

“The Worst Is the Worry”: Importance of Preoperative Preparation of Preschool Children

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Children often experience a high level of anxiety before anesthesia, which may lead to poor cooperation during anesthesia induction and negative consequences for the postoperative period. The aim of this study was to obtain knowledge that may improve practice in preparing preschoolers for anesthesia and surgery by analyzing nurse anesthetists' preoperative experiences with children. A focus group interview with nurse anesthetists was conducted. The interview was recorded and transcribed verbatim, and results were analyzed using qualitative text analysis. Three main themes were identified to relieve preschoolers' anxiety: "Making the unknown and scary harmless," "Using oneself," and "Having a lap to sit on." Findings indicate that explanation and preparation through play, as well as

experiences of participation and coping, can safeguard children who are feeling anxious. The professional and personal qualities of a Certified Registered Nurse Anesthetist (CRNA) are important when managing pediatric patients' anxiety. It is essential that CRNAs have the ability to adapt the induction of anesthesia to suit the child individually (and parents). The parents constitute an important collaborator for CRNAs. Young children need explanations and knowledge about what is happening and what to expect. CRNAs should focus on codetermination and participation for preschool children undergoing anesthesia.

Keywords: Anesthesiology, pediatric anesthesia, perioperative nursing, preoperative anxiety, preschool children.

Studies show that 40% to 75% of all children admitted to the hospital for a surgical procedure experience fear and anxiety.^{1,2} There is a lack of research concerning the experiences of Certified Registered Nurse Anesthetists (CRNAs) with reducing preoperative anxiety and increasing safety and participation in preschool children. Children with a high degree of anxiety preoperatively may experience an increased need for sedatives and analgesia during surgery, as well as an increased need for analgesia postoperatively. They may also have trouble sleeping, develop behavioral disorders, and have feeding difficulties after the operation.³ Together with psychological effects, preoperative anxiety also leads to change in endocrine processes. The body's physiologic reaction to anxiety is increased blood pressure and heart rate, and increased secretion of growth hormone and corticotropin. The excretion of cortisol increases as a result of stress.⁴ Traditional premedication, such as with benzodiazepines, has been used and is still used in several hospitals in Norway. In recent years, premedication has been questioned as the best practice for reducing anxiety in children. Preoperative medication has been proven to be effective occasionally but may hinder the child in the long run from developing coping strategies for similar situations later in life.⁵ Several studies have therefore investigated various nonmedical measures to reduce preoperative anxiety in children, such as the use of informative puppet shows,

storytelling, video films, coloring books, 3-dimensional books, and play.⁵⁻⁸

Although there are several studies on different measures for reducing anxiety among children, there is limited qualitative research focusing on CRNAs' experiences with caring for children in the preoperative and perioperative setting. In a qualitative study by Berglund et al,⁹ CRNAs' experiences with patients' preoperative anxiety was explored. They found that it is necessary to be sensitive to the individual child's needs. Furthermore, using a flexible approach and involving the parents in dealing with anxious children is essential. The use of professional and personal skills to build rapport with the child creates a calming preoperative environment. Last, physical restraints should be avoided unless the situation is life threatening. In another qualitative study, Salmela et al¹⁰ explored preschool children's hospital-related fear. The children expressed feelings of insecurity about separation from their parents, unfamiliar things or surroundings, unfamiliar people, and nursing procedures. They described feelings of helplessness when adults demanded things the children thought were unreasonable. A feeling of not being accepted arose when children believed they did not fulfill the adult's expectations or the adult was dissatisfied with them. Children also experienced a loss of control when not being allowed to make up their own mind as in everyday life.¹⁰

The CRNA has a responsibility to care for the child

Data	Condensation	Subtheme	Main theme
I have found that driving the child's attention away from what it is afraid of, for example, by pulling the saturation measurement from the plug so that it gives this clicking sound. Often, they will try it.... It removes the focus of what scares them into something they may be more interested in.	I divert the child by involving it in an activity that takes away the focus from what they experience as scary	Diversion	To make the unknown and scary harmless
[T]hey are allowed to decide... if they want a yellow or green mask. Then they are a little involved, and it is very important. And that you do not hide anything, for example, where you put the vein catheter because they should be involved.	To give the children a choice in situations where possible, makes them feel involved	Experiences of coping and participation	To make the unknown and scary harmless
I took him out on tour to the operating room; this was the end of the day. He thought it was so fun to go there. Borrow the scooter and play around a little. He came back to his mother and was so pleased. He had a lot to tell about what he had experienced and how it looked.	Importance of showing the unknown operating room and equipment before the child is to be operated on	Young children need tailored information	To make the unknown and scary harmless

