

Creating a Calming Environment in the OR to Reduce Patient Anxiety and Enhance the Patient Experience

Lena Fogle, RN, BSN, CNOR



A patient undergoing a surgical procedure may feel anxious about the pending procedure itself, as well as its possible outcome. Patient anxiety may be further heightened upon entering the operating room and being exposed to several unfamiliar sights and sounds, such as surgical equipment, surgical instruments, surgical personnel, institutional aesthetics and bright surgical lights. Taking steps to improve the patient experience by reducing anxiety, improving their comfort and distracting them from the pending procedure may allay patients' fears and improve their overall experience and willingness to recommend the hospital to others (Hospital Consumer Assessment of Health Plans Survey, HCAHPS). One study suggests such steps can even improve recovery outcomesⁱ.



It is believed that such goals can be accomplished through patient-centered care approaches that consider the physical environments (PLANETREE)ⁱⁱ and partner with patients and their family members to create a more compassionate setting to support optimal healing. Further, randomized studies have been performed evaluating the use of audio and video

techniques to reduce patient anxietyⁱⁱⁱ and improve pain management. (Table 1) The following are some of their findings:

Table 1: Supporting Literature and Relevance to SignatureSuite

Publication Title	Key Findings	Relevance to SignatureSuite
<p>AORN Journal March 2013-Vol 97 No3 Special Needs Populations: Alleviating Anxiety and Preventing Panic Attacks in the Surgical Patient</p>	<p>Patients with decreased perioperative anxiety have been shown to have improved post-operative outcomes.</p>	<p>Reduction in pre-surgical anxiety through audiovisual streaming during patient prep and pre-anesthesia induction and post-procedure as the patient is emerging from anesthesia.</p>
<p>Cartoon Distraction Alleviates Anxiety in Children During Induction of Anesthesia</p>	<p>Allowing viewing of cartoons by pediatric patients is a very effective method to alleviate preoperative anxiety.</p>	<p>Reduction in pre-surgical anxiety through audiovisual streaming upon patient entry into the operating room and post-procedure as the patient is emerging from anesthesia.</p>
<p>Jeongwoo Lee, Jihye Lee, et al; Anesthesia & Analgesia Nov 2012, V115N5:1168-1173 Streamed Video Clips to Reduce Anxiety in Children During Inhaled Induction of Anesthesia</p>	<p>Allowing viewing of cartoons by pediatric patients is a very effective method to alleviate preoperative anxiety.</p>	<p>Reduction in pre-surgical anxiety through audiovisual streaming upon patient entry into the operating room and post-procedure as the patient is emerging from anesthesia.</p>
<p>Katherine Mifflin, Thomas Hackman, Jill Chorney; Anesthesia & Analgesia, Nov 2012, V115N5:1162-1167 Effects of the Combination of Music and Nature Sounds on Pain and Anxiety in Cardiac Surgical Patients</p>	<p>Playing video clips during inhaled induction of children undergoing ambulatory surgery is an effective method of reducing anxiety.</p>	<p>Reduction in pre-surgical anxiety through audiovisual streaming during patient prep and pre-anesthesia induction and post-procedure as the patient is emerging from anesthesia.</p>
<p>Susanne Cutshall, Patricia Anderson, et al; Alternative Therapies, Jul/Aug 2011, V17N4:16-23 Effects of the Combination of Music and Nature Sounds on Pain and Anxiety in Cardiac Surgical Patients</p>	<p>Recorded music and nature sounds can be integrated into the postoperative care of CV surgery patients. The recording may provide an additional means for addressing common symptoms of pain and anxiety while providing a means of relaxation for these patients.</p>	<p>Reduction in post-surgical anxiety through audiovisual streaming during patient emergence / post-anesthesia. Audiovisual streaming prior to exit from the OR and upon waking.</p>
<p>Susanne Cutshall, Patricia Anderson, et al; Alternative Therapies, Jul/Aug 2011, V17N4:16-23 The Effectiveness of Interventions Aimed at Reducing Anxiety in Health Care Waiting Spaces</p>	<p>Music is a well-established means of decreasing anxiety in adult patients awaiting medical interventions. Reducing waiting anxiety is an important objective of patient-centered care. Anxiety is linked to negative health outcomes including longer recover periods, lowered pain thresholds, resistance to treatment, nightmares, and separation anxiety.</p>	<p>Reduction in pre-surgical anxiety through audiovisual streaming during patient prep and pre-anesthesia induction and post-procedure as the patient is emerging from anesthesia.</p>
<p>Elaine Biddiss, Tara Joy Knibbe, Amy McPherson; Anesthesia & Analgesia, Aug2014, V119N2:433-478 Effectiveness of different music-playing devices for reducing pre-operative anxiety</p>	<p>Music is a well-established means of decreasing anxiety in adult patients awaiting medical interventions. Reducing waiting anxiety is an important objective of patient-centered care. Anxiety is linked to negative health outcomes including longer recovery periods, lowered pain thresholds, resistance to treatment, nightmares, and separation anxiety.</p>	<p>Reduction in pre-surgical anxiety through audiovisual streaming during patient prep and pre-anesthesia induction and post-procedure as the patient is emerging from anesthesia.</p>
<p>Kwo-Chen Lee, Yuh-Huey Chao, et al; International Journal of Nursing Studies, Apr2011, V48:1180-1187 The effect of music on preoperative anxiety in day surgery</p>	<p>Both headphone and broadcast music are effective for reducing the preoperative patient's anxiety in the waiting room.</p>	<p>Reduction in pre-surgical anxiety through audiovisual streaming upon patient entry, prep, and pre-anesthesia induction and post-procedure as the patient is emerging from anesthesia.</p>

