Optimum Patient Care and a Stronger Position in the Healthcare Market

St. Franziskus Hospital in Münster, Germany, fully modernized its radiology department in 2010. The hospital decided in favor of one of the latest generation magnetic resonance imaging (MRI) 1.5 Tesla systems, with innovative imaging and workflow technologies. Meanwhile across the Atlantic, South Jersey Radiology Associates in the USA, a private diagnostic imaging center, chose the latest Siemens 3 Tesla MRI technology to remain competitive in its market.

By Matthias Manych

Discussing the benefits of Siemens' MRI scanners from every angle: Professor Christoph Bremer, MD, technologist Linda Willeke, and CEO Burkhard Nolte (images from left to right)

Medical Solutions met in Münster with CEO Burkhard Nolte, Professor Christoph Bremer, MD, Head of the Radiology Department, and Linda Willeke, a radiology technologist, for a talk about their recent experiences.

Mr. Nolte, what type of environment does St. Franziskus hospital operate in, and what are your areas of focus in patient care?
NOLTE: Including St. Franziskus Hospital, there are six hospitals in Münster. We are one of the largest hospitals in the area, second only to the university medical center, and we have a capacity of 562 beds. As a major center for medical care for the area, we also have the major outpatient center FranziskusCarré on our hospital grounds. In total, both the hospital and the outpatient center cover more than 20 medical specialities. This allows us to offer patients a very broad spectrum of services in both inpatient and outpatient care. We have a very strong surgical emphasis, with high-end vascular and spinal surgery units. Plus, we have a very strong obstetrics and neonatology department. Our very broad healthcare spectrum also includes an established ENT [ear, nose, and throat] clinic, where affiliated physicians practice, and our eye-care department, which is a center for high-end care.

And how many patients do you serve each year at St. Franziskus Hospital?
NOLTE: We serve about 30,000 patients on an inpatient basis and about 50,000 patients on an outpatient basis each year.

How important is radiology to the hospital?
NOLTE: Thanks to the hospital's broad healthcare spectrum, we enjoy very comfortable competitive conditions. It was necessary to bring radiology and nuclear medicine to a level that is appropriate for

Linda Willeke helped to develop the MRI track at St. Franziskus Hospital and is impressed how the MAGNETOM Aera system speeds up the daily routine at the hospital.

"The handling of MAGNETOM Aera is excellent. With the new system, we have many options now."

Linda Willeke, Radiology Technologist, St. Franziskus Hospital, Münster, Germany

our specific institution. For the two clinical areas, we invested ten million euros, including digitalization.

BREMER: The importance of radiology has changed radically over the past two years, ever since we started here with the new team. We are now trying to develop and offer the entire spectrum of diagnostics and minimally invasive treatments. And, we are doing so on a customized basis to fit the needs of the primary referrers. That means oncology is a major area of focus when it comes to diagnostics, but also new treatment methods. We also see the importance of radiology in our examination figures, which are rising steadily, paricularly with cross-sectional imaging techniques – and here, especially in the area of MRI. We are learning that we can put patients on the right track very quickly with this imaging modality, meaning we can reach a diagnosis quicker and more effectively.

Professor Bremer, your hospital is the Siemens International Reference Center for MAGNETOM® Aera. How did you reach that point?

BREMER: Right from the outset, I indicated to Siemens that I was interested in looking ahead, even beyond high-end clinical care, and learning what other developments are out there, which are almost ready for clinical introduction. Then, we decided to take on a leading role in clinical care and development with

MAGNETOM Aera. Then again, I also think there is a clear connection to the fact that we have a very strong team here. Ms. Willeke, who helped to develop MRI in our clinical routine from the start, is here as a great example. On the whole, we have very strong expertise in the field of MRI. I myself have worked a great deal on preclinical research projects in this area.

What benefits does the new MRI system offer, with its features Tim® 4G, the fourth generation of Total imaging matrix, and Dot™, the Day optimizing throughput engine?

BREMER: Multi-channel technology lets us scan larger regions of the body flexibly. For another thing, we can perform scans much faster with the new system, which has raised throughput significantly. At our facility, it is important to ensure that we can work almost on demand. We have reached the point where we can generally complete a requisition within two days, which I have never seen done before. Having such a fast unit helps a lot to accomplish this.

NOLTE: At our facility, the length of stay is five and a half days, well below average. That's why we need diagnostics to run quickly.

In light of your experiences, what kinds of opportunities does MAGNETOM Aera offer?

WILLEKE: Handling is excellent. I have also worked with systems from other manufacturers in the past, and with the new MAGNETOM Aera system, we have many options now. You were just talking about Dot, which helps make scans even faster. That also applies to staff members who do not yet have a lot of experience with MRI. It is faster for them to learn, which also means they can perform scans on their own earlier.

BREMER: Tim 4G improves image quality, speed, and flexibility. With it, we have excellent image quality at high acquisition speeds. Dot accelerates the workflow, but also ensures a basic level of quality in terms of diagnostics, reducing variation between operators. That means that employees who only have a couple of months of MRI experience can already perform a wide range of MRI exams, something that would have been inconceivable before. The Dot technology is very helpful in that regard.

WILLEKE: Patients who come repeatedly with an indication are examined in exactly the same way, which also makes the images more comparable.

What are the direct benefits for patients?

