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Whitepaper

Improving quality and workflow in pediatric fluoroscopy and radiography

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Answers for life.

Improving quality and workflow in pediatric fluoroscopy and radiography

The Institute of Clinical Radiology and Nuclear Medicine (IKRN) at the University Medical Centre of Mannheim in Germany has recently invested in a new system capable of carrying out both fluoroscopy and radiography examinations of pediatric patients.



Dr Theo Diehm is senior pediatric radiologist in the Institute of Clinical Radiology and Nuclear Medicine which is part of the University Medical Centre Mannheim.

Diagnostic Imaging Europe wanted to find out more about the Institute in general and how the new equipment is performing in practice so we spoke to Dr Theo Diehm, senior pediatric radiologist in the IKRN (www.ikrn.de).

Q. FIRST OF ALL PLEASE TELL US A BIT ABOUT YOUR HOSPITAL.

The University Medical Centre Mannheim is located in a nice position on the River Neckar, in downtown Mannheim, the city in the Federal state of Baden-Württemberg, in the south-west of Germany. The Medical Centre as a whole has more than 30 individual clinics and institutes — including ours, the Institute of Clinical Radiology and Nuclear Medicine — which together cover almost all the disciplines of clinical medicine. The Medical Center serves a large population — namely that of the city Mannheim itself, the Rhine-Neckar region in Baden-Württemberg as well as part of the adjacent regions in the neighbouring federal states of Hesse and the Rhine Palatinate. As could be expected from the size of this large hinterland, approximately 70,000 in-patients are treated per annum in the Medical Centre as well as no fewer than 180,000 out-patients.



The Institute of Clinical Radiology and Nuclear Medicine is one of 30 individual institutes and clinics making up the University Medical Centre Mannheim (above), which is one of the largest medical research centers in the Rhein-Neckar region of south western Germany.

Overall the Medical Centre has 550 physicians and a total staff of about 45,00 employees. There are also 1,400 medical students.

One characteristic of the medical centre is the amount of advanced research and development that is carried out, which is made possible thanks to a close cooperation between the hospital and the Mannheim Medical Faculty of the world-renowned Heidelberg University. Thus the University Medical Centre Mannheim is embedded in the broad variety of large medical research centers in the Rhein-Neckar-Region. This attitude of close cooperation between clinical and scientific research activities is also strongly encouraged in our institute of clinical radiology and nuclear medicine.

Q. NOW WHAT ABOUT YOUR DEPARTMENT, PEDIATRIC RADIOLOGY?

The department of the IKRN of which I am the senior attending physician is the pediatric radiology section where we see approximately 20,000 pediatric and pediatric surgical patients each year.

Q. WHAT ABOUT THE EQUIPMENT YOU HAVE TO DO ALL THIS?

We are well equipped in the pediatric radiology section. In addition to the new equipment which we have recently received for the carrying out of both fluoroscopy and radiography examinations, we have access to the IKRN's three high-end ultrasound devices, 5 high-end magnetic resonance units (including two 3T units) and 3 computed tomography systems including one dual source CT.

Q. WHAT TYPE OF EXAMINATIONS DO YOU CARRY OUT? HASN'T IN GENERAL THE USE OF FLUOROSCOPY DECLINED OVER RECENT YEARS AS TECHNIQUES

SUCH AS ENDOSCOPY TAKE OVER? SO WHY DO YOU STILL NEED FLUOROSCOPY? IN WHAT TYPE OF CASES?

The examinations we carry out are mainly straightforward radiographic investigations such as thoracic imaging, conventional skeletal diagnostics and abdominal imaging. The diagnostic uses we make of fluoroscopy include esophageal and gastrointestinal studies, and voiding cyst urethrography. We also use fluoroscopy for foreign body detection.

With pediatric patients we need fluoroscopy as a non-invasive examination modality. For example, postsurgical esophagograms are performed after esophageal atresia repair. At that age alternative techniques such as endoscopy require sedation or anesthesia.

Q. UP TILL NOW, WHAT EQUIPMENT DID YOU USE FOR FLUOROSCOPIC EXAMINATIONS?

In the past, we used a conventional unit with an image intensifier for fluoroscopical examinations. Our new system is the Luminos Agile from Siemens. One advantage of this new system is the height adjustable Bucky table with all the usual functions.

Q. GIVEN THIS, WHAT WAS THE PRECISE RATIONALE BEHIND YOUR DECISION TO ACQUIRE THE LUMINOS AGILE SYSTEM? SINCE WHEN HAVE YOU HAD IT? ANY TEETHING TROUBLES? IN PRACTICE HOW HAVE THE RADIOGRAPHERS FOUND IT TO OPERATE IN PRACTICE? THE NEW SYSTEM HAS A FLAT PANEL DETECTOR — ANY LEARNING CURVE FOR THE RADIOGRAPHERS WITH THIS? WHAT ABOUT IMAGE QUALITY?

Simply put, we wanted to have a modern flat detector system with all the benefits associated with that technology. We also wanted to have the advantages of a Bucky table incorporated in a fluoroscopy system. Likewise we wanted to realize all the potentials of the wireless detector. The equipment was installed in August 2012 without any teething troubles or any problems with staff training or image quality.

Q. NOW THAT THE SYSTEM IS UP AND RUNNING, HOW IS THE ROUTINE WORKFLOW ORGANIZED BETWEEN YOUR FLUOROSCOPY AND RADIOGRAPHY PATIENTS?

The system is running well. In our routine procedures we include about 3-6 fluoroscopic examinations per day into the radiographic work flow. Since we no longer need any separate slots to be allocated just for fluoroscopy patients, this results in a significant improvement and optimization in the overall use of the capacity we have.

Q. AND NOW THE KEY QUESTION — ALL-IN-ALL HAS THE EQUIPMENT MET YOUR EXPECTATIONS? PRINCIPAL ADVANTAGES? ANY SURPRISES, POSITIVE OR NEGATIVE?

A straight answer to a straight question— the new Luminos Agile system and the advantages it brings to us has totally met our expectations. So far at least, we've had no major problems. I really have to scratch around to think of a disadvantage but

if you push me apparently our technicians find the weight of the wireless detector to be a bit heavy.

Q. WHAT ABOUT THE FUTURE?

Although in recent years there has been a significant drop in the overall number of fluoroscopic examinations carried out, there still remains a certain number that are needed, particularly in pediatric radiology. We think that this situation will continue into the future. However, we recognize that this brings with it challenges for optimization of work flow between radiography and fluoroscopy. A dual-use system like the new one we have addresses this challenge and gives — for both fluoroscopy and radiography — the advantages of high quality imaging and patient convenience. This is particularly important in pediatric radiology with the increasing need for patient interaction.

Patient-side system for true dual use of fluoroscopy & radiography



The Luminos Agile is the first patient-side system with 43x43 cm flat detector which gives high quality dynamic and static imaging for true dual-use capability for fluoroscopy and radiography. In addition, the system can increase return on investment since it enables more patients to be examined. Thanks to its adjustable table height which can be set at anything from 65 cm - 112 cm, the transfer of patients is easy and with its fully motorized tower, system movements are effortless. The system has a high table weight capacity of 275 kg, so it offers comfort and safety for patients, especially those with limited mobility. The optional table and wall Bucky offer tracking to improve radiography workflow and increase throughput. The wireless detector (wi-D) delivers fully digital, high-resolution images for review within seconds and facilitates an optimized clinical workflow. The wi-D can be used in the table Bucky and wall stand, as well as for free exposures.

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