Table 1: Supporting Literature and Relevance to SignatureSuite, *continued*.

Publication Title	Key Findings	Relevance to SignatureSuite
Carlo Ruffinengo, Elisabetta Versino, Giovanni Renga; European Journal of CV Nursing, 8(2009) 57-61 The Anxiety- and Pain-Reducing Effects of Music Interventions	The use of the informative video in Cardiology Departments proves to be highly recommended as an instrument to lower anxiety levels and increase significantly the level of satisfaction.	Reduction in pre-surgical anxiety through audiovisual streaming upon patient entry, prep, and pre-anesthesia induction and post-procedure as the patient is emerging from anesthesia.
Ulrica Nilsson, AORN Journal, Apr 2008, V87N4:780-807 The Anxiety- and Pain-Reducing Effects of Music Interventions	Music intervention had positive effects on reducing patients' anxiety and pain in approximately half of the reviewed studies.	Reduction in pre-surgical anxiety through audiovisual streaming upon patient entry, prep, and pre-anesthesia induction and post-procedure as the patient is emerging from anesthesia.
Ulrica Nilsson, AORN Journal, Apr 2008, V87N4:780- 807 Music for stress and anxiety reduction in coronary heart disease patients	Music interventions in people with myocardial infarction found more consistent anxiety-reducing effects of music. Listening to music may have a beneficial effect on anxiety in persons with CHD, especially those with MI.	Reduction in pre-surgical anxiety through audiovisual streaming upon patient entry, prep, and pre-anesthesia induction and post-procedure as the patient is emerging from anesthesia.
Bradt J, Dileo C, Potvin N; Cochrane Database Syst Rev, Dec 2013, CD006577 Music for stress and anxiety reduction in coronary heart disease patients	Music interventions in people with myocardial infarction found more consistent anxiety-reducing effects of music. Listening to music may have a beneficial effect on anxiety in persons with CHD, especially those with MI.	Reduction in pre-surgical anxiety through audiovisual streaming during patient entry, prep and pre-anesthesia induction and post-procedure as the patient is emerging from anesthesia.

Improving the patient experience also relates to one of the quality healthcare system objectives identified by the Institute of Medicine in 2001. Since then, the phrase “patient-centered care” has reverberated around the globe and has become identified as a key strategy to improve the quality and humanity of care delivery ^{iv}.



By employing key components of the PLANETREE Model^v and visualization of outdoor or other familiar elements, an institution may be able to reduce time in PACU, time to discharge, time to heal, nursing support hours and overall cost of care while at the same time increase patient satisfaction.

STERIS – through its SignatureSuite consisting of an integrated computer system linked to surgical field displays, large wall-mounted displays and recessed speakers – enables your institution to deliver soothing

and familiar audiovisual content tableside to enhance patients' experiences and distract them from the anxieties of the pending surgical procedure. Content can be pre-selected by the patient from a content library that includes a variety of sea and nature scapes. Selections can also be made just in time by the operating room staff prior to the patient entering the room.



Selections available within SignatureSuite allow you to provide personalized choices intended for heightened patient comfort and distraction. In addition, the integrated computer system can simultaneously adjust (dim or turn off) surgical lighting and room lighting to deliver a more theater-like effect. This removes direct lighting on the surgical room components, and directs the patient's attention to the comforting audiovisual content being presented.

Initiation of the audiovisual content and lighting controls can be performed manually by the circulating nurse through the graphical user interface on the Integrated Computer System or automatically when Real-Time

Locating Systems (RTLS) are in use. In the case of the RTLS method, a transmitter is affixed to the patient, and the patient's location is known. Thus, when approaching the operating room, lights are automatically dimmed and the audiovisual content is automatically activated – ultimately further enhancing the patient's experience and eliminating a manual task for the circulating nurse.



Such an approach can be traced to three key PLANETREE Model Components (Table 2), which aligns with the PLANETREE commitment to deliver patient-centered excellence and an enhanced patient experience.