Table 1. Example from the Analysis

undergoing anesthesia, safeguarding the child's right to involvement and information, while simultaneously being aware of the child's vulnerability during induction of anesthesia.¹¹ Children often perceive words and expressions differently from adults, so the CRNA must listen to ensure that the information is understood and must provide children with the opportunity to ask questions.¹² Children are less predictable than adult patients are. The CRNA must consider the child's welfare but also keep in mind what is best for the family as a whole.¹³ To be able to do this the CRNA needs to have knowledge about children's cognitive development. Jean Piaget (1896-1980) divided children's cognitive development into 4 stages.¹⁴ Preschoolers are in the preoperational stage, which is characterized by the child seeing things exactly as they seem. They have little ability for abstract thinking and manage to concentrate on only one thing at a time.¹⁴ However, they are able to imagine things and fantasize. They express themselves more through language, but they may use their imagination to find their own explanations of words they do not understand. According to Piaget, children at this stage learn by doing and from their experiences doing it.¹⁵

The aim of this study was to obtain knowledge that may improve practice in preparing preschoolers for anesthesia and surgery by analyzing nurse anesthetists' preoperative experiences with children.

Methods

• **Design.** A qualitative approach was deemed most appropriate to explore CRNAs' experiences. This qualitative study used a descriptive and explorative design based on one by Kvale and Brinkmann.¹⁶ This qualitative approach was used to extract the meaningful content of the CRNAs' narrated experiences. It used a spiral process that comprised reading the text to gain a sense of the whole, followed by identification of meaningful parts and the underlying meaning in the text as a whole.¹⁶

• **Participants.** The participants in this study were 6 CRNAs working in a university hospital in Norway.

A purposeful sampling was used to ensure variation in gender. For inclusion in the study, the CRNAs must have been administering anesthesia to preschoolers for more than 3 years. All the participants who were invited to take part in this study accepted, and all had more than 10 years' experience administering anesthesia to children.

• **Data Collection.** A qualitative interview gives the opportunity to investigate experiences in a more thorough way, and both the interviewer (M.T.) and the participant are given the opportunity to ask clarifying questions.¹⁶ Based on the aim of this study a focus group interview was used to collect data. A focus group was chosen to allow the conversation between the participants to benefit from the interaction between the participants. In a conversation, one person's experiences may provide a new perspective to other people's experiences. Participants have to relate to the views of others and defend their own.¹⁶ The focus group was held in the anesthesia department of the hospital where the CRNAs work and included 6 participants. It took place in April 2017 and was conducted by the interviewer and a moderator. The interview was digitally audio-recorded and transcribed verbatim. Both the interviewer and the moderator also made field notes during the interview. The interview lasted for about an hour. A pilot interview was carried out to ensure that the questions were understandable and related to the aim of the study. Some adjustments were made after the pilot interview to make the questions more open in order to invite stories from the participants. The opening question was "Can you tell me about your experiences with anxious children before and during the induction of anesthesia?" The next question was "Can you tell a story of a time when you felt that your actions made the child calm and less anxious? The last question was about the presence of parents during induction: "How do you feel that the parents' presence affects the child?"

• **Ethical Considerations.** The Norwegian Centre for Research Data was notified of the study, and permission was obtained from the data protection officer and the head of the Nurse Anesthesia Department at the relevant hospi-

Main theme	Subtheme
Making the unknown and scary harmless	Young children need tailored information Diversion Experiences of coping and participation
Using oneself	The first contact must be positive Acting according to the situation Taking into account previous experiences
Having a lap to sit on	Parents provide security

Table 2. Main Themes and Subthemes

tal. The participants received written information about the study's aim, structure, and possible advantages and disadvantages of attending. They were informed that participation was voluntary, and that they had the right to withdraw at any time without having to explain why. Written informed consent was obtained from all participants before the interview. The importance of confidentiality in the group was pointed out at the start of the interview.

- **Data Analysis.** The qualitative analysis was performed inductively by all authors, in accordance with Kirsti Malterud's¹⁷ systematic text condensation, which is inspired by Giorgi's psychological phenomenological analysis. Systematic text condensation consists of the following 4 steps. First, we tried to develop a total impression of the data by reading the transcribed text several times: from disorder to concepts and themes. Second, we identified meaningful units from the transcribed data and sorted them into codes. The third step involved making short summaries of meaningful units for each code, called condensation—from code to meaning. The last step involved synthesizing the condensation into new concepts and descriptions,¹⁷ here referred to as main themes and subthemes. Table 1 presents an example from the analysis process.

