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**AGFA**   
HealthCare

# THERE

Edition 12, 2012

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» **Prof. Dr. Mathias Prokop**, Head of Radiology, Radboud University Nijmegen

# Turning the simple into the sublime

Throughout the world, a few restaurateurs have striven to make the simple sharing of a meal something more: a memorable and even exciting event, through unique and made-to-measure architecture. Whether returning to the joys of childhood at the Redwoods Tree house restaurant in New Zealand (pictured on the cover); dining in an 'alien' world at the Ithaa Undersea Restaurant in the Maldives; viewing the skyline from far above at the 360 Restaurant at the CN Tower in Toronto; or hanging over the backdrop of your choice in the mobile Dinner in the Sky – the architecture of these unique dining rooms is key to the experience. And that architecture has been designed to meet very specific conditions and needs.

This is perhaps asking a lot of architecture, but then it has so much to offer! And that is what Agfa HealthCare strives for as well, to get the most from the possibilities of solutions that can turn an imaging system into something more: an architecture adapted to each customer's unique needs and situation. So simple, so sublime.

In this edition of THERE magazine, we put names and faces to some of these customers and their distinctive requirements. You will see how our solutions help hospitals attract



patients and physicians, by adopting new technologies that improve care and enhance the work environment. You will read about specific Agfa HealthCare solutions that assist caregivers in working with less mobile patients, or support health initiatives like Ukraine's mammography programs. Working together, Agfa HealthCare's solutions can be part of a comprehensive project to improve the performance of medical imaging activities, or can enhance clinical care and aid research. The possibilities are as endless as the characteristics of the hospitals themselves.

As Thomas Edison famously said, invention "boils down to one percent inspiration and ninety-nine percent perspiration". In other words, doing something new is hard work! And yet the results can take us beyond what we ever imagined. As you read these stories, as you enjoy the photos of some of the world's most unusual restaurants, feel free to use your imagination: the sky is the limit!

Enjoy!

*MARC DE FRÉ*  
Director Marketing Communications

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### On the cover of this edition of THERE magazine:

The New Zealand Redwoods Treehouse is a striking pod-shaped structure built ten meters high in a redwood tree. Access to the Treehouse is provided by an elevated tree-top walkway. The Treehouse seats 30 guests or can accommodate 50 guests standing.



# No image left behind

If you had asked Luc Thijs 22 years ago whether he would one day be the President of Agfa HealthCare, the prospect would not have crossed his mind. Today, in the role since April 2011, his down to earth demeanor continues. While he acknowledges what drew him to the company, he politely dismisses questions about himself and focuses instead on his strong team, the shared vision of the company and his excitement for the future.

**INTERVIEWEE** Luc Thijs, President Agfa HealthCare



“Images have been in our corporate DNA from the very beginning. We absorbed broad clinical and IT competencies over the last two decades, successfully transforming from a photochemical company to a healthcare imaging and IT company.”

LUC THIJS, President Agfa HealthCare

“What attracted me to join Agfa HealthCare?” he ponders, in response to the question. “Initially, it was the company’s image as a technologically outspoken Belgian multinational. Now, 22 years later, I am continually interested because of our ongoing evolution, reinventing to keep ahead of the challenges our customers face in delivering quality care.”

## **THE MOVE FROM ANALOG TO DIGITAL HAS RADICALLY CHANGED HEALTHCARE**

Certainly, diagnostic imaging has seen its share of change during Luc’s

tenure with Agfa HealthCare. As he explains, the quantum leap forward in digital image quality has greatly improved diagnostic certainty. The move from analog to digital has also provided instant access to historical and complementary data for a much more complete view of the patient. Add to that sophisticated diagnostic tools that allow physicians to derive more value from the images they see, and tools for collaboration, and the results are extraordinary.

“We have a customer in the city of Sao Paulo, Brazil,” shares Luc. “They have

a central reading center providing remote diagnoses around the clock to the population of the entire state. An expert mammography reading is now available to the most remote locations within a very short timeframe. This was unthinkable in the past. As little as three years ago, patients in this geography would have waited a couple of weeks. Our customers continue to grow and deliver new levels of responsiveness and care.”

## **AGFA HEALTHCARE IS ON A MISSION**

Agfa HealthCare’s mission in this new reality is clear: to create synergy by

combining expertise in imaging, clinical knowledge and information technology.

