction while helping the anesthesia providers in the management of preoperative distress in children.

Although the formation of a consistent pediatric anesthesia team inclusive of pediatric anesthesiologists, pediatric surgical nurses, and pediatric certified registered nurse anesthetists is an ideal model of practice, utilization of a selective group of anesthesia providers who are skilled taking care of children and are assigned to pediatric anesthesia cases more often offers an alternative option. Anesthesia providers who do not have enough pediatric anesthesia experience should be adequately supported and trained by strong clinicians and mentors who can provide adequate learning experiences. This research also provided evidence not all anesthesia providers are a good fit to care for children, and administrative clinical personnel must take in account this consideration in their ongoing effort to maintain high levels of patient and personnel satisfaction.

Anesthesia providers are faced with a growing stressful practice environment which requires the management of high acuity and vulnerable populations of patients. The added pressure to maintain operating room efficiency provokes a great source of stress for this subset of professionals. When a crisis management situation occurs, or a negative patient outcome takes place, anesthesia providers lack the professional resources to discuss their feelings, fears, and or grief for patients. This ongoing state of hyper

alertness and stress can be more prominent when managing young children; therefore, when bad outcomes ensue a formal structured debriefing moderated by qualified personnel is important. Other high stress environments' such as emergency medicine utilizes debriefing techniques to support medical personnel affected by a critical incident, and to improve future performance through group reflection and other exercises.

Implications for Research

This study produced an abundant amount of qualitative data, which points to many potential future areas of study. As an example, a promising area of research involves the investigation of how anesthesia providers make decisions about use of non-pharmacological and pharmacological interventions for the control of preoperative distress in children. This information may elucidate the hidden barriers encountered by anesthesia providers when selecting an intervention for the control of preoperative distress in children.

A second area of research needed in future studies involve the search of additional pharmacological and non- pharmacological interventions to decrease the incidence of preoperative distress in young children. Based on the results of this research, most anesthesia providers agreed on a combination of pharmacological and non-pharmacological techniques to address child's preoperative distress. Additional studies may provide information about which specific types of interventions work best for children in a given hospital context.

Although management of the children by the anesthesia providers was the primary focus of this study, interactions between the children and the parents also need to be explored to support some of the parental themes found in this study. Additional research

areas associated with parents include the exploration of parents' perceptions about the hospital environment, the anesthesia providers, and child illness process.

Special research attention should be placed on the unexpected core theme *Reactions of anesthesia providers to parents and children*. This theme is important because it addresses social and healthcare disparities affecting children within the surgical environment.

This study provides rich qualitative information about the phenomenon under study providing the bases to conduct quantitative research in different settings according with the level of complexity of the children that undergo to an anesthesia procedure.

Implications for Policy

Although the findings in this dissertation generated information about practice, opportunities for changes in policy at the hospital level could secure better outcomes for patients, families and anesthesia providers. For example, data obtained from the analysis points out at the importance of implementing an effective family centered care model of practice within the context of perioperative services. Family centered care model for pediatric surgical patients involves understanding the family is the primary source of strength for children, and in cases where children do not have parents to fulfill that function the hospital needs to provide special procedures or services to address the needs of these children.

Facilitating health care access for pediatric patients is another important aspect that should be evaluated by hospitals and other government entities who oversee children in the hospital setting. Surgical delays related to parental absenteeism, lack of resources,

or lack of parents' involvement should also be monitored closely, to ascertain children obtain the best care possible under all circumstances.

Finally, supporting the anesthesia providers' emotional and physical health to help them cope with the demands of a stressful environment where they are at the forefront of most perioperative critical incidents is a must. This information should be of value to hospital administrators, department of anesthesiology chairs, supervisors, and other leadership in the clinical setting who are charged to promote safe environmental policies for employees who work under highly stressful conditions. The anesthesia providers in this study clearly unveiled the ongoing pressure they felt in the process of providing the best care possible to patients. Those anesthesia providers who experienced losses in the operating room described lack of institutional support when facing negative patient outcomes or loss. A Formalized process of debriefing, assignment of forgiving workloads after a critical incident, and administrative / peer support was recommended by the participants in the study.