Results

Three main themes emerged from the data: (1) "Making the unknown and scary harmless," (2) "Using oneself," and (3) "Having a lap to sit on" (Table 2). Each of these main themes and its subthemes are described here. Italicized passages are quotes from study participants, followed by an identifying number for the CRNA.

- **Theme 1: Making the Unknown and Scary Harmless.** The CRNAs experienced that children are, in general, afraid of anesthesia and surgery, but the children do not really know what they are afraid of. The situation in itself becomes scary; the equipment and the environment are unfamiliar and create insecurity. This main theme is about how to make the unknown and scary harmless to help safeguard children before and during induction of anesthesia.

- **Subtheme: Young Children Need Tailored Information.**

The participants agreed that information about the anesthesia and what will happen before and during the induction of anesthesia is a central part of the preoperative preparation of the young child. An information brochure explaining the process with pictures and simple text is sent to the children at home before surgery.

The CRNAs experienced that the children (and their parents) who had read the brochure together at home were less anxious, appeared more curious, and cooperated well when they arrived at the operating room, compared with the children who had not been prepared at home. "Anxiety in children has a lot to do with age, but also how much information the child has received at home in advance." (CRNA 1).

According to the CRNAs, the children's anxiety decreased when they saw the induction mask and visited the operating room before they actually came there for the operation. To try the mask on mom or a stuffed animal in a quieter and calmer environment often made it less scary and more harmless. "Some children are fighting the situation in advance, so if they get to see the operating room [the day before], they change completely. They are not afraid at all, and they handle the whole situation much better." (CRNA 2).

Some of the CRNAs had visited a hospital in another Scandinavian country, where they had created a playroom that looked exactly like an operating room. The children became familiar with the equipment by being allowed to play with it. A trip through this playroom was a routine part of the preoperative preparation before surgery. "[T]hey could look at all the lights and the masks. Then it's not unknown anymore, and they see that it's not as frightening as they had imagined. They also get time to process the impressions, and that is very important." (CRNA 2).

Some of the children's wards at the hospital where the CRNAs work have made their own suitcases with equipment from the operating room that the children can play with to familiarize themselves with it before the operation. "Learning through play is important for the child." (CRNA 3).

The participants also had good experiences with the use of play during the induction of anesthesia. By playing that mom or dad was going to have anesthesia and therefore trying the equipment (saturation measures, cardiac electrodes, etc) on them first, the children seemed to accept when the equipment also was put on them. The preschoolers' imagination was also used to reduce anxiety. The CRNAs might pretend that the ventilation bag was a birthday balloon that the child could blow up. In that way, the preschoolers played their way into anesthesia. "[T]here are those who take the mask themselves; they blow up the balloon, they really breathe and fill it up. And then I think: how delightful! He [the child] is so involved." (CRNA 2).

- *Subtheme: Diversion.* Diverting the child's attention often works well with children at preschool age. The use of video cartoons or other things they can watch, as well as listening to music, were mentioned by the participants as diversionary measures. However, they regarded easy communication about things the child is interested in as the best strategy for diversion. "I communicate with the child and divert their attention by asking about what they think is fun to do in day care or at home." (CRNA 4).

- *Subtheme: Experiences of Coping and Participation.* The CRNAs pointed out the importance of the child experiencing coping during induction and avoiding the use of physical restraint. By giving children simple choices and tasks, the participants believed that the children cooperated better, felt more included, and their attention was diverted from what they thought was scary. "We try to make the children want to participate in the induction situation, either by holding the mask themselves or doing other things" (CRNA 1). The choice between mask induction or venous access is given to almost every child at the hospital where the CRNAs work. "[Y]ou may give 2 choices; both choices are good: mask or cannula. The child can choose, and then they get a feeling of self-determination, and we avoid restraint" (CRNA 3).

The use of premedication such as benzodiazepines, which cause amnesia, was seen as negative in most cases. It reduces the child's autonomy by preventing the child's own participation, and it creates a "black hole" where the child cannot fully remember what has happened. The CRNAs regarded premedication as not helping the child to develop new coping strategies for similar situations later in life.

- *Theme 2: Using Oneself.* To use oneself to lessen the patient's anxiety was, according to the CRNAs, one of the most important tools in caring for anxious children before and during the induction of anesthesia. "I'm using myself all the time. The situation is scary [for the child], but there's so much you can do with it." (CRNA 4). Another important aspect is that the CRNA sees the importance of using other means than medications to calm the child: "The most important thing is that you do something yourself, and don't think administering drugs solves everything." (CRNA 2). In this theme, the importance of the CRNA's role is presented.

