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Nurse-led Preoperative Education With Home-based Internet Resources for Pediatric Patients and Their Parents

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A B S T R A C T

The majority of pediatric patients and their parents experience fear and anxiety related to their surgical experience. Traditionally, anesthesia providers addressed this anxiety with pharmacologic therapy, such as benzodiazepines, to provide amnesia and anxiolysis. However, this approach has been questioned due to the potential for developmental neurotoxicity, among other drawbacks. Further, the pharmacological approach does not remove preexisting anxiety that the child and parent experience before arrival and during check-in. Pediatric and parental preparation before surgery is an important step that continues to be inconsistently addressed, particularly in lower-resource community hospitals where the majority of routine pediatric outpatient procedures occur. This care gap provides an opportunity for preanesthesia nurses to intervene with valid, evidence-based preoperative education tools aimed at pediatric patients and their parents. Providing these resources before the day of surgery allows time for child-directed, at-home practice as often as the parent(s) and patient choose. Use of available resources from a leading children's hospital, nurses can create a tailored, developmentally appropriate preoperative education plan for pediatric patients and their parents, providing families with the power to create a positive surgical experience.

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The perioperative experience continues to be a significant stressor for parents and children, despite diverse efforts to address this anxiety. Recent studies have shown up to 75% of children and 74% of parents experience preoperative anxiety before pediatric surgery.[1,2] The deleterious effects of these stressful experiences on children have been well established and can permanently alter children's physical growth, personality, or emotional development.[3,4] Further, children's memories of pain influence future painful experiences, and they experience hyperalgesia and higher levels of anxiety with subsequent painful episodes.[5] Clinically, children with high preoperative anxiety have been found to have higher postoperative pain, delayed hospital discharge, increased emergence delirium, and sleep disturbances.[6] The effect of parental anxiety on children has been a recent research focus after compelling findings, including high preoperative parental anxiety negatively impacts a child's emotions and correlates with increased amounts of postoperative pain medication in pediatric patients.[7,8]

Traditionally, benzodiazepines have been used as premedication to allay anxiety in children; however, their use has been questioned recently due to the potential for developmental neurotoxicity, prevention of the development of coping mechanisms for future stressors, and ineffectiveness on preoperative stress in comparison to nonpharmacologic methods.[9–11] Nonpharmacologic methods are an invaluable component of preventing emotional trauma in children and are widely practiced, including distraction, creating an inviting physical environment, child and parental preparation, and positive staff interactions.[3] Arguably, the most important of these techniques—child and parental preparation—is often overlooked by 90% of community hospitals where many routine outpatient procedures occur.[11] Without proper preparation, hospital staff can give their best effort with age-appropriate care and distraction techniques on the day of a pediatric patient's procedure, but it will be difficult to overcome preexisting anxiety and fear in parents and their children. The timing of the preparation before the surgery day appears to be critical since well-intentioned efforts on the day-of-surgery were noted to be ineffective at reducing anxiety.[11] Although a consensus on recommended timing has not been reached, some recent smaller studies found 1 week before surgery was effective in allowing time for practice and resolution of questions.[12,13]

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A shift in health care has been evident in the past two decades, moving toward more patient-centered and quality care, but it appears we are still failing to address the psychological needs of children and their parents. A recent review in this journal evaluated the link between perioperative anxiety and postoperative pain among children, confirming the strong correlation and recommending the development of age-appropriate interventions for children.[14] Fortier and Kain[11] also emphasize the need for future preoperative preparation programs for children and recommend an increased focus on pain management since pain is undertreated in children and parental misconceptions exist about analgesics. As primary caretakers of children, it is imperative that parents understand and actively participate to successfully care for pediatric patients at home, including addressing their need for pain management. Fortunately, the increasing access to the Internet by families across the country offers an opportunity to address this void and provide resources and information to parents in advance of their child's procedure at times convenient to them. Nurses in any hospital setting can use the Internet to access pediatric surgery preparation materials from leading children's hospitals in the US and add this to their preparation toolkit for parents.

The Solution—Nurse-led Internet Instruction

The preanesthesia nurse can address this care gap by developing an instructional intervention for pediatric patients and their parents. This intervention will ideally occur 1 week in advance of the pediatric patient's surgical procedure day to allow time for practice and resolution of parent and pediatric patient questions.[8,15] In developing an instructional intervention, it is important to set forth objectives that are measurable and allow the nurse educator to evaluate the effect of the intervention.

Learning objectives:

1. The parent will be able to describe age-appropriate information about the preoperative, surgical, and postsurgical processes to their child.
2. The parent and child will ask the nurse questions about anything that they do not understand or need further clarification to decrease fear and anxiety.
3. The parent will use the resources provided to develop a plan to prepare their child for surgery and for the day of the procedure that is appropriate for their child and family (ie, get a good night's sleep, favorite meal the night before surgery, bring favorite book, and stuffed animal).

