TOSHIBA
Leading Innovation

# VISIONS

SPECIAL

**Customer Focus:**
Rigshospitalet, Copenhagen

## Equipped for Success

Interview with Ilse Vejborg (Head of Radiology)
and Johnny Madelung (Chief Radiographer)

## Supporting Specialist Strengths

Interview with Dr. Klaus Kofoed (Cardiologist Clinical Associate Professor) and
Karen Damgaard (Consultant Radiologist in Pediatric Radiology)

## Delivering Excellence through Partnership in Denmark

Interview with Bjarne Alhøj (Managing Director of TOSHSCAN Denmark)

# Equipped for Success

The Radiology Department at Rigshospitalet Copenhagen in Denmark is an emerging global center of excellence and comprises nearly 300 staff, carries out more than 160,000 examinations per year it has significant capabilities in both specialist clinical practice and pioneering research and is gaining increasing recognition as a global center of excellence. The Department has been equipped to the highest standards with a large proportion of its systems made by Toshiba. Ilse Vejborg, Head of Radiology, and Johnny Madelung, Chief Radiographer, lead the Department and have been largely responsible for driving its long term development into a world class diagnostics centre, together with highly specialised teams. VISIONS spoke to Ilse and Johnny to find out exactly how this has been achieved.

Inside the Rigshospitalet, the spacious reception and route to the Radiology Department, where the VISIONS interviews are scheduled, have a calm, relaxed atmosphere, which gives little indication that this is one of Denmark's largest, busiest and most prestigious specialized hospitals, with 1200 beds, more than 100 departments and functions, over 50 professional specialties and 8000 staff. Using resourceful and clever spatial design, including use of underground room for housing medical equipment, the hospital has created a welcoming and friendly environment, in which, cutting-edge diagnostics, treatment, patient care, research and medical education are carried out efficiently and effectively.

## THE HEART OF HEALTHCARE

At the heart of the Radiology Department, literally and figuratively, is the staff. In the center of the Department's main isle, hangs a large board featuring the staff – their photographs, names, specialisms and job title. It includes each and every employee at the facility. There are nearly 300 profiles on display, arranged within five specialist sectors, including Body Imaging, Breast Imaging, Neuro radiology, Ultrasound and Vascular Intervention. Alongside their own specialisms, the Department's staff also played a major role in developing a brand new trauma center that has recently been opened at the hospital. Its highly skilled and highly motivated individuals, working together within a non-hierarchical structure, enable this facility to achieve formidable results in clinical practice and research. The Department's cutting-edge equipment, which includes 15 ultrasound-, 11 CT- and five MRIs scanners. Most of the CT systems are made by Toshiba, and it has its own dedicated TOSHSCAN Denmark service engineer onsite, along with ongoing support from staff at TOSHSCAN Denmark, Toshiba Europe and Toshiba Japan. This ensures it deliver the high quality imaging necessary for accurate diagnosis, treatment and research into the specialist cases that the hospital receives.

Ilse Vejborg, was recently appointed as the new Head of the Radiology Department. She has worked at the hospital for more than 24 years. She described the team dynamic, which enables the Department to achieve the high standards that it has become reknown for.

"This is the biggest radiology department in Denmark, 295 highly specialized staff – You might think it would be a challenge to simply remember who everyone working here is, and yet the sheer size of the department offers more of a benefit than challenging to manage!" she remarked. "This is because our staff are clearly organized according to specialized sector, which gives everyone unique opportunities to utilize and develop their expertise. I rely completely on, and trust in, their specialist skills. All our specialists are very experienced and 100% engaged in delivering a very high level of service. We have cultivated a strong sense of teamwork, despite the large size of the department, and there are no barriers between different staff. We all work together to solve problems and get procedures done, and this is a nice feeling."

Johnny Madelung, Chief Radiographer, originally joined the department 26 years ago and has been working in his current post for the last 12 years.

"The Department is a really nice place to work," he said. "Specialists and other staff work together well in its open and communicative environment. We have a multinational team, with Danish, English, Swedish, or Norwegian languages spoken. This positive environment has been cultivated over many years. This doesn't, of course, just happen easily by itself. The Department is well-equipped with state-of-the-art systems and spatially arranged to optimize the environment for patient and staff alike. The positive reputation of our great department attracts radiographers from all over the world, who are 'queuing up' to work here.

