

Date: May 30, 2012

Title: Timing of Patient/Family Preoperative Education and its Relationship to Retention of Information

Clinical Question:

P (population/problem)	Among preoperative children and adolescents
I (intervention)	does education regarding pre and postoperative surgical instructions provided during the preoperative visit for physical examination
C (comparison)	compared to preoperative education provided at the time of diagnostic visit
O (outcome)	increase patients'/parents retention of pre and postoperative surgical instructions?

Target Population: Children and adolescents, age birth to 18 years, scheduled for a surgical procedure and their caregivers.

Recommendation: (See Table of Recommendation Strength following references)

There is insufficient evidence and a lack of consensus to make a recommendation on the timing of preoperative education for children and adolescents.

Cincinnati Children's Hospital Medical Center Clinical Practice Policy CPC-I-219: Child/Adolescent and Family Education is relevant to this recommendation.

Discussion/Summary of Evidence:

Individual studies, systematic reviews and expert opinions were examined that did show effectiveness of various preoperative teaching methods, but no studies were found that answered our PICO question directly regarding the optimal timing or setting of preoperative education to maximize knowledge retention. The research studies that were reviewed included both pediatric and adult studies as insufficient pediatric evidence was found and because preoperative education may be given to both the parents and child or solely to the parents depending on the age and developmental level of the child.

Preoperative education for children and their caregivers provides information about anticipated medical procedures. The information may provide some or all of the following benefits: reduce stress by promoting a sense of mastery of the experience, encourage emotional expression of concerns, teach coping strategies, establish a trusting relationship with the health care provider and to correct misinformation (Justus, 2006 [5a]; Yap, 1988 [1a]; O'Connor, 2000 [1a]; LeRoy, 2003 [5a]). There has been little research measuring knowledge retention in children after preoperative education, rather most studies have measured anxiety levels or behavior. In one integrative review of preoperative education, only 2 studies were found that measured the degree to which preparation increased children's knowledge regarding surgery (O'Connor, 2000 [1a]).

Hatava (2000, [3a]) measured knowledge acquired by parents and children in a study comparing two methods of preoperative education prior to ENT surgery in a group of 2-10 year olds. The study compared children and their caregivers who received conventional verbal information from an ENT nurse compared to a group who received the same information but in which the children participated in role play in the operating room with parents as passive observers. Knowledge of the majority of the events in the preoperative period was greater in the group that participated in role playing (Hatava, 2000 [3a]).

A variety of types of preoperative education is used and has been shown to be beneficial. These include pamphlets, verbal explanations, videos, puppet therapy, play therapy, film modeling, coping skills training, and hospital tours. However,

comparing efficacy of different types of programs is difficult as there are multiple treatment components making interpretation of data very difficult (Yap, 1988 [1a]).

The age or developmental level of the child is a factor in the timing of preoperative preparation. In general, younger children do better when preoperative education is provided closer to the day of surgery while older school age children and adolescents are better prepared when given a week or more advance preparation. This is supported by the following studies and recommendations:

A study of children between 4 years and 12 years viewed a preparatory film one week in advance showed the older children had fewer post hospital behavior problems than older children who viewed the film at admission while younger children prepared a week in advance showed greater anxiety than younger children who saw the film on the day of admission (Yap, 1988 [1a]).

The American Heart Association Pediatric Nursing Subcommittee recommends the timing of preoperative preparation for young children ages 3-5 years to occur the night before surgery while older children ages 5-12 years respond optimally when information is presented one week before surgery (LeRoy, 2003 [5a]).

One multidisciplinary program to provide emotional and cognitive preparation for children undergoing surgery considers the child's developmental needs and their reaction to surgery and hospitalization in the development of a personalized session of preoperative education for their patients and families. Toddlers and school age children receive preparation as close to the day of surgery as possible. Adolescents are provided 7-10 days advance preparation (Justus, 2006 [5a]).

Adult studies were identified in the literature that specifically measured knowledge retention after preoperative education. Individual instruction, pamphlets and videos were shown to increase knowledge of the surgical procedure, post op care and in the ability to perform post op exercises, but a superior method was not identified (Stern, 2005 [1a]). The quantity of information given to patients often exceeds their ability to retain what they have been taught. Reinforcement of verbal educational content by means of written or video based material has been shown to enhance memory (Sandberg, 2008 [4b]). Use of an internet program was shown to provide greater increases in knowledge in adult ambulatory orthopedic patients than a program using traditional face to face education with a health care provider who also provided a written leaflet. Patients in the internet group could define the time and place of the use of the internet program (Heikkinen, 2008 [2a]).