At this stage, it may also be appropriate for the nurse to suggest a site visit before the surgery day to address a child's fear of the unknown and allow them to view the facility and operating room.[16]

Many resources exist for simple information about preparing a child for surgery, but very few meet the recommendations for tailored, low-cost, and easily accessible information with an emphasis on coping skills, modeling, and pain management.[11,15] In the author's review of web sites of the 10 largest children's hospitals in the United States, Children's Hospital of Philadelphia (CHOP) stood out among others with a very comprehensive and easily searchable site and included the aforementioned content characteristics.[17] Further, the majority of CHOP's content contained information that is universally relevant to all children undergoing surgery and was not as site-specific as other web sites, such as Texas Children's Hospital, for example, that included a detailed arrival video for its large campus.[18]

Resource—CHOP

CHOP has an online *Guide to Your Child's Surgery*,[17] which includes a wealth of information that is aimed at parents with age-appropriate information about their child's needs. Since the focus of the intervention is preparation, the *Preparing Your Child for Surgery* link within the guide was reviewed. The CHOP web site is easy to navigate with simple headings, but the overall readability of the guide's text, according to Readability.com was at a somewhat surprising reading level of eleventh-twelfth grade and noted as "fairly difficult to read."[19] The subheading of toddler-specific information for parents was at a seventh-eighth grade level and noted "fairly easy to read." The guide also includes a link to two e-books that CHOP created to explain the surgical experience to children with cartoon-style (Figure 1), realistic pictures (Figure 2) with short, simple words and explanations. These books had an improved readability of sixth-grade level for the book with photos and fifth grade for the cartoon-style books and were both noted as "easy to read." The books were the only materials that met the fifth-to-sixth reading level and high ease reading requirement suggested for patient and family education.[20]

The books are very visually appealing, with photos and cartoon illustrations of the surgical experience, and the overall guide is also appealing, with variations in text and color to contribute to the organization. The information included in the guide appeared to be accurate and timely and included recommended topics of pain management, coping skills, and modeling; however, no references were included on the site to verify accuracy. In further review of the pain management topics, the information was not sufficiently detailed regarding the importance of proactive and scheduled analgesic administration, a topic that should be supplemented by the preanesthesia nurse.[21] The site engaged the reader by keeping the topics interesting and relevant and breaking up the information into many digestible pieces so that the reader could self-tailor to meet their needs.

Tailored Education for Parents Specific to Their Child's and Family's Needs

This proposed education activity will focus on preparing parents and children for their pediatric outpatient surgery experience with an Internet-based education plan that will be introduced during the preanesthesia interview 1 week before the surgical day. Parents of pediatric patients are the primary focus of this instructional intervention, and children the secondary audience—some older children may be able to use the Internet resources independently, and instructional strategies will also be aimed at this subgroup. Using credible Internet resources, the nurse can act as the enabler and facilitator, selecting from available information to create a tailored educational plan for parents and children and then proactively answering their questions. The timing of this intervention 1 week in advance of the surgical procedure is important to proactively address anxiety in parents and children, which can compound and lead to undesirable postoperative outcomes.[12,13] This approach aims to decrease fear and ultimately improve the surgical experience for pediatric patients and their families, lessening the likelihood of health care-induced trauma.[1,11] An indirect benefit of this educational intervention is an improved experience for health care providers caring for pediatric patients, lessening their need for a multitude of distraction techniques and allowing them more time to focus on providing high-quality care.

An important part of this intervention is the assessment of the learner, including the parent and child. The preparation of the preanesthesia nurses by the clinical nurse leader will be an important



Figure 1. Excerpts from cartoon-style e-book. This figure is available in color online at www.jopan.org
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component to ensure success. Without an adequate learner assessment, there is likely to be a disconnect between the patient's perception of their learning needs and the nurse's perception, referred to by Bastable as "comparative incongruence."[22] The preanesthesia nurse may overestimate the source of the pediatric patient's anxiety without a learner assessment—for example, the nurse may assume the pediatric patient fears pain from the procedure when the child is actually afraid of being separated from their parents. Some children fear that they will not wake up from anesthesia; while some are open to "magical thinking" when describing anesthesia, older children may need more concrete information.[16]

The clinical nurse leader can also assure that preanesthesia nurses are educated to assess for illiteracy as part of the learner assessment. Due to a significant amount of low literacy levels in the general population and a reported tendency by health care providers to overestimate a patient's literacy, the preanesthesia nurse should be shown how to educate to promote understanding.[20] Addressing patient scheduling is imperative to allow the nurse adequate time either in person or via phone to complete the standard preanesthesia interview, obtain a medical history and pertinent family history, assess learning needs, and introduce Internet education.

