



Taking Better Care of Children

Ambient Experience makes a visit to the pediatric department a more positive experience

Who/where

Emergency Department of the *Florida Hospital for Children*, Orlando, Florida, USA

Patricia S. Robinson, Ph.D., CPNP,
Director of the Center for Pediatric Research and Outcomes

MR suite at the Astrid Lindgren Children's Hospital, Karolinska University Hospital, Stockholm, Sweden

Dr. Stefan Geiberger, Radiologist
Katarina Johansson, Radiography Nurse

MR suite at the Women's and Children's Hospital, Adelaide, South Australia, Australia
Nick Zabaniias, Chief Radiographer

Challenge

To provide a pediatric care environment that helps lessen the anxiety of young patients and their parents by enhancing the patient experience, patient compliance, and staff satisfaction.

Solution

Philips Ambient Experience and Experience Design solutions can offer various means to address this challenge.

In the *Florida Hospital for Children*, Ambient Experience is used in the entrance and triage area as well as in the waiting room and individual examination rooms. The design concept includes lighting, video projections, interactive light canvases, audio, and privacy glass.

Both the Astrid Lindgren Children's Hospital and the Women's and Children's Hospital in Adelaide have MRI suites that feature lighting, video projections, and audio selections (known as the Ambient Experience Premium installation). The Astrid Lindgren Children's Hospital also has a KittenScanner (a play-scale model of the scanner) in the waiting area.

Being in a hospital can be frightening and upsetting, especially for children:

There are unfamiliar sights, smells, sounds, and people. They are in a strange place, and they don't know what to expect. The right environment can harness the child's playfulness and curiosity to reduce that fear, so that they can undergo their examination or treatment more calmly. With more than 500 Ambient Experience solutions installed in all kinds of hospitals throughout the world, Philips has proven successful in enhancing pediatric care environments. This has been reported by the staff in the *Florida Hospital for Children*, the Astrid Lindgren Children's Hospital, and the Women's and Children's Hospital in Adelaide.

These three hospitals arrived at their decision to implement Ambient Experience by different paths. Ambient Experience was always part of the plan for the Emergency Department in Orlando. In Stockholm, it was not part of the original design, but when Philips proposed it, radiography nurse Katarina Johansson recognized its potential and campaigned for its inclusion. In Adelaide, the hospital took a creative approach to funding Ambient Experience, since they had not provisioned for it in the tender: the hospital approached the Little Heroes Foundation, a local charity. "They just 'fell in love' with the whole idea," explains Mr. Nick Zabaniias, Chief Radiographer.



The waiting area in Orlando has overhead lighting that cycles colors and intensities and two Philips imagination light canvases that change color and design upon patient interaction.

PHILIPS

Because each site poses different challenges and requirements, Philips deploys a dedicated team that works with the hospital to plan and deliver each Ambient Experience. Based on insights gathered from observations and interviews with patients, family, and staff, the Philips team helps create a comfortable, stress-reducing environment by integrating technology, spatial design, and workflow improvements.

In Stockholm and Adelaide the Ambient Experience team was involved from a

very early stage in the installation of their new MR scanners. In Stockholm, this also included adding a play-scale model of the scanner (called a KittenScanner), so children could get used to the scanning procedure through play. In Orlando, the team's work on a flow map (a plan of how to influence the emotions that people experience from the entrance, through triage, and into the waiting and examination rooms) began as soon as the general arrangement of the department was decided.

The Ambient Experience has an expanded role in Adelaide, because they use the MRI suite for both pediatric, and obstetric and gynecological patients. Here the Philips approach offers a distinct advantage over "ambient experiences" that rely on static painted decoration, which the hospital had used previously, because the room can be quickly and easily adapted to the preferences of both types of patient.

"The Ambient Experience does a magnificent job, breaking the ice and putting these people at ease. Having them control their environment means they walk into the room like they've been there before, they take ownership of where they are and what they're doing."

Mr. Zabanius, Chief Radiographer

In the MRI suite in Adelaide, touch screens let people control the lighting and sounds in the room as well as the wall projections. There are different themes for different age groups – from cartoons, sports, interactive, and aerial scenes, to relaxing themes such as a beach with gentle waves.



Ambient Experience in the MRI examination room in Stockholm involved implementing curved walls instead of the original 12-cornered design. The result, with the lighting, projections and sound design, as described by Dr. Geiberger, "doesn't look like a normal MR room."



Distraction for a productive start

In Adelaide, the Ambient Experience team also recognized that the MRI suite is used for two different types of workflow. They therefore suggested two entrances. One is a dedicated door for bed-bound children from the hospital. This allows them to handle, for example, the general anesthetic used for under-5-year-olds in an open-plan induction and recovery area. To avoid these patients blocking the scanner – and thus affecting throughput – they alternate with outpatients, who enter through the second door. These non-anesthetized patients benefit most from the Ambient Experience.