“Digital image management has reduced much of the overhead from the diagnostic imaging process,” notes Luc. “Fewer retakes, the elimination of manual archiving and re-archiving, and high speed communication means increased productivity, shorter turnaround times, and reduced patient wait times. These ultimately enable better quality care at a lower cost.”

Agfa HealthCare’s broad imaging knowledge is key in that continued transformation. “Images have been in our corporate DNA from the very beginning,” explains Luc. “We added broad clinical and IT competencies over the last two decades because that was our natural evolution from a photochemical company to a healthcare imaging and IT company. We evolved to meet the challenges of our customers.”

#### LISTENING AND ADAPTING

Luc encourages his team to remain attentive to customers’ needs and open to evolving the company to meet them. After all, for Luc, growth is the only option. “Companies only thrive when they grow. In the past, film had four functions: acquisition, diagnosis, archiving and communication. We have replaced these with PACS and RIS. This all started in a single hospital. But now we manage imaging workflows across entire geographical regions. It was a natural evolution.”

Continually evolving and meeting those unique needs is a tall order for a company with customers spread around the globe. Luc understands this intuitively, having spent 10 of his 22 years with Agfa HealthCare organizations in Latin America, the Asia Pacific and various European countries. Working abroad, he learned there are differences in the speed at

“We don’t give up easily. Our people are very proud of the work they do. Their resilience and commitment resonates with our customers, who then rely on us to manage their mission critical systems.”

LUC THIJS, President Agfa HealthCare

which organizations can adopt new technologies, but fundamentally the aspirations are universal: providing quality care that’s affordable and efficient. So Agfa HealthCare continues to rise to the occasion, supporting customers in their digital migration, helping to improve quality and efficiency of patient care, and being committed to connecting all healthcare stakeholders through seamless integration of images and information.

This level of commitment often comes up when customers talk to Luc about their choice of Agfa HealthCare. “During the SARS crisis of 2003, our engineers continued to serve hospitals across Asia, living in hotels rather than returning home. And during the heavy flooding in the state of Louisiana, our teams ensured their customers remained up, even as their facilities were suffering heavy damage.”

“We don’t give up easily,” admits Luc. “Our people are very proud of the work they do. Their resilience and commitment resonates with our customers, who then rely on us to manage their mission critical systems.”

#### UNCOVERING NEW OPPORTUNITIES

With a solid grasp on what their customers need today, Luc says teams at Agfa HealthCare are not taking their eye off the horizon. Luc organizes the changes coming within healthcare imaging and IT into four main areas.

First, digital acquisition technology is available at lower costs than ever before. That brings new opportunities for growth markets – but also, combined with information technology, enables remote consultation. That means access to care will further improve, particularly for remote areas.

The second trend will see even greater overhead removed from the diagnostic process as workflow shifts to being managed and optimized across a whole geography, rather than a single site or hospital. By routing exams to where the expertise lies, imaging workflow is balanced and efficient.

Third, digitization is moving well beyond the traditional image-intensive departments of radiology and cardiology. “There are many more departments within a hospital that generate images which, unfortunately, never find their



“There are many more departments within a hospital that generate images which, unfortunately, never find their way to patient files. Our focus is to ensure no image gets left behind.”

LUC THIJS, President Agfa HealthCare

way to patient files,” says Luc. “Our focus is to ensure no image is left behind.”

Finally, Luc tells of a trend towards a more integrated diagnostic approach, where clinical data, lab results, pathology results and radiology images complement one another, leading to better detection and treatment of disease.

#### UNIQUELY POSITIONED

In speaking with Luc, there is a clear sense that Agfa HealthCare is growing in exciting areas. They see opportunity to grow their direct radiography presence. And the company continues to drive innovation in regional health, enterprise IT and growth into the many image-generating departments within the hospital. “We are uniquely positioned for these changes,” he says. “We are at the center of the convergence of imaging, clinical and IT competencies. That enables us to continue delivering solutions that result in better access to high quality, patient-centric care – delivered at a lower cost than ever before.” •



## ITHAA UNDERSEA RESTAURANT

The Ithaa undersea restaurant is secured five meters below sea level at the Conrad Maldives Rangali Island. The five-by-nine meter restaurant has a capacity of 14 people and is accessible by a spiral staircase in a thatched pavilion at the end of a quay.