Chapter Summary

This descriptive qualitative study addressed the following research questions: (1) What non- pharmacological and pharmacological interventions anesthesia providers use to reduce preoperative distress in toddlers and preschoolers? (2) What are the anesthesia providers' descriptions and explanations about the plausible causes of preoperative distress in toddlers and preschoolers? and (3) What do anesthesia providers recommend as best practices to manage preoperative distress in toddlers and preschoolers? The primary investigator found that all five themes which emerged from the data: *Non-Pharmacological Interventions Utilized by Anesthesia Providers, Pharmacological*

Interventions Utilized by Anesthesia Providers, Anesthesia Providers' Perceptions of Preoperative Distress in Children , Anesthesia Providers' Best Practices and Recommendations, and Anesthesia Providers' Reactions to Parents and Children

addressed the research questions in the study, and provided additional data to initiate future research in this topic area. Themes inclusive of parents' characteristics, parents' behaviors, and parents' concerns became a prevalent subtheme in all themes. Anesthesia providers' descriptions of their practice environment, challenges encountered when managing toddlers and preschoolers, and their own reactions to the sick children at Jackson Memorial Hospital were other dominant topics in this dissertation.

This study provided an opportunity to better understand the pharmacological and non-pharmacological factors which impact the management of preoperative distress of toddlers and schoolers, by providing a summary of the specific factors which are relevant to the support of young children who are 1- 6 years of age.

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Appendix A

University of Miami

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Pharmacological and Non- Pharmacological interventions used by anesthesia providers to decrease distress in toddlers and preschoolers.

Anesthesia Provider's Consent

The following information describes the research study in which you are being asked to participate. Please read the information carefully. At the end of this document, you will be asked to sign if you agree to participate in this study.

PURPOSE OF STUDY:

You are being asked to participate in a research study. The purpose of this study is to explore the types of interventions used by anesthesia providers to alleviate distress in young children during the preoperative phase and induction of anesthesia. You are good candidate for the study due to your level of experience as an anesthesia provider, capable of providing anesthesia services to young children.

PROCEDURES:

After signing this consent form you will be asked to participate in a face- face interview with the principal investigator. The interview process for this qualitative research project will last approximately forty-five minutes to an hour. The principal investigator will proceed to ask you several questions to help understand the types and nature of non- pharmacological and pharmacological interventions utilized by you to decrease preoperative anxiety and distress in children. Effective reduction of preoperative distress in children is not only important to parents and children who must endure the surgical experience, but it is also relevant to clinicians who are threatened by the occurrence of potential negative anesthetic outcomes.

A demographic questionnaire will be completed by you before starting the interview process. Information contained in this questionnaire will be kept confidential and secured by the primary investigator. The face- face interview will be audio taped in order to collect as much information as possible in an accurate and detailed manner. During or after the interview some notes will be taken by the principal investigator to capture all aspects of the interview. If for any reason you become uncomfortable with the interview process or the recording of verbal information, the researcher will be able to stop the interview process immediately.

The consenting of participants in this study has been approved and meets the University of Miami IRB and Jackson Health Systems Clinical Trials' Office regulations.

All information shared with the principal investigator will remain confidential and kept secured at the University Miami School of Nursing and Health Studies. If you are interested in obtaining information about the findings of this research project, you will be able to obtain a report after the dissertation process of the principal investigator is completed.

RISKS AND/OR DISCOMFORTS:

We do not anticipate you will experience any personal risk or discomfort from taking part in this study, other than expected normal apprehension that may occur when personal views or other personal information are recorded for research purposes.

BENEFITS:

It is the expectation of the principal investigator that the findings produced by the study may produce evidence of ways in which children can be helped to experience less preoperative distress during the preoperative period and during induction of general anesthesia. Such findings could be of value to all anesthesia providers and other healthcare professionals who are involved in the care of children.

CONFIDENTIALITY:

You will not be identified as a study participant in any reports, or publications of this research. You will be assigned a code number for the study, and all information pertaining to you will not be labeled with your name. Under no circumstances will the researcher be allowed to share or discuss information about you with anyone else other than other research team members and members of the principal investigator's dissertation committee.

The investigator will consider your records confidential to the extent permitted by law. The U.S Department of Health and Human Services (DHHS) may request to review and obtain records such as: research files, and anesthesia providers' audio recordings. Your records may also be reviewed for auditing purposes by authorized University or other agents who will be bound by the same provisions of confidentiality.

