The Adventure Series program at Children’s Hospital at Pittsburgh in Pennsylvania 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.

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 Cyrus 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: Hakley the Hippo, Tiffie the Tiger, Mancellus 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 95 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 90 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 experienced a 66 percent jump in patient volumes 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 hospital 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 equipped with distractions and the Adventure Series made sure that happened, Gruber said. The hospital worked with CHP as well as its Children’s Advisory Board—composed of 12 children with chronic illness—to detail design and features in the radiology 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 space.”