# IMPAX Data Center streamlines data and image flows for 13-hospital health system

Consolidation of six existing RIS/PACS environments and integration with the regional healthcare platform to create country's most advanced diagnostic imaging environment

**INTERVIEWEES** Birgit Lindholm Petersen, Co-project Manager, IMT · Jan Thomsen, Co-project Manager, IMT



“We wanted to be able to use regional diagnostic resources, such as technologists, secretaries, radiologists and modalities, in a more efficient way across the hospitals in the region, implementing workflows so that we could utilize available resources on an as-needed basis, rather than where they were located.”

JAN THOMSEN, Co-project Manager, IMT

**With this major project, the Capital Region, a 13-hospital regional healthcare provider in Denmark, aims to bring together diagnostic images and reports from all radiology, nuclear medicine, and clinical physiology departments in all 13 hospitals, and at the same time enable ordering, scheduling and reporting of diagnostic exams across all imaging departments in the region.**

The Capital Region is one of five administrative units in Denmark providing healthcare, regional development and research for 1.7 million inhabitants, about 30% of Denmark's population. The area comprises 13 hospitals, together employing 36,000 staff. In total, the hospitals carry out 1.5 million diagnostic procedures per year. Image storage requirements are expected to exceed one petabyte (or 1 million gigabytes) over the expected lifetime of the new RIS/PACS.

According to co-project managers Birgit Lindholm Petersen and Jan Thomsen, the

business case for the project represents a lot more than just a technology upgrade. “We don't see this primarily as an IT project, but rather as a business process re-engineering. The aim is to improve the availability of diagnostic data to regional healthcare personnel, and enable flexible cross-regional workflows that are not limited by departmental boundaries. The technology is simply a means to optimize the efficiency and quality of the treatment of patients,” says Thomsen.

## **FOCUS ON SYSTEM AVAILABILITY AND PERFORMANCE**

With the new IMPAX solution from Agfa HealthCare, featuring the IMPAX Data Center, two copies of all diagnostic images and reports from across the region will be stored at two identical data centers, geographically separated by 10 kilometers (a little over six miles).

Additionally, the system components used in each data center are highly fault-tolerant, and the two data centers

are configured to be fully redundant, so that one data center can take over if the other one suffers a major breakdown such as fire or water damage, with only minor implications to clinical users and diagnostic departments.

The IMPAX Data Center will accommodate images from radiology, as well as departments such as nuclear medicine, clinical physiology and invasive cardiology. Interfaces will integrate the IMPAX solution with the region's existing IT infrastructure, including the regional healthcare platform that will be available to clinical users across the region, for ordering, scheduling and review of diagnostic exams.

## **USING REGIONAL DIAGNOSTIC RESOURCES MORE EFFICIENTLY**

The driving force behind this regional project was to consolidate six existing RIS/PACS environments into one. “A significant number of our existing systems needed to be updated in the foreseeable



**“It was important for us to involve the implementation groups from the very beginning in a way that encourages them to take ownership of the process.”**

BIRGIT LINDHOLM PETERSEN,  
Co-project Manager, IMT

“It was important for us to involve the implementation groups from the very beginning in a way that encourages them to take ownership of the process,” says Petersen. “Then, they’ll take the lead and also act as ambassadors for the system during the implementation at their own local hospital.”

Phase one in the implementation is scheduled for this autumn. Data from the existing RIS and PACS platforms will be migrated to the Agfa HealthCare platform, and a clinical viewer for reports and images will be introduced. RIS/PACS scheduling and diagnostics are planned for early 2013.

For Denmark, the Capital Region project marks a major healthcare milestone. With expected annual growth of 4 to 5% in diagnostic imaging studies, the region is well-prepared to meet challenges today, and in the future. •

future, because of age and technological obsolescence,” says Thomsen. “Additionally, we wanted to be able to use regional diagnostic resources, such as technologists, secretaries, radiologists and modalities, in a more efficient way across the hospitals in the region, implementing workflows so that we could utilize available resources on an as-needed basis, rather than where they were located.”

The system will be tightly integrated with the region’s existing healthcare platform, giving all clinicians in the region access to all the information produced in any diagnostic department, from a standard desktop. “That’s something that we can do today, but in a less efficient manner, where we sort of push and pull data among systems,” says Thomsen.

**CONSENSUS APPROACH TO CREATE TAILORED TENDER**

In selecting a vendor, the Capital Region undertook a comprehensive tender process. Eight separate evaluation groups, consisting of 20 people from the Region (including 15 from diagnostic imaging departments across the hospitals) reviewed three final bidders. Members from the diagnostic departments were instrumental in creating highly-specific requirements with regards to the functionality needed to realize flexible departmental and regional workflows.