Information processing by the child/parent and thus both knowledge retention and the effectiveness of preoperative education is influenced by a variety of factors. These include: developmental level of the child, type/acuity of surgery, relevant past experiences, cultural and ethnic background, family composition and dynamics, as well as available support systems (Bar-Mor, 1997 [5a]; Betz, 2006 [5b]; Justus, 2006 [5a]; LeRoy, 2003 [5a]; Smith, 2005 [4a]).

The optimal timing of preoperative education to maximize knowledge retention may be dependent upon multiple factors. Further research is needed to evaluate the effectiveness of preparation as well as determine the appropriate match between children/caregivers and preparation techniques (Stern 2005 [1a]; O'Connor, 2000 [1a]; Betz 2006 [5b]; Bar-mor, 1997 [5a]; Yap, 1988 [1a]).

Health Benefits, Side Effects and Risks

Studies over the past thirty years have shown that preoperative preparation has the potential to impact a wide range of outcomes including increased knowledge of the procedure (Hatava, 2000 [3a]; Justus, 2006 [5a]; O'Conner, 2000 [1a] Stern, 2005 [1a] LeRoy, 2003 [5a]; Yap, 1988 [1a]), decreased anxiety levels (Hatava, 2000 [3a]; Justus, 2006 [5a]; O'Conner, 2000 [1a]; LeRoy, 2003 [5a]) compliance with prescribed activities, (Stern, 2005 [1a]; LeRoy, 2003 [5a]), establishing a trusting relationship between families and health care providers (Justus, 2006 [5a]; LeRoy, 2003 [5a]; O'Conner, 2000 [1a]; Yap, 1988 [1a]). However, some families have expressed concern that preoperative education may increase their child's anxiety. In certain situations this has been shown to be true. Children with prior

experience, especially if the experience was perceived negatively, showed increased levels of anxiety compared to naïve children after viewing hospital relevant audiovisual materials. These children may do better when prepared with coping skills in addition to procedural information (LeRoy, 2003 [5a]; Yap, 1988 [1a]).

Some parents and children cope by avoidance and may experience increased anxiety when health information is provided. Certain information may be necessary, but refocusing may be the most effective intervention for these individuals (LeRoy, 2003 [5a]).

References/Citations: (evidence grade in []; see *Table of Evidence Levels following references*)

Bar-Mor, G. (1997). Preparation of Children for Surgery and Invasive Procedures: Milestones on the way to Success. *Journal of Pediatric Nursing*, 12, 252-255. [5a]

Betz, C. L. (2006). Surgical preoperative preparation for children: The need for more evidence from nurse scientists. *Journal of Pediatric Nursing*, 21(6), 397-399. [5b]

Hatava, P., Olsson, G., Lagerkranser, M. (2000). Preoperative psychological preparation for children undergoing ENT operations: a comparison of two methods. *Paediatric Anesthesia*, 10, 477-486. [3a]

Heikkinen, K., Helena, L., Taina, N., Anne, K., & Sanna, S. (2008). A comparison of two educational interventions for the cognitive empowerment of ambulatory orthopedic surgery patients. *Patient Education and Counseling*, 73(2), 272-279. [2a]

Justus, R., Wyles, D., Wilson, J., Rode, D., Walther, V., & Lim-Sulit, N. (2006). Preparing Children and Families for Surgery: Mt. Sinai's multidisciplinary perspective. *Pediatric Nursing*, 32(1), 35-43. [5a]

LeRoy, S., Elixson, E.M., O'Brien, P., Tong, E., Turpin, S., & Uzark, K. (2003). Recommendations for preparing children and adolescents for invasive cardiac procedures. A statement from the American Heart Association Pediatric Nursing Subcommittee of the Council on Cardiovascular Nursing in collaboration with the Council on Cardiovascular Diseases of the Young. *Circulation*, 108, 2550-2564. [5a]

O'Conner-Von, S. (2000). Preparing Children for Surgery- an Integrative Review, *AORN Journal*, 71(2), 334-343. [1a]

Sandberg, E.H., Sharma, R., Wilkund, R., & Sandberg, W. S. (2008). Clinicians consistently exceed a typical person's short-term memory during preoperative teaching. *Anesthesia & Analgesia*, 107(3), 972-978. [4b]

Smith, L., & Callery, P. (2005). Children's accounts of their preoperative information needs. *Journal of Clinical Nursing*, 14(2), 230-238. [4a]

Stern, C., & Lockwood, C. (2005). Knowledge retention from preoperative patient information. *International Journal Evidence-Based Healthcare*, 3, 45-63. [1a]