- *Subtheme: The First Contact Must Be Positive.* According to the CRNAs, the first meeting is crucial to creating a trustful and safe situation for the child. The anesthesiologist carries out the preoperative assessments so the first meeting between the child and the CRNA is when the child comes to the operating room. Information about the child's health is in the electronic health record, but according to the CRNAs, it would be better if they had the opportunity to see the child the day before. In that way they could gather information about the child's previous experiences with hospitals and his or her interests and start creating rapport with the child. "Meeting

the child in advance gives me knowledge you cannot get by reading previous records." (CRNA 3). According to the CRNAs, because the child's first impression is important when they meet, the child is given a small gift. "When they get to the operating room, they are pleasantly surprised because they get something—a kid of 4 years who gets something, that's positive. The point is not getting a cuddly animal when they already have 10, but about making the first contact with us positive." (CRNA 2).

Because children have a lot of imagination, the CRNAs agreed that it was important to show themselves to be as human as possible, which means never wearing a surgical mask until the child is asleep. "We look like green aliens; no wonder they get scared" (CRNA 2). The participants agreed that too many people present during induction is scary for the child. "It's so much more frightening when it comes to lots of people in green scrubs, often with surgical mask too. It can ruin the whole first impression and feeling of safety for the child." (CRNA 4).

- *Subtheme: Acting According to the Situation.* According to the CRNAs, it is important to consider each situation individually. "We make individual adjustments where appropriate" (CRNA 1). In some cases, it would be better to adjust the routines, for example, by putting in the cannula in the child's room where he or she feels safe. An unfamiliar place like the operating room can increase anxiety in itself. Sometimes it may also be advisable to sedate the child in his or her bed before going to the operating room.

According to the participants, a good investment is to spend time on creating trust. "Then there is the feeling of security—that you establish a contact right away. That you will not leave that child, and [will] always do what you said you would do" (CRNA 3). It is important with a "soft" start (eg, not bringing out the cannula or mask when first meeting the child, because that will make them anxious right away).

As stated by the CRNAs, preparation of the child for anesthesia must take the necessary time. If preparation is rushed, it often ends with the child protesting. The participants pointed out that the CRNA should never hide anything from the child in that situation. "I'm talking to them all the time, talking on their level, and explaining what I'm doing all the way" (CRNA 4). The participants expressed that communication and honesty created the good contact necessary to gain the child's trust. They experienced that the child became more relaxed and more often gave "permission" for the cannula to be put in or for the anesthesia mask to be held closer.

- *Subtheme: Taking Into Account Previous Experiences.* Many children have undergone surgery or had contact with the healthcare system previously. Some of them have experienced pain or fear or have bad associations with people wearing green or white scrubs, and the children remember these experiences. "There are some doctors who

say, just send them down [to the operating room]; they've been here before. I think that's bad because there are so many who have bad experiences earlier." (CRNA 5). The CRNAs expressed that these children often need more information beforehand than do others. With these children, it is especially important to meet the child before he or she arrives in the operating room, to identify previous experiences and potentially manage to reduce some of the anxiety. "The worst is the worry." (CRNA 3).

According to the CRNAs, children who are extremely anxious can benefit from help from a psychologist. "We know about these children and therefore offer another approach. It works well." (CRNA 1). The CRNAs were against using premedication with benzodiazepines, as mentioned earlier. Yet, for children who must have surgery many times and have received premedication when they were younger with good effect, the CRNAs agreed that premedication might be a good option.

The importance of being aware of culture and background was pointed out by the CRNAs. Adopted children who came to Norway as 3- to 4-year-olds or refugees need extra preparation. "The experience they bring with them can be very scary and threatening. I think it is important to go in early and prepare them differently. Both the parents and the children may have experienced traumatic things; there is a lot to think about." (CRNA 3).

- **Theme 3: "Having a Lap to Sit On."** The CRNAs experienced the presence of the parents as an important part of making anxious children feel safer before and during the induction of anesthesia.

- **Subtheme: Parents Provide Security.** The CRNAs perceived the parents as a resource during the induction of anesthesia. It was important for the child to have someone they know and feel safe with in this scary situation. "That's because [the children] do not know us, we do not do the preoperative assessments, and often they haven't seen the doctor either. The only ones they know are mom and dad." (CRNA 1). The CRNAs experienced most parents as good collaborators. Particularly parents of children who are often repeated surgical patients know how best to relieve their child's anxiety in the preoperative phase. These parents are of great help to CRNAs in the process of adapting the induction situation.

