

The Philips logo is displayed in a white rounded rectangle on a blue background. The background of the entire top section is a photograph of a hospital room with a patient in a PET/CT scanner and two staff members looking at a monitor.

Case study

Phoenix Children's Hospital **finds efficiency and calm** in pediatric imaging

Ambient Experience and the Vereos Digital PET/CT help achieve exceptional images while reducing radiation dose

Who/Where

Phoenix Children's Hospital
Phoenix, Arizona, USA.

Challenge

Phoenix Children's Hospital wanted to create a PET/CT environment that would help reduce the stress experienced by young patients and their families during the PET/CT and uptake periods. They wanted to shorten exam times and improve patient and staff satisfaction, while gaining image quality and reducing dose.

Solution

Philips installed an Ambient Experience environment that addresses the complete oncology imaging continuum at Phoenix Children's.

Results

Throughput improvements were realized. However more importantly, Phoenix Children's was able to increase patient comfort, improve efficiency, enhance image quality, and achieve more confident diagnoses – all while reducing radiation dose and using less sedation for their pediatric patients.

Phoenix Children's Hospital is a 465 bed pediatric hospital with 4 outpatient centers. It serves the metro Phoenix area of 5M+ people and conducts more than 96,000 imaging studies annually – including PET and Nuclear Medicine studies.

When acquiring a new Philips Vereos Digital PET/CT system, Phoenix Children's made the decision to complement the purchase with an installation of Ambient Experience – a solution designed to improve the patient and staff experience. "Vereos PET/CT with Ambient Experience puts Phoenix Children's Hospital at the forefront of pediatric molecular imaging," says Dianna Bardo, MD, Vice Chair of Radiology and Clinical Development.



Creating a **welcoming environment**

Patients often experience high levels of stress when going to a hospital. Nowhere is this more the case than with pediatric oncology patients. Philips Ambient Experience solutions create engaging, multi-sensorial oncology care environments designed to ease stress and impact workflow and productivity.

Recently, Phoenix Children's Hospital entered into a 15-year enterprise agreement with Philips, covering Software, Research, Product Development, Service and Maintenance, and Monitoring and Imaging equipment (everything from fluoroscopy to radiography, interventional suites to CT, MR and PET/CT). As a close partner, Phoenix Children's has had the opportunity to see and review the latest Philips innovations, and they were excited by the possibilities Ambient Experience presented.

Phoenix Children's wanted to create a PET/CT environment that would help reduce the stress experienced by young patients and their families, reduce exam times and improve both patient and staff satisfaction. They believed installing Ambient Experience in their uptake rooms and in the imaging room alongside a new the state-of-the-art Vereos Digital PET/CT would provide an unparalleled patient experience.

What is Ambient Experience?

Ambient Experience is an approach to clinical environment design aimed at improving the patient and staff experience. Based on years of design research and collaboration, Ambient Experience integrates dynamic lighting, video and audio components to create positive and engaging environments, with over 2000 installations around the world.



“Our biggest challenge is being economical in both time and money, so getting the best image possible for each child, in an efficient fashion, is critical,” says Dr. Bardo. “Ambient Experience has helped us with that because the patient is more relaxed and more willing to lie still, so exam time is shorter and motion artifacts are diminished.”

The need for calm

A hospital visit can be a frightening experience for children. There are many unfamiliar sights, sounds, and smells. Children often feel anxious, even afraid because they don't know what to expect. Some may need to be sedated just to get through the exam process. Fear and anxiety can negatively impact workflow and costs, when patients are less compliant.

This is particularly evident in nuclear imaging where big machines pose a terrifying sight for young patients. However, focusing on the patient's well-being by providing them a comforting distraction can bring higher productivity, more efficient processes, and a better care experience for all.



Phoenix Children's PET/CT room with Ambient Experience

A continuity of experience

Phoenix Children's worked closely with Philips to develop an Ambient Experience environment that addresses the complete oncology imaging continuum. Ambient Experience was installed in two of Phoenix Children's uptake rooms and in the PET/CT room, to extend continuity from uptake to acquisition. Patients can feel stressed and nervous even before the scan. In fact, stress and agitation in the uptake room can change the uptake of the radiopharmaceutical into the muscles and induce brown fat uptake, which makes it harder to distinguish possible tumors in the images.

She continues, "The uptake room with Ambient Experience creates a tranquil, relaxing environment via various guided, well thought-out themes. And these themes are consistent from the uptake room into the scan room, assisting in patient comfort and care, and reducing stress for the duration of the procedure."

Young patients are now provided some control over their experience. They can choose the color and theme that most interests them. Attention is drawn to engaging videos with whimsical themes like Robert's space journey, Olly's adventure walk, or Doris on the farm, accompanied by soothing audio. Wrapped in this tranquil ambience, the scan becomes more pleasant. Children of all ages and cultures can easily find comfort in a theme that positively distracts and entertains them

Faced with the potential of a difficult diagnosis, parents can also exhibit anxiety that young children sense, heightening the tension. The calming atmosphere of Ambient Experience also helps ease and relax parents, so the entire family benefits from a more relaxing and positive experience.