WILLEKE: One very important benefit is the unit's wide opening, a 70 centimeter open bore design. Even obese[1] patients can easily fit into the unit now. Also when it comes to claustrophobia among patients, we are able to calm them sooner. The fact that the magnet is shorter means that the patient's head is back outside the tunnel much sooner. And, examination

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> Burkhard Nolte, CEO, St. Franziskus Hospital, Münster, Germany

Summary

Challenge:

- Staying competitive
- Cost-effective technologies
- Shorter MRI scan times, even for complex exams
- Consistent, excellent image quality in all situations
- Workflow improvements
- Reducing fear and addressing individual patient requirements
- Reducing complexity and stress of an MRI examination
- Increasing patient comfort in MRI scanning
- Potential for more diagnostics and treatments for more patients
- Openness to future developments

Solution:

- Groundbreaking MAGNETOM Aera and MAGNETOM Skyra scanners with patient-friendly design
- Flexible multi-channel technology for large regions of the body
- Tim 4G (fourth-generation Total imaging matrix) and Dot (Day optimizing throughput)
- Large bore opening, short magnet, soothing illumination

Result:

- Reproducible and consistent image quality
- Significantly shorter scan times
- Flexible and variable strategy selections and Tim 4G coil technology
- Accelerated workflow and reduced operator variation
- Higher patient throughput, more requisitions from internal and external referrers
- Increased accessibility for obese or fearful patients and other patients whose access to MRIs was previously limited
- MRI systems that help combat challenges for institutions of various sizes and organizational structures

[1] Tim Dockable Table holds up to 250 kilograms/ 550 pounds.

As a Siemens International Reference Center, St. Franziskus Hospital and Siemens are partners in advancing magnetic resonance imaging technology – and the patients at St. Franziskus Hospital reap the benefits.

times are considerably shorter. That has definitely become noticeably faster for patients.

BREMER: The shorter scan times are first and foremost a function of the coil technology, depending on how many channels they can measure at the same time. We now have a 48 channels system, at 1.5 T, and we have become significantly faster. The new coil technology lets us respond more flexibly to other pathological findings during the scan and take additional images right away.

> "We have the ability to truly cover a variety of different scans with the MRI unit at excellent quality."
>
> Professor Christoph Bremer, MD, Head of the Department of Radiology, St. Franziskus Hospital, Münster, Germany

For which kinds of scans is the technology suitable?

WILLEKE: We initially used Dot for cardiac scans, and we are now also running it during brain and knee scans.

During abdominal scans, we are already using it for the liver. But it's also moving forward; we have plans to incorporate MR angiography soon.

How many patients do you examine in your department, and what developments do you expect in the future?

BREMER: In 2010 we saw about 55,000 patients, and we expect that number to be up this year, to about 60,000. We have definitely not yet reached the maximum. When you look at trends in our MRI department, you can see that figures are continuing to rise in the long term as

well. One of the reasons for that is that we have the ability to truly cover a variety of different scans with the MRI system, while achieving excellent image quality. That definitely boosts demand within the hospital, but I also think that little by little, we will also be able to convince our external referrers that we are supplying good quality. There is definitely further potential for growth.

Can you estimate the cost effectiveness of your investment?
NOLTE: We are very optimistic that we will reach our goals because we realized that our planning in terms of workflow and patient numbers was actually rather conservative. We expect that we will reach a break-even point in the near future.

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Further Information

www.siemens.com/aera
www.siemens.com/skyra

MAGNETOM Skyra with Tim 4G and Dot

On the other side of the world, South Jersey Radiology Associates, P.A. (SJRA), located in New Jersey, U.S., is a diagnostic imaging network with a total of ten locations and over 40 specialized physicians. Within its region, which has a population of about one million, SJRA is the leading provider of radiology services. To retain this leading position, SJRA put MAGNETOM Skyra with Tim® 4G (fourth-generation Total imaging matrix) and Dot™ (Day optimizing throughput) technology into operation in January 2011.
William F. Muhr, MD, is a diagnostic radiologist and magnetic resonance imaging (MRI) specialist as well as the CEO of SJRA. Muhr reports that the network faces stiff competition from both hospitals and other outpatient imaging facilities. To successfully stay afloat in this situation, SJRA has always focused on providing personalized, caring patient service and making ongoing investments in state-of-the-art technologies. "Our aim is to stay on top of the competition with the best and latest technology, to optimize our imaging results in readings to get the most accurate specialized interpretations, and to offer the customer a patient service experience which he or she will not get elsewhere," explains Muhr. MRI has been one of the group's key technologies for more than 20 years now. Muhr reports, "We were the first facility with a 1.5 Tesla MRI system in this area in 1987. MRI is absolutely the key to our business, and we want to make sure that we are the trendsetter." Another important building block was added to this concept when the MAGNETOM Skyra 3 Tesla system was installed. The radiologists hope that the new unit will help them reach a new level in parallel imaging. Muhr already views Tim 4G and the Dot engines as indispensable. Tim 4G delivers crucial improvements in image quality, acquisition speed, and increases options for whole-body imaging.
"Certainly one of the things that is more obvious to the technologists in day-to-day scanning are the Dot engines, which really enhance our throughput, but also quality reproducibility. Dot helps the technologists and radiologists to produce excellent images," Muhr emphasizes.
Alongside a growing number of elderly patients, the network is also seeing more and more high-risk patients with breast cancer. Especially in chronic diseases, Muhr considers the reproducibility of results to be critical. With Tim 4G and Dot, it is possible to scan more patients each day, but the radiologists at South Jersey plan to continue investing the time they gain in achieving high patient satisfaction.