According to the CRNAs, the parents really pull themselves together to provide security for their child during induction. "The parents start to cry when the child is asleep. They have managed to keep calm, but they are very scared themselves you know. So just as the child falls asleep, the tears begin to roll." (CRNA 3). Even if most parents are scared and anxious, the CRNAs experienced that parents trusted that the CRNAs would take care of their child during surgery. "[T]here are many who are doing it in a nice way too. There are many who trust us and feel safe." (CRNA 5, about the parents).

It is important for everyone concerned that the most

confident parent is the one staying with the child during the induction of anesthesia. If both parents are very anxious, it may sometimes be better to ask another adult known and trusted by the child to be present during induction.

Discussion

The CRNAs reported that some of the children's anxiety resulted from finding themselves in an unfamiliar situation. The child is afraid of the unknown. The CRNAs experienced children as "magical" thinkers, which corresponds to Piaget's theory.¹⁵ Magical thinking together with lack of information can make children anxious in situations they do not really know. Salmela et al¹⁰ discovered that this creates insecurity. The children in their study believed that customized information made them deal with the unknown situation in a better way because they felt included in decisions regarding themselves.¹⁰ Similarities were found to those of another study, where preschoolers scheduled for surgery had almost no knowledge of what to expect, and this uncertainty created anxiety and stress.¹⁸

Findings of previous studies are divided on the effect of preoperative information given to preschoolers. Some have found that children younger than 4 years can be made more anxious by the information. This was justified by the fact that younger children have a reduced ability to distinguish between imagination and reality.^{3,19} That is contrary to the CRNAs' experiences in this study. They believed that information reduced children's anxiety before induction of anesthesia. It is important that information is adapted to the child's development level and that positive words are used. Anxious children often focus on the negatively charged words.²⁰ However, focusing on positive words does not mean that CRNAs should conceal the truth, as this may conflict with the child's and parents' right to information.¹¹

For preschool children, learning through play is both adaptive and effective. Today's children are growing up in a time when digital play using computer games and apps are known to most. Technological developments can be used to create learning arenas where children can gain knowledge about the preoperative and postoperative period in a way that is adapted to their level. Use of movies and games at home has been shown to increase preschool children's knowledge of what they can expect in the hospital, thus reducing their anxiety.⁸ This is consistent with the findings in this study. The CRNAs found that those who had been read to or shown an information booklet at home appeared less anxious and better prepared compared with children who had not been shown the booklet.

The results of this study showed that if children were allowed to see and familiarize themselves with the anesthetic equipment and operating room in advance, the

CRNAs noted a reduction in their anxiety. This is supported by Piaget's theory that considers direct experience to be the best form of learning.¹⁵ Children learn through action and what they see. Making a playroom similar to an operating room, where the children can play with the equipment in advance to make it more familiar, has proved to make children less anxious.¹² This obviously requires space and may be an economical challenge for individual hospitals. A less resource-consuming option may be to make a model of an operating room, such as a doll's house that children can play with on the preoperative ward.

The CRNAs also had good experiences with the use of play to make the induction of anesthesia less scary. Using children's fantasy world by saying that the anesthetic mask resembles a clown nose⁹ and letting the child name the clown,²¹ or making the child blow up "the balloon" (ventilation bag) is a game that can capture the interests of preschool children. The CRNAs in this study experienced that "playing the way into anesthesia" with the child was fun and felt safe for the child.

According to the CRNAs, children became less apprehensive and more willing to cooperate if they were able to make simple choices that affected them. For the child to be given simple tasks will also increase the experience of participation. An important element here is that the child is given a task that he or she has the prerequisites to manage. There are individual differences, and it is important to look at each child individually. Allowing the child to participate to reduce anxiety during the induction of anesthesia is in accordance with findings in other studies.^{3,9,12} Participation and choice reflect the ethical principle of autonomy defined as self-determination or self-government. In medical ethics, it may be more correct to call it codetermination.²² Codetermination may allow the child to feel more in control of the situation and should therefore be pursued as long as it does not conflict with what is best for the child.²³ Codetermination and participation are limited by the use of premedication because of the sedative and amnesic effect of the premedication. The CRNAs held negative views about the use of premedication for this reason. They reported it was important to be flexible so that the child experienced coping and security in a scary situation and thus be able to use the experience to establish coping strategies for similar experiences in later life.

