Background Information

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Multitom Rax – Siemens Healthineers Twin Robotic X-ray system transforms care delivery in radiology

- **Variable uses in radiography, orthopedics, angiography, fluoroscopy and trauma imaging**
- **Robotic arms allow tube and detector to be precisely positioned, enabling various body areas to be X-rayed in 3D under natural weight condition for the first time**
- **Examinations without painful transfers, and the flexible access improve patient experience**

Multitom Rax (Robotic Advanced X-ray) now enables a wide variety of examinations in a range of clinical areas to be performed using only a single X-ray system for the first time. In addition to conventional 2D X-rays, the system also makes it possible to perform fluoroscopy examinations, angiography applications and even 3D imaging, thus facilitating transforming care delivery in radiology. The operator is always in full control of the system's movement. By the push of a button, both robotic arms are being positioned fully automatically around the patient, improving both safety and patient experience. There is no need to move the patient on the system or to change rooms for further imaging procedures, which makes examinations less painful and less time-consuming. The system can be used in a wide range of applications, from emergency medicine to orthopedics, angiography or fluoroscopy, and can thus help optimize clinical work processes. The fact that the detector can be freely positioned means that quite different X-ray images, both static and dynamic, can be taken in a single room using a single system.

Standardization – for future treatment trends, too

Care (Combined Applications to Reduce Exposure) applications support treatment standardization using Multitom Rax and aim to keep the radiation dose as low as possible for both patients and hospital staff. A preliminary examination using an especially low

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radiation dose to fine-tune the tube and detector helps to correctly position even in very challenging exams. For all examinations, in addition, the dose used is automatically reviewed and recorded. The two ceiling-mounted arms on Multitom Rax can be moved into position automatically using robotic technology, and they can also be moved manually, servo motor supported, when required – to make fine adjustments, for example. While one arm moves the X-ray tube and the large touchscreen, the other carries the 43 x 43 cm flat panel detector, which can record static, dynamic and real 3D sequences. “The robotic technology ensures a new level of precision and automation, enabling a new level of standardization and throughput”, explains Peter Schardt, head of the X-ray Products Business Line at Siemens Healthineers.

3D imaging with an X-ray system

3D computed tomography (CT) images are often used in situations such as orthopedic examinations involving the implantation of prosthetic joints, for example, to ensure that the artificial joint is best adapted to fit the patient’s anatomy. Now, for the first time, Multitom Rax makes it possible to take 3D images under the patient’s natural weight bearing condition.[1] 3D images can be made with the patient lying down or standing. Images taken while the patient is standing are essential because for example knees or lumbar spine appear differently under the influence of the patient’s body weight compared to when the patient is lying down. As a result, 3D images acquired by Multitom Rax offer better diagnostic and planning certainty compared to those that do not reflect a natural weight bearing condition. Conventional 2D X-rays, for example, do not always reveal fine hairline fractures in the bone. If a bone fracture is suspected, it has previously been necessary to take a 3D image using a CT system to be sure of the diagnosis. But the patient would have to be positioned with the arm above his head, which would be painful. With Multitom Rax, however, a 3D image can be taken at the same system in normal position. The patient does not have to wait for a further appointment or to be transferred to the CT unit.

Direct access to the patient

A free-standing patient table and fully mobile system elements with Multitom Rax provide a more comfortable examination atmosphere. The system is designed for all patient types, from children to the elderly, mobile, immobile and adipose individuals. The fact that the table can be adjusted to a very low 50 centimeter table height means that children can get onto it by themselves. It can also be positioned at the most convenient working height. The

hospital staff thus has full access to the patient, with no need for the hospital staff to twist into an anatomically unnatural position. The result is an improvement in both safety for the patient and the examining physician, and in the level of convenience, since it is the system that moves when needed, not the individuals.

The products/features (here mentioned) are not commercially available in all countries. Due to regulatory reasons their future availability cannot be guaranteed. Further details are available from the local Siemens Healthineers organizations.

[1] Option.

This background information and press pictures are available here.

For further information on Multitom Rax, please see www.healthcare.siemens.com/robotic-x-ray/twin-robotic-x-ray/multitom-rax.

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