**AGFA HEALTHCARE UNDERSTOOD REGION’S WORKFLOWS AND VISION**

In the end, it came down to more than just the technology on offer. “The request for proposal was about more than the technology,” says Thomsen. “We also had an immense focus on implementing the requested workflows, and the tender from Agfa HealthCare showed that Agfa HealthCare understood this, and provided detailed documentation to demonstrate that its system could fulfill the vision for the new system.”

Managing the change that will result from this implementation is a large part of this project. According to Thomsen

and Petersen, it is as much about social engineering as it is about putting new technologies in place.

The acquisition of the new technologies is governed by a regional organization called SGB (“Systemgruppe Billede”), which includes representatives from regional management, IT management, imaging department management, and project management. The involvement of these key stakeholders, and the representatives appointed by them from the beginning of the tender process, was instrumental in getting diagnostic departments to view the change in a positive way, and feel ownership of the new system, thanks to their direct influence on end-user functionality and system governance.

**IMPLEMENTATION GROUPS WILL ACT AS AMBASSADORS FOR THE SYSTEM**

Implementation of the system will be handled at two levels – a regional implementation group, and local implementation groups at each imaging department. The regional implementation group includes representatives for each of the existing RIS and PACS environments, and project management, but not from all imaging departments, in order to keep the size of the implementation group to a manageable level. The representatives for the existing RIS and PACS systems will act as chairs for local implementation groups where each system is used.



**AGFA HEALTHCARE’S CONTRIBUTION**

- » In-depth understanding of regional healthcare system needs
- » Ability to comprehend and address requirements of workflows
- » Strong local team backed by global support and expertise

**SOLUTIONS**

**IMPAX 6**

- » Scalable, web-deployable image and information management solution
- » Streamlines enterprise workflow
- » Delivers increased efficiency and productivity to hospitals and care facilities

**IMPAX Data Center**

- » Scalable and fault-tolerant regional imaging management solution
- » Stores imaging data from many departmental imaging systems, as well as from disparate hospital PACS
- » Developed for large, multi-site and multi-facility healthcare enterprises

**DID YOU KNOW...**

- » Denmark is divided into five regions; the Capital Region is the largest of the five.
- » The largest city in the Capital Region is Copenhagen.
- » Copenhagen is considered one of the world’s most environmentally-friendly cities; 36% of its population commutes to work every day by bicycle.

# Continuing 100-year history of innovation with installation of new DR solution

DX-D 600 offers Full Leg / Full Spine\* and features MUSICA<sup>2</sup> image processing software

**INTERVIEWEES** Johannes Weindel, CEO · Gerhard Blauert, Head Technologist



“From the beginning of the project until operation started, we received great support from Agfa HealthCare including all questions and interfaces concerning hardware, software licensing, and more.”

JOHANNES WEINDEL, CEO

positive feeling, and leaving it again in a good state of health. We aim to provide more safety and comfort to patients, in every respect,” says Weindel.

## **DX-D 600 MARKS FIRST INSTALLATION OF ITS TYPE IN GERMANY**

In the context of these goals, when looking for a new DR solution, hospital administration at Friedrichshafen decided in favor of Agfa HealthCare’s DX-D 600, a fully automated direct radiography solution. Installed in November 2011, it marks the first system of this type in Germany. The price-performance ratio was a major factor in the decision-making process, recalls Weindel; as was the advanced state of its technology, and the hospital’s positive experience with the Agfa HealthCare support and sales team.

Benefits the hospital expects to achieve with the DX-D 600 include high image quality, improved accuracy in readings, and optimization of processes in the areas of radiology, outpatient care, surgery, and post-therapeutic care. Other advantages are the ability to archive and share images, and the option of transmitting images electronically to referring physicians and post-therapeutic care organizations.

Friedrichshafen is the second largest city on the shores of Lake Constance, in the south of Germany. Over one hundred years ago, the hospital that would become Friedrichshafen Hospital was built here, in line with standards considered modern at that time. As a result of the city’s expansion, it became clear in the early 1970s that further modernization of the hospital was necessary. Founded in 2005, Friedrichshafen Hospital continues to be the key provider of care in the area. The recent implementation of Agfa HealthCare’s DX-D 600 direct radiography solution is the latest step toward the hospital’s goals of diagnostic accuracy optimized processes, and economic viability.