*Ilse Vejborg – Head of Department of Radiology*

*Before being appointed as Head of the Radiology Department at Rigshospitalet Copenhagen in (month) 2013, Ilse was Acting Head for one year. Alongside her new role, she still leads the mammography screening program for the Copenhagen, in which, 200,000 women each year are screened as a preventative care measure against breast cancer. The screening program operates across five hospitals in the region. Her expertise in breast imaging, gathered over more than 18 years, also extends to on national and international levels. Ilse is the President of the Danish Society of Breast Imaging, she is a member of the Danish national Steering Committee on breast cancer Imaging and of the council in the Danish Breast Cancer Cooperative Group (DBCG) and the Danish National Steering Committee of Quality Assurance in Mammography Screening (DKMS). In addition, she is one of three medical experts on breast imaging on The Danish National Complaint Board. Ilse develops national clinical guidelines on both diagnosis of breast cancer and mammography screening. She also supervises PhD students at the department of Radiology. She is an associate editor of BMC Cancer and has authored 59 scientific papers and contributed to textbooks on breast examination as well as organized and presented in international and national training courses, scientific congresses and seminars and media broadcasts.*

## AN EYE ON TECHNOLOGY

Alongside his clinical role, Johnny has driven the introduction of pioneering new equipment into the Department for many years.

"One of my main priorities is exploring new advances in technology to ensure that our staff has the right equipment to deliver high quality results," he said."I travel a lot to other hospitals worldwide, where I gather insight into the management of radiology departments in different countries. I bring back home any useful pieces of information on new products and practices. This is part of our two-way, information-sharing relationship with the other hospitals, in which, they are also invited back to learn about our procedures and equipment. Most radiology departments are more than happy to participate in this type of exchange and want to showcase the best of their knowledge to help and inspire others."

## EXPERT-LED DECISION-MAKING

As the Department expands in both clinical and research capabilities, and technological possibilities advance, acquiring new imaging equipment is a frequent priority for the team. From initial concept to final purchase, the decision-making process at the Radiology Department involves several specialists, hospital authorities and also the purchasing department.

"Normally, a working group comprising of physicians and radiographers, and regulatory medical technicians is formed to specify exactly what is required, thoroughly investigate the options available and their costs, and develop a tender for purchase," explained Johnny. "It is the staff who ultimately led the decision-making process, according to what functionality they require in systems, because they will work daily with the equipment acquired. We keep all those involved in the decision-making process updated on the latest developments in the equipment marketplace."

*"One of my main priorities is exploring new advances in technology."*

Johnny is also head of the Department's environmental group, which aims to ensure that health, safety, comfort and environmentally sustainability are incorporated inherently in the workplace. These factors are also increasingly important considerations in the decision-making process for purchasing new equipment.

While functionality principally drives the choice of equipment at the hospital, the eventual purchase is, of course, subject to financial approval and appropriate purchasing processes.

"We wanted to have the Toshiba machine as it was the best," added Ilse. "Of course, advanced technology has a price tag, but we wanted our staff to have the tools to help them excel, so we demonstrated the value of the system to our purchasing staff really specifying exactly what it offered to justify the expense."

Service is also a key element in choosing systems.

"The first CT scanner that we bought from Toshiba, eight years ago, already provided a very exciting option,"

remarked Johnny, "We had heard of it before, but didn't initially know very much about it. When we explored the option, we could clearly see that the scanner's capabilities were way beyond the capabilities of other scanners. Toshiba was, and still is, one step ahead of the other scanners. It offered the exciting option of upgrading from using our single slice system to Toshiba's new Aquilion 64-multislice CT system. The big issue for us, however, was what would be the arrangement for service from a Japanese manufacturer. Bjarne Alhøj, Managing Director of TOSHSCAN Denmark, our Toshiba representative in Denmark, assured us that the requested service would be provided. So we purchased it and have been delighted with the system, its capabilities, performance, maintenance and service ever since."

The Department now has three Aquilion 64-multislice CT scanners, one Aquilion ONE™ 640 slice Dynamic Volume CT scanner, two Aquilion ONE™ /ViSION Edition 640-slice Dynamic Volume CT scanners, one Aquilion™ LB 16-slice Sliding Gantry CT scanner in the NeuroSurgery Department, two Aquilion LB 32-slice Sliding Gantry scanners in the new Trauma Center and one Infinix™ VF-I Angiosystem. For the last year, a full-time TOSHSCAN Denmark service engineer has been located at the hospital to assist with any technical issues.

