

Imaging Adventure Program Eases Pediatric Patient Anxiety

After a little girl receives a CT scan, a radiologic technologist tells her to pick out a prize from the treasure chest for doing such a good job holding still during the exam.

ONCE INSIDE the CT suite—aka “Pirate Island”—the girl walks across the “dock” leading to the CT table, or boat, where she lies down to wait for her scan. Because the dock doesn’t lead to the treasure chest, the little girl says it’s a good thing she is part mermaid so she can swim to get her prize! The technologist then proceeds to be “part mermaid” herself, pretending to swim to the treasure chest to claim the prize.

The exam was administered successfully—and without sedation.

This is just one of the real-life success stories unfolding in the radiology department at Children’s Hospital of Pittsburgh at the University of Pittsburgh Medical Center (UPMC) since launching a kid-friendly Adventure Series program using engaging, theme-based room designs, music, videos and aromatherapy along with creative, hands-on staff participation to bring the imaging experience to life for kids.

Introduced on a small scale in 2005, the program is designed to reduce the need to sedate young patients who often feel anxious and have difficulty lying still during imaging procedures, many times affecting the completion of the scan. But sedation creates additional risks and burdens for the patient and family and increases the amount of time needed for each procedure, reducing throughput and creating potential backlogs.

The “distraction therapy” offered by the Adventure Series program has been the perfect antidote, according to UPMC staff.

“Children have vivid imaginations and it is important to clear up their misconceptions during pre-procedural preparation,” said Natalie Sten, M.S., a Certified Child Life Specialist in the hospital’s Department of Radiology. “When we can educate children about the hospital and their bodies in a fun, non-threatening, age-appropriate way, we can really begin to clear up misconceptions and improve compliance.”

ON THE COVER

The Adventure-themed CT suite, or “Pirate Island,” features a “dock” leading to the CT table, or boat, where children wait for a scan.



Sten

Kapsin

Gruber

The results speak for themselves. The number of sedations for pediatric CT procedures fell by 99 percent—from 354 cases to just 4—between 2005 and 2007, even as patient volumes grew, according to January 2013 research funded by the Agency for Healthcare Research and Quality (AHRQ) analyzing the program’s effectiveness.

Adventure-themed Rooms Appeal to Kids

In 2005, UCPM staff created a smaller scale distraction area in one room—the CT exam area at the hospital’s former inpatient facility—after the department began experiencing an increase in requests for sedation during imaging procedures, said Kathleen Kapsin, R.T., M.S., director of the UPMC Pediatric Radiology Department and an author of the AHRQ study.

“The hospital can be a scary place for some children and the imaging equipment can be intimidating,” said Kapsin, who helped secure funding for the program and collaborated with General Electric (GE) to design the rooms. “Children facing tests in a radiology department can experience emotions, including fear, anxiety and helplessness.”

“The biggest change has been decreasing anxiety levels to the point where children are excited to go to the exam room and get their imaging scan.”

Kathleen Kapsin, R.T., M.S.



The Adventure Series program at Children’s Hospital of Pittsburgh is designed to reduce the need to sedate young patients who often feel anxious and have difficulty lying still during imaging procedures, many times affecting the completion of the scan. Above, left: the Jungle Safari Adventure-themed room used for nuclear medicine procedures, and right, the Outer Space-themed room used for MR imaging, are helping to dramatically reduce the number of sedations needed for pediatric CT procedures.

Images courtesy of the University of Pittsburgh Medical Center



When the hospital opened a new facility in 2009, it was the perfect opportunity to launch the Adventure Series program in nine radiology rooms, each reflecting a specific theme appealing to young children.

For example, the radiation oncology room was transformed into Adventure Beach, including a boardwalk and beach-themed walls, an oxygen tank that looks like a scuba tank, a linear accelerator disguised as a sandcastle, and a moving board that looks like a surfboard.

Along with Pirate Island, other themes include Outer Space, used for MR imaging; Camp Cozy for PET and CT scans; Coral City for emergency CT; and Jungle Safari Adventure, for nuclear medicine procedures. Assisting patients throughout this adventure are four distinctive characters: Haley the Hippo, Tillie the Tiger, Marcellus the Monkey and Tara the Toucan.

Themed prizes are also given after scans to provide positive reinforcement and a reward for bravery, Kapsin said. “Attention to detail was taken to create environments that would be perceived as culturally sensitive, gender neutral, and child-friendly for all ages,” she said.

Sedations Drop, Throughput Increases

Program costs varied depending on room size and design. Purchases such as a disco ball, CD and DVD players, stickers and prizes cost just a few hundred dollars while more extensive designs using higher-end, durable, “green” materials averaged \$35,000 to \$45,000 per room. The hospital funded the majority of costs associated with the designs while private donors also provided financial support.

That investment paid off, according to study results.

After the initial 99 percent drop in sedations from 2005 to 2007, department-wide use of sedation dropped by nearly 20 percent in the year after the program was expanded in 2009. Since that time, sedation use has continued to fall, with the department achieving a total sedation reduction of 25.2 percent despite a volume increase of 66 percent between 2009 and 2011, according to the research.

Moreover, staff productivity and CT room throughput has increased. The 99 percent decline in use of sedation helped free up additional capacity, enabling the department to increase CT scan volumes by 15 percent between 2005 and 2007, according to the study. As a result, the 16- to 18-day backlog was eliminated, with outpatient CT scans routinely scheduled for the same or next day. At the new facility, the radiology department experi-

enced a 66 percent jump in patient volume between 2009 and 2011, due in part to the freed-up capacity created by the drop in sedations.

And both parents and staff report higher levels of satisfaction. Staff members say the approach engages patients, improves their coping skills and reduces anxiety levels, leading to much better cooperation during the procedure.

“We are so pleased with the results, we would like to continue the distraction therapy rooms throughout the radiology department,” Kapsin said. “The biggest change has been decreasing anxiety levels to the point where children are excited to go to the exam room and get their imaging scan. Children aren’t clinging to their parent out of fear anymore and it is amazing to see how they really begin to believe they are going on an ‘adventure.’”

Adventure Series Takes Off at Other Hospitals

The success of the Pittsburgh program prompted its implementation at two other institutions. The Children’s National Medical Center in Washington, D.C., uses the Adventure Series in its X-ray rooms while the Ann and Robert H. Lurie Children’s Hospital of Chicago (formerly Children’s Memorial Hospital) implemented the program as part of its move to a new facility in 2012.

Since beginning the program at Lurie a year ago, the Adventure Series has made a “huge difference” and the hospital rarely sedates during CT exams, said Laura Gruber, administrator for medical imaging who brought the program to the facility.

When the new hospital was built, it was important to make sure each room was embellished with distractions, and the Adventure Series made sure that happened, Gruber said. The hospital worked with GE as well as its Children’s Advisory Board—comprised of 12 children with chronic illnesses—to develop and design Lurie’s rooms.

“We listen to the kids...they know best,” Gruber said. “The whole environment is warm and inviting. We see that the kids don’t want to leave the spaces.”

WEB EXTRAS

For more information on the Adventure Series program in the Pediatric Radiology Department at University of Pittsburgh Medical Center, go to CHP.edu/CHP/Adventure+Rooms.

To view a video of an exam underway in one of the Adventure-themed radiology rooms at UPMC, go to RSNA.org/NewsLandingPage.aspx.

Access the research, “Engaging Room Design and Distraction Techniques Comfort Pediatric Radiology Patients, Leading to Less Need for Sedation, Shorter Wait Times, Higher Satisfaction,” at www.innovations.ahrq.gov/content.aspx?id=3733.