**Table 2: PLANETREE
Model Achieved Using SignatureSuite**

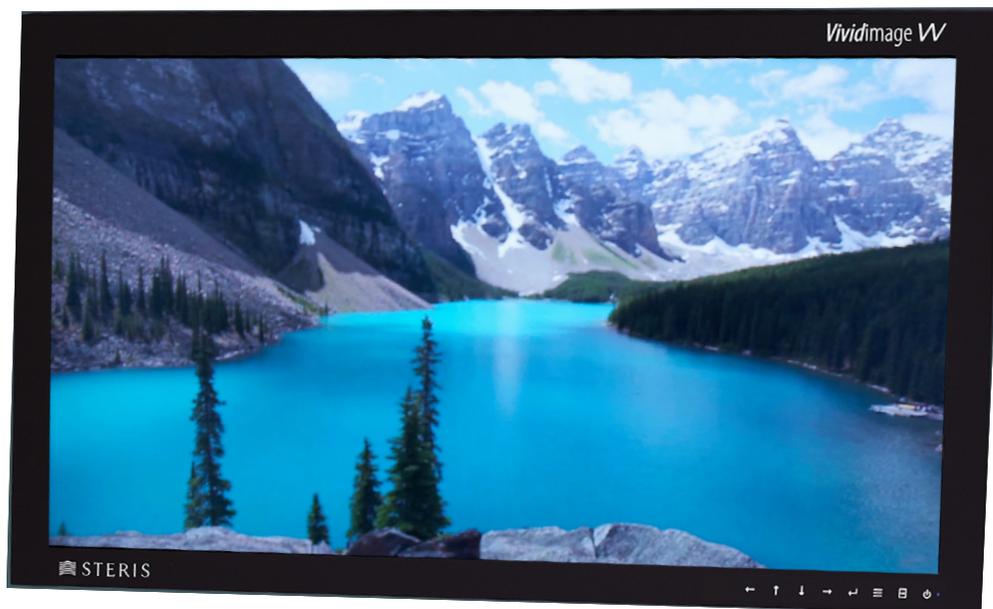
PLANETREE Model	Integrated Computer Solution
<p>Family, Friends, and Social Support:</p> <p>Encouraging the involvement of family and friends as partners in the care experience, whenever possible; offering patient-directed visitation, including in the ICU and ED, family presence protocols, and care partner programs.</p>	<p>Display of personalized content provided by SignatureSuite and selected by the patient or their family</p>
<p>Healing Environments Through Architectural Design:</p> <p>Creating quiet, healing environments using evidence-based design principles that create homelike and welcoming settings that remove barriers between patients, families, and caregivers.</p>	<p>Use of Surgical Field and Large Wall Displays to create a home theater effect</p>
<p>Arts and Entertainment:</p> <p>Creating an atmosphere of serenity and playfulness by displaying artwork in the patient rooms and treatment areas, having volunteers work with patients to create their own art, and inviting local artists and musicians to help lift spirits through exposing patients to the arts and entertainment.</p>	<p>Creation of a theater-like environment with delivery of non-medical audiovisual content. Can further enhance through room design elements that mask the view of surgical equipment, clean cable management, and use of accent lighting</p>



The use of audiovisual techniques intended to enhance the patient experience is well-known. To study the effect of the STERIS SignatureSuite OR Integration product, STERIS partnered with the Cleveland Clinic to conduct a randomized controlled trial. The findings suggest that patients receiving the SignatureSuite intervention experienced less anxiety than patients in a standard OR without the SignatureSuite intervention. The Visual Analog Scale was used to measure patient anxiety both pre and post operatively. ORs equipped with STERIS’s SignatureSuite saw mean anxiety visual analog scale (VAS) scores decreased by one point compared to anxiety scores for patients in a standard OR, which increased by four points, totaling a five-point differential. Mean anxiety scores for patients exposed to SignatureSuite remained lower on arrival to the PACU and prior to leaving the PACU compared to mean scores for those who had surgery in the standard OR. Other interesting and beneficial trends were noted. The procedure time for patients’ receiving the SignatureSuite intervention was 12 minutes less than the control group.

Natalie Kalabon, RN, a clinical nurse in Surgical Services at Cleveland Clinic’s Marymount Hospital who participated in the research project says “you could tell the difference between a room with nature scenes on the monitor and music playing. Patients’ attention was diverted to the monitors rather than the scrub technician setting up the table or the anesthesia machine.”

This along with other anecdotal evidence has led to a follow up study to investigate the effect of the SignatureSuite on OR team members including surgeons, nurses, scrub technicians, surgical assistants and anesthesia providers.



Other sites that have STERIS's SignatureSuite have reported that not only does the SignatureSuite provide a calming environment for patients but also serves as a visual and audible cue to the staff that the patient has entered the room.

This cue and the environment it creates serves as a reminder for the staff to become present with the patient and focus on the patient experience. The same has been reported at the end of a case when the patient is emerging from anesthesia and SignatureSuite begins to play. The staff is once again reminded to focus on the patient.

The full clinical research study manuscript is currently being submitted for publication. Visit the Cleveland Clinic website for more information related to this study.

<https://consultqd.clevelandclinic.org/2017/08/creating-a-calming-or-environment/>

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STERIS Corporation
5960 Heisley Road
Mentor, OH 44060-1834 . USA
800-548-4873
www.steris.com