Their preparation area has large cubicles with two chairs and TVs playing cartoons in the background. Before entering the MRI suite, the patient can select a theme on a touch screen. Dynamic LED lights then wash the walls in the colors corresponding to the thematic video they have chosen, and the video (with audio) provides a further powerful distraction. As Mr. Zabanius explains, offering the patient control of even this small aspect of their treatment goes far toward helping them reduce anxiety. "The Ambient Experience does a magnificent job, breaking the ice and putting these people at ease. Having them control their

environment means they walk into the room like they've been there before, they take ownership of where they are and what they're doing. You get an instant rapport." He reports that this has led to fewer repeat scans, further contributing to the throughput. "They listen to you," he adds. "They trust you. It's great."

In Stockholm and Florida, staff members report that older children and teenagers, who are more used to interacting with the screens, prefer the interactive themes. For example, playing the Ambient Experience theme of "find the chicken" takes a lot of concentration – and thus provides distraction. Dr. Stefan Geiberger, radiologist in Stockholm, comments that, when an MRI scan takes half an hour to an hour – time which appears even longer for a child – "they are less anxious at the start, they start off better, which makes our job easier."



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The KittenScanner in Stockholm helps younger patients prepare for their scan.

Playing the anxiety away

The staff in Stockholm builds rapport with younger patients even before the examination room. They do this using the Philips KittenScanner in the waiting room. The staff encourages the child to choose one of four toys, place it on the miniature patient table, and slide it into the KittenScanner. This triggers an animated story that explains why the toy is being scanned and how a scanner works. Initially the nurses correlated the toy's diagnosis to the child's scan (for example, choosing Robert the Robot if the child needed a brain scan).

The nurses now realize that the important factor is that the child understands the general connection between scanning and diagnosis. Today they either choose at random, or let the child choose. As part of the child's pre-visit regimen (about a week before the scheduled scan), the staff does a play scan with the KittenScanner as well as a mock scan in the real scanner. They also note the child's toy of choice in the patient record, since some of the children look forward to meeting Olly the Elephant or Robert the Robot when they come back. "When Philips first proposed the KittenScanner, I questioned whether we really needed it," says Mrs. Johansson. "But today, I'm glad that we got it, because I think it is a very useful tool."

Mrs. Johansson also notes that "This is a good way to sit down with them, and with the parents. You get a calmer patient; you get better contact with the patient. I can really see the difference." While they typically use the KittenScanner with children from 4 to 8 years old, staff have also made use of it with an older, mentally disabled patient. They had been advised that this patient could not take instruction: "We were told that we would have to do the scan under anesthesia," says Mrs. Johansson. However, after playing through the procedure on the KittenScanner, "we could do the scan without anesthesia."

On another occasion, the staff was challenged to image a Chinese patient who could not speak Swedish. "Then I remembered the different languages available on the KittenScanner," says Mrs. Johansson. Not only did the KittenScanner help her explain the procedure, but just the presence of the Chinese text in the animation helped relax the child and his parents. "When I put on the Chinese animation, he just smiled. He was so happy, even though he couldn't understand a word I was saying."

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Mrs. Johansson, Radiography Nurse

Addressing the different needs of hospital stakeholders

While preparing the MRI suite, the staff in Stockholm use the video theme of the KittenScanner character. However, once the child is in the scanner – and thus no longer aware of the Ambient Experience projections – the nurse can change the theme to something more relaxing for parents in the room. "Parents who had previously been in our other MRI room comment this is nicer and more relaxing," adds Mrs. Johansson. In Adelaide, they also use the audio for this. "The music is

tranquil. You really see that effect on anxious parents. You can see it in their face and their body language," says Mr. Zabanius. "And the children sense that: If you get the parents on your side, you get the children on your side as well."

It is not just the patients and parents that appreciate Ambient Experience. The staff in all three hospitals have expressed their appreciation for the technology. In Stockholm, Mrs. Johansson describes how "the technicians prefer the Ambient Experience, with the peaceful light, scenery, and so on." In Adelaide, Mr. Zabanius recounts that the staff appreciates the relaxing atmosphere so much that they even use it with anesthetized patients – "so it's for the radiographers and the anesthetic team that come down." In general, the staff have expressed greater pride and more satisfaction working in the Ambient-enhanced area; they convey their enthusiasm to other colleagues and relate the effect on the children. In Stockholm, other hospital departments are now looking into how Ambient Experience might help them improve their patient and staff experience.



