

Healthcare Sector Imaging & IT Division

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First worldwide installation of Somatom Definition Flash in a pediatric institution: Arnold Palmer Hospital in the U.S. selects computed tomography system by Siemens

As the first pediatric hospital worldwide, the Arnold Palmer Hospital in Orlando, Florida, will use a Somatom Definition Flash specifically for pediatric diagnostics. The latest computed tomography (CT) system of Siemens Healthcare offers the highest scan speed in computed tomography, but only uses a fraction of the radiation dose required by previous systems. This offers several significant advantages for pediatric radiologists: On one hand, the scan time for many examinations has been reduced to fractions of seconds. In many cases, this eliminates the need to sedate children in time-consuming procedures in order to prevent movement artifacts in the sectional images. Furthermore, the significantly reduced radiation exposure makes the use of the system much more reasonable for the examination of pediatric patients.

Radiographic examinations are used much less frequently for children than for adults, because their organism is still developing. Furthermore, the smaller the cross section of the patient, the larger the actually absorbed radiation dose. Nevertheless, computed tomography is of great importance for the treatment of pediatric patients, especially for complex lung imaging, for the treatment of congenital malformations, and in intensive care. As a consequence, the ALARA principle (As Low As Reasonably Achievable) is of particular importance in pediatrics. It calls for always selecting the dose that is as low as possible, yet sufficient for a reliable diagnosis. The Arnold Palmer Hospital, a pediatric hospital in the United States, has now chosen the latest Siemens technology to have an even better solution for this enormous challenge.

As the first physicians worldwide, the pediatricians in Florida will use the Somatom Definition Flash specifically for diagnosing young patients. The system is a Dual Source computed tomograph, in which two X-ray tubes rotate around the body simultaneously. The Somatom Definition Flash operates at an extremely reduced radiation dose. For example, a heart scan can be performed with

less than one millisievert (mSv), while the average effective dose required for this purpose usually ranges from 8 to 30 mSv. For the first time, the system offers effective doses below 0.5 mSv in pediatric applications, with full diagnostic image quality.

The fastest-ever scanning speed in CT, reaching up to 45 cm per second with a temporal resolution of 75 ms, allows for taking a complete chest scan of an adult patient in just 0.6 seconds. The process is even faster for children. This means that patients no longer have to be asked to hold their breath during the examination as before.

As another benefit, the scan speed of the CT ensures that small children don't have to be sedated for CT examinations in every case. This helps avoid additional stresses of the child's organism. Moreover, pediatric sedation can only be performed by specialists and is very time-consuming. By eliminating this work step, the new high-tech CT system of Siemens also contributes to increasing the efficiency of pediatric radiology.

"Our hospital is proud to be the first institution worldwide to use this new technology specifically for pediatric applications," said John Bozard, President of Arnold Palmer Hospital. "To us, the Somatom Definition Flash primarily means: faster availability of images, lower radiation doses, and less need for contrast media."

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