When beginning the education activity, the nurse can improve the parent and child's retention of information by making the extra effort to relate to them and form a relationship, even if a phone conversation.[20] One way to achieve this would be to request that the parent place the phone on speaker or to use video chat such as Zoom. In this way, the nurse can show interest in meeting the child and the parent who may feel more comfortable asking the nurse honest questions after this relationship has been established. The nurse may also request that the parent open the web site on their computer, if available, and walk the parent through some of the important links based on their needs. If the household does not have a computer, the nurse can print out and mail information and conduct a more extensive explanation of what to expect. The nurse should conclude the conversation by asking the parent and child to describe their surgery preparation plan, encouraging them to use their newly acquired knowledge. This information could also be reinforced with a follow-up email or phone call from the nurse. Table 1 below highlights some barriers that may be encountered with this Internet education approach and the targeted interventions.

This Internet-based education follows the *health promotion model* described by Bastable which supports the partnership between health care provider and patient.[22] Provided with the appropriate tools through this partnership, the parent and pediatric patient are able to increase their level of wellness by being proactive rather than by avoiding disease. An important component of the health promotion model is *self-efficacy*, defined as "a belief in one's own competence and ability to accomplish a certain behavior."[22] In this educational plan, the nurse relies on the parent and pediatric patient to guide the training based on their ability to make their own decisions and express their unique needs. Since this education approach is proactive, it does not align with the *compliance* orientation, which traditionally followed a more hierarchical patient-provider

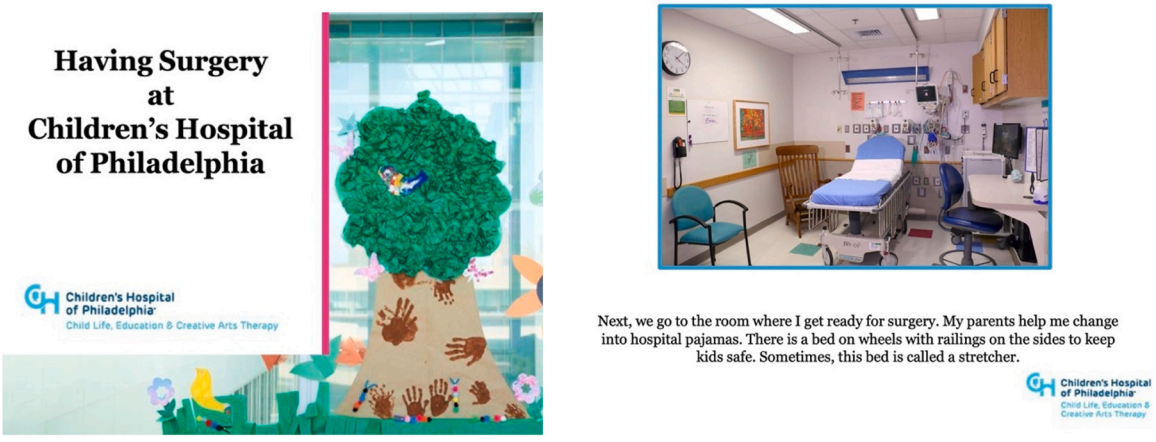


Figure 2. Excerpts from real-life pediatric patient e-book. This figure is available in color online at www.jopan.org
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Table 1
Addressing Barriers to Pediatric and Parental Internet Education Intervention

Variable	Intervention	Supportive Research
Outpatient pediatric patient preparation programs were found to have very low participation rates (17%–32%) due to the need for a provider referral and qualification of child with special needs.[23]	Incorporate early preoperative nurse-led parent and child education into the pre-hospital experience for all pediatric patients undergoing outpatient surgery.	Behavioral interventions are an important component of managing surgery-induced anxiety and pain and work best when children have had the time to practice and build mastery.[11]
The near-universal availability of the Internet provides an easily accessible option for children and families to obtain information from their own homes, multiple times before and after surgery.[11]	Develop Internet-based education for parents and children to obtain age-appropriate behavioral information to prepare them for their outpatient surgical procedure.	Advantages of computer learning resources include quick feedback, a large database, individualized, and time efficient.[22]
The lack of time is the number one reason that nurse educators give inadequate time to the assessment phase of learning.[22]	Adequate time must be set aside for preanesthesia nurses to properly assess the learning needs of the parent and pediatric patient and introduce the appropriate aspects of Internet-based education.	Most learners (90%–95%) can master a subject with a high degree of success if they are given sufficient time and support.[22]

stance. Through this health promotion-focused intervention, the preanesthesia nurse can support the entire perioperative health care team to improve pediatric patient outcomes from surgery, returning children and their parents to their state of physical and emotional wellness.

Conclusion

Pediatric and parental preparation before surgery is an important step that continues to be inconsistently addressed. Preanesthesia nurses can address with valid, evidence-based preoperative education tools aimed at pediatric patients and their parents. Use of available resources can provide a tailored, developmentally appropriate preoperative education plan for pediatric patients and their parents, providing families with the power to create a positive surgical experience.

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