Mrs Johansson

Pride is also reflected in the staff's satisfaction ratings in Orlando at the *Florida Hospital for Children*. The staff in the Emergency Department tied for highest satisfaction in 2012, with rates significantly higher than the rest of the hospital. "We have only had one nurse leave the Emergency Department in the four years," says Dr. Patricia Robinson.

For Dr. Robinson, Ambient Experience was one factor in her decision to take the position as Director of the Center for Pediatric Research and Outcomes at the Florida Hospital: "It seemed like an organization that was already committed to excellence in patient care and patient experience."



Dr. Robinson

Attracting parents – and patients

Florida Hospital for Children's "commitment to excellence" also seems to attract parents who hear about it. Overwhelmingly, parents were choosing the hospital for their emergency care. The Emergency Department opened with eight rooms. The plan was to expand to sixteen rooms after five years, but they had to do it in the first year to maintain acceptable waiting times. Even so, by late 2012 the occupancy of the examination rooms was again close to 100%.

An exit questionnaire in the *Florida Hospital for Children* verified parents were less anxious even on arrival, less angry leaving, and more satisfied with quality of care and hospital services than at other emergency departments in the area. At exit they even remembered themselves being less anxious than they had answered in entrance questionnaires. Some of this relaxation is inherent in getting their child's condition under control, but their results were statistically significantly better than at a control location at another Orlando pediatric emergency department.

The experiences in Adelaide and Stockholm have been similar. "We get a lot of positive feedback from people who knew the old scanner and then experienced this," explains Mr. Zabanius. Demand has climbed dramatically, not only because the MRI suite made it into various newspapers and television reports, but also because patients recommend their MRI to others.

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Mr. Zabanius, Chief Radiographer

Proving the concrete effects of a positive atmosphere

Dr. Robinson has been working on a study for the Health Environments Research & Design Journal, comparing results with another new emergency department in Orlando. "To me the most significant finding was that the patient recorded pain was lower for patients that were clinically otherwise the same." Children over three years old had significantly lower pain scores on Wong-Baker FACES Pain Rating Scale. "It turned out the Ambient Experience seems to be what made the difference," explains Dr. Robinson.

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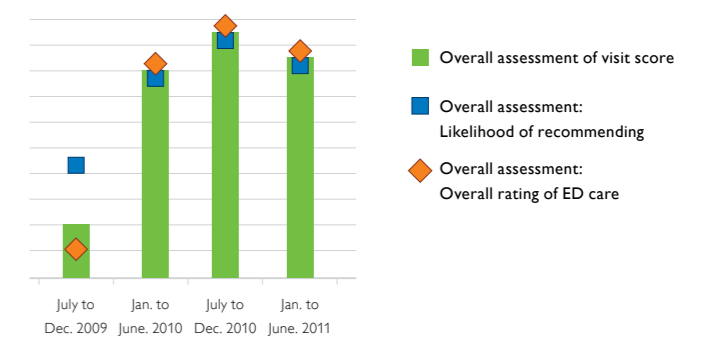
Dr. Robinson, Ph.D., CPNP, Director of the Center for Pediatric Research and Outcomes

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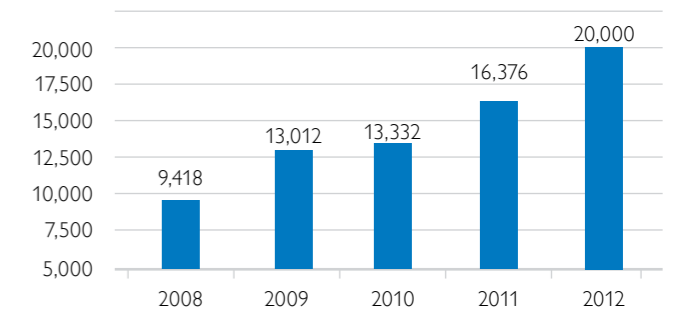


The staff at all three sites agree that the qualitative evidence is persuasive. Nobody realized at the outset how comprehensive and positive an effect Ambient Experience would have on the staff, the parents, or the children. Mr. Zabanius says, "You just do not realize it until you experience it. It is something words cannot explain. I wouldn't have thought of this just looking at a brochure or seeing a video clip." Dr. Geiberger adds, "The milieu in which the children find themselves is important, and that is why Ambient Experience is very important."

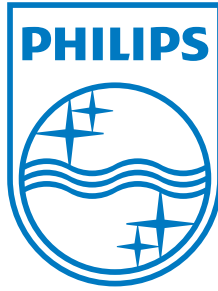
Overall Experience



Parent experience rating in the Emergency Department of the *Florida Hospital for Children*, before and after installing Ambient Experience in December 2009



Patient volume in the Emergency Department of the *Florida Hospital for Children* has doubled since 2008



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