## ENHANCED CAPABILITIES

With the majority of the Department's CT systems now comprised of Toshiba technology, the capabilities of the five specialist sectors have advanced and the throughput of the department has increased. Having high quality systems has contributed towards increasing the hospital's patient throughput from 15,000 examinations per year in 2001 to 55.000 per year in 2013.

The staff particularly welcomed the enhanced capabilities offered by their first Toshiba's Aquilion 64 multislice CT scanner, and the enhancements offered by Toshiba's equipment ever since.

"The 64-slice CT scanner was a breakthrough at the time!'" exclaimed Johnny." Other scanners featured this, but it was astonishing. The quality of images that we could achieve with it couldn't be compared to anything we'd had before. It has now become our workhorse and we have since purchased a new 640 slice system, with which, we are still exploring capabilities, but also provide superior quality images. All our systems are in constant use in the Department."

*"The dose reduction possibilities offered with Toshiba equipment are marvelous."*

"We work to improve the quality of our work and make images that are better and better each day," added Ilse. "The applications that staff can make are very good. The dose reduction possibilities offered with Toshiba equipment are marvelous and are continuously improving. The best becomes even better. With the Aquilion 640-multislice, we perform a wider range of perfusion imaging and improve the assessment and adjustment of oncology treatment regimes. We also carry out guided scans of the whole liver in one section and guided ablation needle biopsies. For pediatric imaging, the shorter time required for scanning and dose reduction is ideal."

Through the partnership with TOSHSCAN Denmark, the Department receives regular software upgrades, which ensure that even their older Toshiba systems can be further optimized.

*Johnny Madelung – Chief Radiographer*

*Johnny Madelung joined the Radiology Department in 1985 and was appointed Chief Radiographer in 2001. Johnny is an expert in imaging technology and has also been requested to equip and set up several Radiology Departments in other hospitals in Denmark.*

*Ilse Vejborg and Johnny Madelung in front of one of the two Aquilion LB 32-slice Sliding Gantry CT scanners at the World Class Trauma Center at Rigshospitalet.*

## WORLD CLASS TRAUMA CENTER

The latest Toshiba systems to be installed at the Department were two Aquilion LB 32-slice Sliding Gantry CT scanners, the first to be installed in Europe, which provides key imaging capabilities to the Rigshospitalet's brand new Trauma Center.

"The new Trauma Center is being equipped as a Level I facility and will be the only one in a public hospital outside the United States," explained Ilse. "It has been a challenge to develop the CT system for this facility, but TOSHSCAN Denmark and Toshiba have provided dedicated support and a unique solution that is now operational - A big achievement that matches our expectations and ambitions exactly."

## SERVICE MAKES ALL THE DIFFERENCE

TOSHSCAN Denmark has collaborated with the Radiology Department for the last eight years and has provided dedicated support on many levels. As well as working with TOSHSCAN Denmark's resident service engineer, the Radiology Team work together regularly with Toshiba experts in both Europe and Japan.

"TOSHSCAN Denmark and Toshiba's collaboration is very important to us," said Ilse."All our staff know the TOSHSCAN and Toshiba Teams and they are considered 'part of the family' here. With so much of our equipment from Toshiba, we particularly benefit from the TOSHSCAN Denmark service engineer, who is based here. There is always someone knowledgeable on-hand to help us. Both organizations 'speak our specialist language'. With our capabilities increasing due to the possibilities with our systems and our Department's planned development, this will continue to be important in the future. TOSHSCAN Denmark is a customer-driven, well-organized company, who really listen to any issues, even if we have special issues and consult Toshiba to jointly resolve any issues."

## FORGING A PROMISING FUTURE

The Radiology Department is planning for further growth and as trusted and effective partners, TOSHSCAN Denmark and Toshiba are seen as important allies in future developments.

"We are already working with TOSHSCAN Denmark and Toshiba on several research and development projects, but we hope is carry out more scientific work on the Aquilion ONE /ViSION Edition Dynamic Volume CT scanner using perfusion techniques," explained Johnny. "We are also expanding our building and creating a new, strengthened specialist sector in neurological and orthopedic imaging, which will eventually require new equipment "

Many specialists at the Department, including Ilse, also play a role in contributing to the development of national and even international imaging guidelines and best practices for their specialist area.

"Our partnership with TOSHSCAN Denmark and Toshiba's high quality systems and innovative technology help us to provide the best to our patients," concluded Ilse. "In the future, we will treat even more patients from all over the country and we will be able to treat even more patients with expansion, both in terms of our geographical scope and indications. At the core of this will be further development of our imaging capabilities."