The CRNAs believed that sometimes the best way to calm an anxious child was to use diversionary tactics. This is supported by other study findings that children's anxiety was reduced by playing video games or watching movies during the induction of anesthesia.^{6,7} These studies also found that using diversion to take focus away from scary things could be as effective as premedication.^{6,7} On the other hand, diversionary tactics can make it harder to build rapport with the child and explain what is going to happen. The CRNAs experienced that things often went

well until they were about to put in a cannula or start the mask induction. If the child is caught off guard by something he or she is not prepared for, the child will often protest. Some children, however, became so engrossed in the game or the movie that they did not notice what was happening around them. In such cases, diversion can work well and the child can be safely put under anesthesia. Even though the child's autonomy and participation are restricted, it may be doing what is best for the child.

According to the CRNAs, the first meeting with the child needs to be positive. Preschoolers notice the body language of the CRNAs immediately. A nurse who smiles, is kind, and gives encouragement is, according to children, a good nurse.²⁴ Creating trust was crucial to developing rapport with the child in the short amount of time available, the CRNAs reported. Being honest and not hiding anything is important. It is also important to take the time to listen and give children time to reflect on the situation and what is being presented to them. In that way they also have the opportunity to ask questions. By opening up a dialogue with the child, the CRNA can try to make the experience less unfamiliar and scary, which may provide the child with a greater feeling of control and security in the situation.¹⁸ In addition, the feeling of being heard can give an experience of respect and confirmation, which in turn will strengthen the child's autonomy.²⁵ Showing interest in the child's everyday life by, for example, asking what they like to do in day care could be a good gateway to creating rapport with the child, according to the CRNAs. It is also important to make the child the prime focus in this initial phase.⁹

To relieve anxiety in children, the CRNA and anesthesiologist should work well together as a team. Being certain of each other and making a plan to ensure safe anesthesia before the child arrives will give the child and the parents a feeling of safety and professionalism. This is in accordance with findings in other studies.^{9,24}

The CRNAs experienced that the parents were a resource in helping relieve their child's anxiety during the induction of anesthesia. When the child is allowed to sit on mom's or dad's lap during the onset of anesthesia, the feelings of security and care from the parents act as a safety net for the unknown for the child. Other study findings have shown that children feel safer and explore more when their parents are present.²⁶ Also, the presence of the parents prevents the child from feeling abandoned.⁷

Parents need as much information as their children.²¹ The CRNAs believed that addressing the parents' anxiety was necessary to put in place measures to reduce it. One study found that 42% of parents felt strong fear before their child's surgery.²⁷ To calm their child, the parents need to feel calm. Sometimes they need advice on how to act in the situation. Studies show that there are aspects of what the parents do or say that is important for their ability to calm their child during the induction of anes-

thetia.²⁸ The CRNAs found that when the parents diverted the child by talking about everyday things, the child often became less anxious and forgot about the scary situation. There are similar findings in other studies.²⁹ When studies cannot show that the parents' presence is important to the child's anxiousness, this may be due to the parents' behavior or their degree of anxiety. There is, however, a consensus that prepared, informed, and calm parents can provide care and calm for their child during the induction of anesthesia.^{1,30,31}

Transmitted anxiety from parent to child was pointed out as problematic by the CRNAs, and some argue that anxious parents should not be present during the introduction.³¹ However, the CRNAs believed that it was actually more important for the child to have a familiar caretaker with them, regardless of the parents' anxiety. Parents themselves also think it is safest for the child if they are present until the child is asleep.³¹

It is challenging for the CRNAs when the parents do not want the child to know anything about the upcoming anesthesia or surgery. This was raised as a difficult ethical dilemma. Is it better to go against the parents' decision because research shows that children become less anxious if they are informed and experience autonomy in the situation, or to rely on the fact that the parents know their children best? One option might be to try and have an educational discussion with the parents to explore different options. However, in instances when the parents still resist, it may be efficacious to use premedication. Not informing the child is an infringement of the child's autonomy. The child is entitled to know what is happening to him or her.²⁵ To hold back information can undermine confidentiality between the CRNA and the child and can make building rapport harder. The parents not wanting to inform their child, may be due to concern for how the child will react.²¹ There may also be cultural reasons why parents do not want their children to know anything about the disease or what they are going through, but that does not make the dilemma any easier for the CRNAs.