All participants' files with documents and audio recordings will be securely saved in a locked filing cabinet that only staff involved in the research project will have access to for a period of 10 years. Audio recordings in storage can only be used for research purposes, and will not be shared with other anesthesia providers or any other non-research related parties.

COSTS:

There are no costs associated to your participation in this study.

COMPENSATION:

All anesthesia providers participating in this study will receive an Au Bon Pan \$10 gift certificate, as a token of appreciation for your participation in the study. No additional compensation will be provided to the participants.

WITHDRAWAL FROM PARTICIPATION:

Participation in this research study is entirely voluntary. You are free to refuse to participate at any time during the study. Your legal and professional rights will not be waived by participating in this research study. The hospital and the researcher will still maintain their legal and professional responsibilities towards you as a participant in this study. Your decision to withdraw from this study will not affect your status as an employee at Jackson Memorial Hospital.

CONTACT INFORMATION:

Rossana Bizzio PhDc, MS. CRNA will gladly answer any questions you may have concerning the purpose, procedures, and outcome of this project. You can contact the principal investigator by cell number at 786-376-7517 or at her office number 305-284-2645. If you have questions about your rights as a research subject you may contact Human Subjects Research Office at the University of Miami, at (305) 243-3195

PARTICIPANT AGREEMENT:

I have read the information in this consent form and agree to participate in this study. I have had the chance to ask any questions I have about this study, and questions have been answered for me. I am entitled to a copy of this form after it has been read and signed.

Signature of Participant

Date

Signature of Person Obtaining Consent

Date

Appendix B

Anesthesia Providers Demographic Questionnaire

Researcher's Introduction

Hello, thank you for your interest in my study. As you may know from the consent you have just signed I am interested in finding out how anesthesia providers (anesthesiologists and certified registered nurse anesthetists) utilize non- pharmacological and pharmacological interventions in their daily practice when managing preoperative distress in toddlers and preschoolers who are 1-6 years of age. Please answer the following demographic questions below, and we will proceed with the interview process as soon as you complete this step.

Anesthesia Providers Demographic Questionnaire

Subject Code Number

Date of interview

Time of interview

Start time

End time

Please complete the demographic data below by answering the flowing questions or marking with an X information which applies to you.

1.Participants personal information

Age

Sex

Female

Male

Marital Status

Single Married Divorced

Children Yes No

2. With what ethnic/cultural group do you mostly identify with?

Caucasian

- African American
- Native American
- Latino/ Hispanic
- Asian American
- Other (Specify)

3. Title and rank in Anesthesiology Department/ Hospital. Please fill out check all that apply

Title and academic rank UM or JMH if applicable

CRNA Physician

4. Number of years in anesthesia practice. Select time range which applies to you

- 2 – 5 years
- 6 -10 years
- > 10 years

5. Anesthesia provider Specialty Board/s and Certifications. Fill out or select all that applies

- Nurse Anesthesia
- Anesthesiology
- Other(Specify)

6. Clinical expertise or sub-specialty in anesthesia practice

- Trauma
- Neuroanesthesia
- Cardiac Anesthesia
- Pediatric Anesthesia
- Critical Care
- Pain Management
-

TransplantationObstetrical Anesthesia Other (Specify) **7. Other undergraduate or graduate degrees obtained in related or unrelated to healthcare field**Education Business Healthcare Administration Mental Health Research Other (Specify) **8. Number of hours per week you spend in anesthesia clinical practice:** Hrs/Week**9. Percentage of total hours of clinical practice per week you have spent in pediatric anesthesia practice during the last two years.**10 % or less 11% - 35 % 36%- 75 % 75 % or more **10. Number of pediatric anesthesia conferences, or general anesthesia conferences which included pediatric anesthesia topics attended during the past 2 years:**1 or less 2 3 >3

11. Have you been involved in any type of pediatric care volunteer work?

Yes (Describe type of experience)

No

12. If you answered Yes to the question above, how many times did you participated in this activity during the last 2 years?