A benefit for all

"In a pediatric hospital it's not just the patient we care for, we care for the parents and siblings too," says Dr. Bardo. "With Ambient Experience we manage to help the children and their families achieve a sustained sense of calm during the entire PET/CT imaging process, while also enabling faster image acquisition, faster time-to-results, and reduced need for anesthesia."

Not everyone was initially onboard with the idea of adding Ambient Experience, but when the benefits became obvious, opinions changed. Mary Boff recalls, "We were a bit skeptical about adding Ambient Experience given that we'd had 12 years' experience without it. To our amazement, it's been very beneficial. Everyone on the medical side of things, whether it be the technologist, the nursing staff, or anesthesia, is absolutely thrilled with it. And of course the parents and the children love it too."



"We typically provide anesthesia to most patients 8 years-old and under – and to others when the patient is anxious or in pain," says Mary Boff, ARRT (NM)(CT), Lead Technologist in Molecular Imaging. "Now that we have Ambient Experience across both rooms, we find we can limit the anesthesia if we feel Ambient Experience can benefit them and they can make it through the hour uptake phase without it. This definitely cuts down on the risk of a longer anesthesia case."





“We’ve gotten nothing but great feedback from the patients and their families about Ambient Experience. It’s been such a lovely environment for everyone to work in.”

Mary Boff, ARRT (NM)(CT)
Lead Technologist, Molecular Imaging

A perfect pairing

Selection of the Philips Vereos Digital PET/CT system was a calculated part of the whole project. Supported by rigorous clinical evidence, Vereos is the world’s first and only fully digital, clinically proven, PET/CT solution. With proprietary Digital Photon Counting technology for outstanding advances all along the imaging chain, Vereos exemplifies an established solution to help improve patient care and manage costs.



“As a pediatric radiologist, my major challenge is to get high quality images

with the lowest possible radiation dose,” says Deepa R. Biyyam, MD Section Head, Molecular Imaging. “The Vereos PET/CT has definitely improved the image quality and offered a 30% radiotracer dose reduction. With Vereos, we get improved spatial resolution, improved Signal-to-Noise ratio, and excellent CT images. Together with Ambient Experience, it’s a perfect pairing to attend to our pediatric patient’s needs.”

Measuring the impact

Philips conducted a short study at Phoenix Children's to measure the impact of Vereos PET/CT with Ambient Experience. The intent was to get some initial feedback from patients, families, and care providers based on their historic experience.

This pilot study included patients who had previously undergone imaging at the facility, prior to the installation of Ambient Experience. Initial results showed improved patient experience ratings from the pediatric patients. Parents expressed that Ambient Experience made their children feel more at ease, improved their child's comfort, and provided a calmer setting that enhanced their child's overall experience. Parents also indicated the Ambient Experience solutions allowed for better interaction between staff and their child.

Additionally, parents were positive about their own experience with the procedure. They stated they felt more involved, more in control, and more comfortable compared to their child's previous procedures without Ambient Experience.

Imaging technologists likewise shared an improved experience. Staff stated Ambient Experience solutions not only enhanced the overall patient experience during treatment, but also produced workflow efficiencies and reduced the total time needed for a scan.

Findings suggested that when the children are more at ease, they are more likely to lie still during their PET/CT scan, which can lead to improved image quality.

Key survey insights

- Improved patient/parent satisfaction
- Improved staff experience, rated by imaging technologists

“The entire experience was much more relaxing versus the older room! The staff was very nice and allowed my daughter to control her environment. The ambiance was calming and nice.”

Parent of child

Child had been imaged in the hospital before the installation of *Ambient Experience*

When staff was asked to rate their 'overall impression of the Vereos PET/CT with Ambient Experience,' they consistently rated it as a 5 (1 low – 5 high). They appreciated the calming workspace, improved patient comfort, and opportunity for better interaction with patients.

Dr. Biyyam, involved in the study from a clinical perspective, performed an analysis comparing imaging of 25 patients in the new rooms to previous rooms without the Vereos PET/CT and Ambient Experience.

Overall, Dr. Biyyam was highly satisfied with the system. Contributing factors were:

- Reduced scan time and a decrease of injected radiotracer dose, while maintaining or improving the image quality
- The ability to promptly identify patient findings/diagnosis with more confidence
- An increase in the ability to get accurate, quantitative measurements

Dr. Bardo concludes, “Reducing fear and anxiety in both the children and their parents also has a tremendous follow-on effect in making the radiology department a much more pleasant and satisfying place for our staff to work. The Vereos with Ambient Experience has been a great asset to our imaging department.”

More to come

The success in the PET/CT and uptake room environments led Phoenix Children's to include Ambient Experience in their new MR project. They will soon receive their 4th Philips MR, an Ingenia Elition 3.0T with Ambient Experience including Philips In-bore Connect.

Now patients who suffer exam anxiety will have the benefits of the full Ambient Experience when being scanned, distracting them from the confining MR environment.



How to reach us

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