This study had some limitations and strengths. The group dynamics of a focus group have 2 particular strengths. Group dynamics reveal what the participants regard as the essence of the theme and open up for discussion when participants disagree.³² Because of the study framework, only one focus group interview was conducted. The CRNAs' views may, of course, have been characterized by the group situation, and it may be difficult to generalize and say that these experiences apply to all CRNAs. The interviewer experienced the participants as confident and willing to share their experiences in the group. Many responded independently of each other, and both agreed and disagreed with each other's opinions. Their long experience and professional interest in pediatric anesthesia also provided important reflections and insight into the topic. The participants took active part in

the discussion focus and seemed eager to share their wide experience and personal narratives. Additionally, they seemed relieved to share the burden they had experienced in different situations during preoperative preparation of preschoolers. The participants' extensive descriptions, as well as the high amount of activity during data collection, gave a rich and comprehensive data material. The few questions that we raised were open and still focused, and the moderator ensured that every participant was heard and understood. However, the transferability of the study findings would have been enhanced and the results more in-depth if the focus group interview and analysis were thicker, that is, if topics had been explored and explained to a greater extent than in the current investigation.³³

Conclusion

This study has investigated CRNAs' experiences with preoperative care of anxious children before the induction of anesthesia. Children are most concerned about what they do not know and what is unknown. Information and preparation for surgery and anesthesia through play can make children less anxious by making the unknown harmless. The CRNA must facilitate autonomy and coping by making the child involved in the induction and must give the child the opportunity to make simple choices when the situation allows for it. Use of diversion is at the expense of the child's autonomy but may still be the best measure for some children.

The CRNA's professional and personal qualities are important for reducing children's anxiety. Taking the time to listen to the child's interests and needs is confidence building. Trust is a crucial element in the relationship between the CRNA and the child, and is necessary for building rapport with the child. Children are not alike, and it is therefore important to meet each child (and their parents) as an individual and to adapt the induction of anesthesia to the child's needs. Children who have negative experiences from previous surgery or hospital stays may need additional follow-up and preparation. The parents' presence is a support, providing care for their child in an unknown environment. The parents also constitute an important collaborator for the CRNAs. Parents also need good information to make their child feel less anxious and to provide a safe lap to sit on.

REFERENCES

1. Erhaze EK, Dowling M, Devane D. Parental presence at anaesthesia induction: a systematic review. *Int J Nurs Pract*. 2016;22(4):397-407. doi:10.1111/ijn.12449
2. de Oliveira Cumino O, Cagno G, Zacharias Goncalves VF, Wajman DS, Telles Mathias LA. Impact of preanesthetic information on anxiety of parents and children. *Braz J Anesthesiol*. 2013;63(6):473-482. doi:10.1016/j.bjane.2013.04.003
3. Copanitsanou P, Valkeapaa K. Effects of education of paediatric patients undergoing elective surgical procedures on their anxiety—a systematic review. *J Clin Nurs*. 2014;23(7-8):940-954. doi:10.1111/jocn.12187