Once in 2 years

Twice in 2 years

Three times or more in 2 years

Appendix C

Researcher's Field Notes

Participant Number: _____

Interview Date: _____ Start time: _____ Ending Time:

Location of Interview:

Description of environment (including personal belongings):

Nonverbal behavior:

Content of interview:

Researcher's impressions:

Analysis (questions, tentative hunches, trends in data, patterns, etc.):

Technological problems:

Appendix D

Face- Face Interview Introduction and Guide

Thank you for completing the demographic questionnaire. As I mentioned to you earlier, I will be asking you a few questions in reference to how anesthesia providers manage preoperative distress in toddlers and preschoolers who are 1-6 years of age. This interview will take approximately 45 minutes of uninterrupted time. Please answer the following questions as truthfully as possible knowing there are no right or wrong answers, and that even if you don't have personal experience or knowledge in some of the areas of this research project, any information that you share with me regarding this topic will be of significant value. Please feel free to stop the interview at any time if you feel uncomfortable with the research process.

Interview Grand Tour Questions and Probe questions

Grand tour question 1

1. Tell me from your experience, why children ages 1- 6 experience preoperative distress during the preoperative phase and induction of anesthesia the most?

Probe questions

1. a Can you provide me with an example/s of case/s in which you cared for a child in this age group who was experiencing preoperative distress in the preoperative holding area and/or during induction of anesthesia?

1. b What types of challenges do you face when managing children in this age group who become agitated, tearful, or resistant to clinical procedures?

1. c What factors do you think contribute to this problem in clinical practice, can you explain?
1. d You mentioned that XXXX appears to be a factor, how about the perioperative environment, do you think that is important?
1. e How do introduce the anesthetic equipment to children so they can be less fearful?
1. f Some researchers hypothesized that preparing parents and children for the day of surgery is extremely important. Can you share with me your thoughts about this?
- 1.g What specific role do parents play in helping their child to reduce preoperative distress in the holding area versus during induction of anesthesia?
1. h In your experience, do you think mothers are more helpful than fathers in calming their children? Why do you think so?
1. i In your personal experience what types of children are most difficult to manage? (will provide the participant with examples such as: age, ethnicity, in-house vs. ambulatory admission, etc.)
1. j What types of personal strengths do you possess that allow you to manage children in this age group?

Grand tour question 2

2. Can you talk about non- pharmacological methods that you use to decrease preoperative distress in the preoperative area or during induction of anesthesia when working with toddlers and preschoolers ages 1- 6?

Probe questions

2. a Of the non- pharmacological techniques mentioned (clown doctors, music therapy, video games, parental presence, etc.) which one works best in young children?
2. b Why XXXX works so well or does not work for children?
2. c If you had the choice and resources to implement something new to help children in preoperative distress, what would that be?

Grand Tour Question 3**Probe questions****3. Can you please describe what pharmacological methods do you utilize to manage preoperative distress in toddlers and preschoolers ages 1- 6?**

- 3.a What preoperative medication/s do you prefer to use in the management of preoperative distress in children ages 1-6?
- 3.b Can you please tell me why use of preoperative medication is highly favored by anesthesia providers?
- 3.c In what types of scenarios do you think it is not appropriate, or useful to use preoperative medication?

Grand tour question 4**4. How do you communicate with young children as you engage in anesthetic procedures?****Probe questions**

- 4.a What do you think is the best communication approach to use when taking a young child into the operating room to proceed with induction of anesthesia?

4.b What are the things you say or do during this process?

4.c Does your communication style changes in the interactions occurring in the holding area as compared to your interaction inside the operating room?

4.d How did you learn to communicate with children ages 1-6 in the perioperative environment?

Grand tour question 5

5. What recommendations do you have for other anesthesia providers who wish to be more effective in avoiding or decreasing the incidence of preoperative distress in toddlers and preschoolers?

Probe questions

5. a Based on what you have experienced as an anesthesia provider, what types of interventions are most effective in reducing preoperative distress in children ages 1-6 ? Why?

5. b Can you think of specific anesthesia providers' strengths, education, years of clinical, experience, personality, behaviors, gender, or any other factors make a difference in successfully managing preoperative distress in children?

5. c What do you think is missing in the way anesthesiologists and CRNAs are educated to manage young children during the anesthetic process?

5. d How can improve the education of anesthesiologists and CRNAS who are required to also manage the psychological needs of children?

5. e Can you suggest what hospital/surgical facility policies and procedures should be in place to improve clinical outcomes for children who experience preoperative distress?

5.f Are there any areas, topics, or ideas related to preoperative distress research in young children which you feel need to be explored since this information may be critical to anesthesia providers caring for children?

Thank you for your time today