



“ We get higher-quality and more diagnostically meaningful images with a lower radiation dose. ”

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Institute of Diagnostic and Therapeutic Imaging continues the journey towards complete digitization and dose reduction

DX-D 300 replaces Computed Radiology solutions at medical service center and delivers high image quality and dose reduction

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Interview with DR. KARINA HOFMANN-PREISS, Institute of Diagnostic and Therapeutic Imaging (BDT)

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In Erlangen, Germany, there is a long tradition of progress and innovation. This can be seen at Innovationszentrum Medizintechnik und Pharma, a business incubator that supports new start-ups and innovative companies in the field of medical engineering, pharmaceutical research, biotechnology and gene technology. The goal of industry/research partnership Erlangen AG is to systematically facilitate access to new knowledge resources and promote Erlangen at an international level. It is hardly surprising, then, that nearly one in four workers in the area is employed in the medical engineering and healthcare sector.

Among those that benefit from this concentration of medical expertise are healthcare providers. Erlangen is home to several hospitals, including the University Hospital, Waldkrankenhaus St. Marien and Klinikum am Europakanal. These are complemented by other service providers such as medical service centers. One of these is the Institute of Diagnostic and Therapeutic Imaging, known as BDT. Founded in 1974, the institute has grown to become a high-performance service provider with 11 radiologists and nuclear medicine specialists and up to six junior doctors. The staff work at four different locations, including the hospital Waldkrankenhaus St. Marien.

Improved patient experience and ease of use

One of BDT's hallmarks is its use of innovative technology, as Dr. Karina Hofmann-Preiss explains: “Everything has been completely digital since 2004, including the processes involved in explaining information to patients. The individual medical centers are all connected, which allows us to interpret images from anywhere.” To complete the process of digitization, the doctors recently replaced their CR system with a direct radiography (DR) solution. Dr. Hofmann-Preiss explains why: “We place a lot of emphasis on the quality of the patient experience, high image quality, and the minimization of radiation exposure. A good DR system delivers on all these criteria.” BDT found this ‘good DR system’ in the DX-D 300 from Agfa HealthCare.

The system went into use at Waldkrankenhaus St. Marien in May 2013. By August, the team had already carried out around 700 examinations. Dr. Hofmann-Preiss ascribes this comparatively

low number to the low demand for conventional examinations in radiology practice. “X-ray exams are carried out by doctors in other specialties, not just radiologists,” she explains. The most common requirements are images of the lungs and examinations for orthopaedic problems, including large to small joints, full spine X-rays, and full leg X-rays. “Before we introduced the DX-D 300, we weren’t even able to offer full spine or full leg X-rays. The growing demand from orthopaedic surgeons was one key factor that led us to choose this system,” she says.

Another reason was the ergonomics of the system, which enhances patient comfort. “For our staff, the process has become much easier. They no longer have to lift or turn the patient, for example, because they can examine them in a seated position. Our patients have an average age of 60 to 65 and some have very restricted mobility, so this is extremely important. Even patients in a wheelchair can be examined very easily with the U-arm system,” says Dr. Hofmann-Preiss.

Compared with a CR system, the DX-D 300 also saves time for the radiology assistant. There is no more need to wait for read-outs – the image is available for checking directly after exposure on the operating console’s monitor. This enables the radiology assistant to check the quality of the image immediately, saving unnecessary waiting time for the patient.

Impressive image quality and dose reduction

For Dr. Hofmann-Preiss, the DX-D 300 kills two birds with one stone. “We get higher-quality and more diagnostically meaningful images with a lower radiation dose,” she says.



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DX-D 300 at the Institute of Diagnostic and Therapeutic Imaging (BDT)

- Universal, flexible and affordable modality combining a single detector and fully-motorized positioning, which increases productivity
- U-arm allowing lateral 'cross table' exams on rolling tables, for a number of configurations and increased patient and technologist comfort
- Specially-tuned MUSICA, for gold-standard image processing, and NX workstation, for smoother workflow
- Cesium Iodide DR detector technology offering potential for patient dose reduction
- Complete versatility with optional CR/DR combination



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The institute

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The high image quality of the DX-D 300 is achieved primarily by the detector and the MUSICA image processing software. “Overall we can assess fine details much better. With lung images, what we call interstitial changes – changes in the connective tissue of the lungs – are very clearly shown. In skeletal examinations the soft-tissue contrast achieved with this type of image processing is phenomenal. You can detect things that you wouldn’t even have seen before with conventional X-rays and even CR solutions. For example, soft-tissue swellings and tendons in large joints, like the patellar tendon in the knee joint, are much easier to see. Even very small details in the spongiosa can be assessed with confidence,” says Dr. Hofmann-Preiss.

The new imaging technology took some getting used to, she admits, and the radiologists needed some time to ‘get to grips’ with it. But in a matter of days they were already using it confidently.

Higher image detail means faster acceptance

All the radiologists at BDT expect the DX-D 300 to deliver an increase in image quality. “We’ve seen this already in the quality of the lung images. Compared with our previous systems, the visual impression is better and more diagnostically meaningful,” says Dr. Hofmann-Preiss.

She is ideally placed to judge, because the center holds large numbers of images taken over many years for patients with chronic diseases. “When we look at older images for comparative purposes, we can see how the quality of digital systems has changed and improved.” The improvement in the patient experience is already evident, while the dose reduction is certain to follow.

With the numerous advantages offered by the DX-D 300, it’s not surprising that the technology is widely accepted among doctors and radiology assistants, as Dr. Hofmann-Preiss has seen for herself: “About two weeks after the installation our director visited the department to ask how the radiology assistants were getting on with the new system. The unanimous response was: ‘We wouldn’t be without it.’ The whole team also soon noticed the improvement in image quality.”

Karina Hofmann-Preiss is aware of cases where the introduction of new technologies or systems has not proved so popular with doctors or radiology assistants. “The high acceptance speaks for two things: the system itself and the excellent professional training and support that we received from Agfa HealthCare.”

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