4. Wennstrom B, Tornhage CJ, Nasic S, Hedelin H, Bergh I. The perioperative dialogue reduces postoperative stress in children undergoing day surgery as confirmed by salivary cortisol. *Paediatr Anaesth*. 2011;21(10):1058-1065. doi:10.1111/j.1460-9592.2011.03656.x
5. Cuzzocrea F, Gugliandolo MC, Larcari R, Romeo C, Turiaco N, Dominici T. A psychological preoperative program: effects on anxiety and cooperative behaviors. *Paediatr Anaesth*. 2013;23(2):139-143. doi:10.1111/pan.12100
6. Al-Yateem N, Brenner M, Shorrab AA, Docherty C. Play distraction versus pharmacological treatment to reduce anxiety levels in children undergoing day surgery: a randomized controlled non-inferiority trial. *Child Care Health Dev*. 2016;42(4):572-581. doi:10.1111/cch.12343
7. Kim H, Jung SM, Yu H, Park SJ. Video distraction and parental presence for the management of preoperative anxiety and postoperative behavioral disturbance in children: a randomized controlled trial. *Anesth Analg*. 2015;121(3):778-784. doi:10.1213/ane.0000000000000839
8. Macindo JR, Macabuag KR, Macadangang CM, et al. 3-D storybook: effects on surgical knowledge and anxiety among four- to six-year-old surgical patients. *AORN J*. 2015;102(1):62.e1-62.e10. doi:10.1016/j.aorn.2015.05.018
9. Berglund IG, Ericsson E, Proczkowska-Bjorklund M, Fridlund B. Nurse anaesthetists' experiences with pre-operative anxiety. *Nurs Child Young People*. 2013;25(1):28-34.
10. Salmela M, Aronen ET, Salanterä S. The experience of hospital-related fears of 4- to 6-year-old children. *Child Care Health Dev*. 2010;37(5):719-726. doi:10.1111/j.1365-2214.2010.01171.x
11. IFNA code of ethics, standards of practice, monitoring, and education 2016. International Federation of Nurse Anesthetists (IFNA); 2016. <http://ifna.site/download/ifna-standards-of-education-practice-and-monitoring-2016/>
12. Hilly J, Horlin AL, Kinderf J, et al. Preoperative preparation workshop reduces postoperative maladaptive behavior in children. *Paediatr Anaesth*. 2015;25(10):990-998. doi:10.1111/pan.12701
13. Runeson I, Proczkowska-Bjorklund M, Idvall E. Ethical dilemmas before and during anaesthetic induction of young children, as described by nurse anaesthetists. *J Child Health Care*. 2010;14(4):345-354. doi:10.1177/1367493510379610
14. Asokan S, Surendran S, Asokan S, Nuvvula S. Relevance of Piaget's cognitive principles among 4-7 years old children: a descriptive cross-sectional study. *J Indian Soc Pedod Prev Dent*. 2014;32(4):292-296. doi:10.4103/0970-4388.140947
15. Bunkholdt V. *Developmental Psychology*. Vol 2. Universitetsforlag; 2000.
16. Kvale S, Brinkmann S. *InterViews: Learning the Craft of Qualitative Research Interviewing*. 2nd ed. SAGE Publications; 2009.
17. Malterud K. Systematic text condensation: a strategy for qualitative analysis. *Scand J Public Health*. 2012;40 (8):795-805. doi:10.1177/1403494812465030
18. Wennstrom B, Hallberg LR, Bergh I. Use of perioperative dialogues with children undergoing day surgery. *J Adv Nurs*. 2008;62(1):96-106. doi:10.1111/j.1365-2648.2007.04581.x
19. Kain ZN, Mayes LC, Caramico LA. Preoperative preparation in children: a cross-sectional study. *J Clin Anesth*. 1996;8(6):508-514. doi:10.1016/0952-8180(96)00115-8
20. Perry C, Samuelson C, Cyna AM. Preanesthetic nurse communication with children and parents—an observational study. *Paediatr Anaesth*. 2015;25(12):1235-1240. doi:10.1111/pan.12759
21. Paladino CM, de Carvalho R, de Amorim Almeida F. Therapeutic play in preparing for surgery: behavior of preschool children during the perioperative period. *Rev Esc Enferm USP*. 2014;48(3):423-429. doi:10.1590/s0080-623420140000300006
22. Slettebø Å. *Nurs Ethics*. 2013.
23. Runeson I, Hallstrom I, Elander G, Hermeren G. Children's participation in the decision-making process during hospitalization: an observational study. *Nurs Ethics*. 2002;9(6):583-598. doi:10.1191/0969733002ne5530a
24. Brady M. Hospitalized children's views of the good nurse. *Nurs Ethics*. 2009;16(5):543-560. doi:10.1177/0969733009106648
25. Bischofberger E, Dahlqvist G, Elinder G. *The Child's Integrity: Ethics in Everyday Care*. Almqvist Wiksell; 1991.
26. Dalsklev M, Eimot K. A study of children's affiliation [Norwegian]. *Psykologisk*. May 8, 2015. Updated November 3, 2017. <https://psykologisk.no/2015/05/en-studie-av-tilknytning/>
27. Shirley PJ, Thompson N, Kenward M, Johnston G. Parental anxiety before elective surgery in children. A British perspective. *Anaesthesia*. 1998;53(10):956-959. doi:10.1046/j.1365-2044.1998.00533.x
28. Wright KD, Stewart SH, Finley GA, Raazi M. A sequential examination of parent-child interactions at anesthetic induction. *J Clin Psychol Med Settings*. 2014;21(4):374-385. doi:10.1007/s10880-014-9413-4
29. Chorney JM, Torrey C, Blount R, McLaren CE, Chen WP, Kain ZN. Healthcare provider and parent behavior and children's coping and distress at anesthesia induction. *Anesthesiology*. 2009;111(6):1290-1296. doi:10.1097/ALN.0b013e3181c14be5
30. Ji L, Zhang X, Fan H, et al. drawMD APP-aided preoperative anesthesia education reduce parents [sic] anxiety and improve satisfaction. *Patient Educ Couns*. 2016;99(2):265-270. doi:10.1016/j.pec.2015.08.027
31. Romino SL, Keatley VM, Secret J, Good K. Parental presence during anesthesia induction in children. *AORN J*. 2005;81(4):779-792. doi:10.1016/s0001-2092(06)60357-8
32. Warr DJ. 'It was fun ... but we don't usually talk about these things': Analyzing Sociable Interaction in Focus Groups. *Qualitative Inquiry*. 2005;11(2):200-225. doi:10.1177/1077800404273412
33. Lincoln YS, Guba EG. *Naturalistic Inquiry*. SAGE Publications; 1985.

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