Yap, J. (1988). A Critical Review of Pediatric Preoperative Preparation Procedures: Processes, Outcomes, and Future Directions. *Journal of Applied Developmental Psychology*, 9, 359-389. [1a]

Table of Evidence Levels (see note above)

<i>Quality level</i>	<i>Definition</i>
1a† or 1b†	Systematic review, meta-analysis, or meta-synthesis of multiple studies
2a or 2b	Best study design for domain
3a or 3b	Fair study design for domain
4a or 4b	Weak study design for domain
5a or 5b	Other: General review, expert opinion, case report, consensus report, or guideline

†a = good quality study; b = lesser quality study

Table of Recommendation Strength (see note above)

<i>Strength</i>	<i>Definition</i>
“Strongly recommended”	There is consensus that benefits clearly outweigh risks and burdens (or visa-versa for negative recommendations).
“Recommended”	There is consensus that benefits are closely balanced with risks and burdens.
No recommendation made	There is lack of consensus to direct development of a recommendation.

Dimensions: In determining the strength of a recommendation, the development group makes a considered judgment in a consensus process that incorporates critically appraised evidence, clinical experience, and other dimensions as listed below.

1. Grade of the Body of Evidence (see note above)
2. Safety / Harm
3. Health benefit to patient (*direct benefit*)
4. Burden to patient of adherence to recommendation (*cost, hassle, discomfort, pain, motivation, ability to adhere, time*)
5. Cost-effectiveness to healthcare system (*balance of cost / savings of resources, staff time, and supplies based on published studies or onsite analysis*)
6. Directness (*the extent to which the body of evidence directly answers the clinical question [population/problem, intervention, comparison, outcome]*)
7. Impact on morbidity/mortality or quality of life

Supporting information

Introductory/Background Information:

Periop nurses have reported that patients and their families present for surgery with insufficient recall of education despite previous documentation of preoperative education at the time of diagnosis. Preoperative education is currently provided at the time of diagnostic visit in some of the surgical clinics. Our team hypothesized that the emotional and cognitive experience of learning the diagnosis along with the preoperative instructions is more information than can be efficiently processed by the child/parent and that knowledge retention may be greater if this education is given at a different time. We questioned whether an optimal time to offer the preoperative education might be at the time of the preoperative physical examination which is required within 30 days of the planned surgical procedure.

Group/Team Members:

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Search Strategy:

An extensive search of the literature from: 1996 to February 2011

Database: CINAHL, Medline, Google Scholar.

Search terms: Preoperative period, preoperative education, preoperative care, patient education, knowledge retention, comprehension, surgery, pediatric.

Known conflicts of interest: No financial conflicts of interest were found.

Applicability Issues:

Emotional and cognitive preoperative preparation has been shown to be beneficial for patients as well as parents/caregivers.

Timing, method, location, and content of the educational session will vary due to the nature/complexity of the surgical procedure and prior surgical experiences of the patient and family. Consideration must be given to the age and developmental level of the patient, as well as cultural needs of the family and the educational level of the parents/caregivers. Nurses, advanced practice nurses, physicians, child life specialists, anesthesiologists and/or respiratory therapists may have a role working independently or as a group to prepare the child/family for the surgical procedure.

Copies of this Best Evidence Statement (BEST) are available online and may be distributed by any organization for the global purpose of improving child health outcomes. Website address: <http://www.cincinnatichildrens.org/svc/alpha/h/health-policy/ev-based/default.htm>. Examples of approved uses of the BEST include the following:

- copies may be provided to anyone involved in the organization's process for developing and implementing evidence based care;
- hyperlinks to the CCHMC website may be placed on the organization's website;
- the BEST may be adopted or adapted for use within the organization, provided that CCHMC receives appropriate attribution on all written or electronic documents; and
- copies may be provided to patients and the clinicians who manage their care.

Notification of CCHMC at EBDMinfo@cchmc.org for any BEST adopted, adapted, implemented or hyperlinked by the organization is appreciated.

This BEST was reviewed by two members of the Cincinnati Children's Medical Center Evidence Federation against established criteria

For more information about CCHMC Best Evidence Statements and the development process, contact EBDMinfo@chmcc.org.

Note

This Best Evidence Statement addresses only key points of care for the target population; it is not intended to be a comprehensive practice guideline. These recommendations result from review of literature and practices current at the time of their formulation. This Best Evidence Statement does not preclude using care modalities proven efficacious in studies published subsequent to the current revision of this document. This document is not intended to impose standards of care preventing selective variances from the recommendations to meet the specific and unique requirements of individual patients. Adherence to this Statement is voluntary. The clinician in light of the individual circumstances presented by the patient must make the ultimate judgment regarding the priority of any specific procedure.