Patients today are very well informed, both about medical conditions and the progress medicine is making in science and routine practice, says Johannes Weindel, CEO of Friedrichshafen Hospital. “Patients demand the best quality care – and this is what we offer,” he says. When it comes to making healthcare decisions, patients in the 21<sup>st</sup> century have more options than ever before. The medical technology in place at a hospital or clinic plays a central role for patients in making these choices.

The focus at the hospital is on ensuring the well-being of patients, at all stages in the treatment process. “They should be entering the hospital campus with a



## HIGHER LEVEL OF AUTOMATION ADDS CONVENIENCE TO DAILY ROUTINE

Compared to its predecessors, the new DX-D 600 offers a higher level of automation. In addition to horizontal and vertical auto-tracking, an auto-positioning function has been integrated: thanks to stored protocols, the DX-D 600 applies the correct acquisition position for the various types of exams. At the click of a button, all components are positioned automatically. Horizontal and vertical tracking supports technologists by maintaining the focus-detector geometry despite movements of the table or wall stand.

Further options include Full Leg / Full Spine with automatic image stitching. The intelligent self-adapting MUSICA<sup>2</sup> image processing software automatically analyzes the characteristics of each image and ensures consistency of image quality for mobile as well as fixed acquisitions. This characteristic, according to Head Technologist Gerhard Blauert, is offered only by Agfa HealthCare, and significantly enhances reading for radiologists.

## FULL SUPPORT DURING INSTALLATION

During the installation phase, staff at the hospital experienced full support from Agfa HealthCare, says Weindel. "From the beginning of the project until operation started, we received great support from Agfa HealthCare, including all questions and interfaces concerning hardware, software licensing, and more."



"With a total of 400 full leg and 5,000 thorax acquisitions annually, the fully digital solution will act as our workhorse for routine exams."

GERHARD BLAUERT,  
Head Technologist

"With a total of 400 full leg and 5,000 thorax acquisitions annually, the fully digital solution will act as our workhorse for routine exams," says Blauert. The technologists have adapted their workflows; now they define the required parameters and the suitable detector before each acquisition. Inserting and transporting cassettes is a thing of the past, and there is no longer any prolonged waiting time for image read-out. After 6 to 8 seconds, the preliminary image is available for a quality check. Image quality, says Blauert, is higher in comparison with existing cassette-based systems.

One of the key benefits is the added convenience for technologists, reports Blauert. Images are immediately available for processing or reading, and there are no unnecessary waiting times for staff or patients. Re-acquisitions due to any questionable image quality are no longer necessary. After the adaptation of processes, the solution has been embraced by the technologists; added time for interaction with patients, longer intervals between exams, and reduced stress are welcome improvements. There is also the potential to increase the number of exams performed, says Blauert.

## NEEDLE-BASED DETECTOR PLATES FOR CONSISTENT QUALITY

A next step for management at Friedrichshafen will be to replace remaining plates with the most advanced needle-based detectors from Agfa HealthCare. "This will help us achieve consistent quality of legacy analog systems and images in comparison with the images from this fully digital solution," says Weindel. "There is a significant benefit from this also for referring physicians and post-therapeutic care organizations: they will no longer receive images of differing quality from an individual hospital or radiology department." •



## SOLUTIONS

### DX-D 600

- » Higher level of automation
- » Offers horizontal and vertical auto-tracking as well as an auto-positioning function which positions all components automatically for defined exam types

## AGFA HEALTHCARE'S CONTRIBUTION

- » MUSICA<sup>2</sup> image processing software automatically analyzes the characteristics of each image and provides consistency of image quality for mobile as well as fixed acquisitions, facilitating reading.
- » The fully automated DR solution increases productivity; reduced exam and waiting times result in increased satisfaction on the part of staff and patients.

## DID YOU KNOW...

- » The hospital was inaugurated in 1892 under the name of "Karl Olga Krankenhaus". At the time, Friedrichshafen had 3,500 inhabitants. Today, approximately 60,000 people live here.
- » Friedrichshafen used to be a hub for dirigible construction. Even today, companies with roots in that industry are the largest employers in the region.

# PACS plays key role in helping Ontario hospital meet ever-expanding objectives

Quick access to reports huge time-saver for referring and emergency physicians at Hôpital Montfort

**INTERVIEWEE** Dr. Fabiano Taucer, Chief of Diagnostic Imaging



Hôpital Montfort in Ottawa, Canada, is the only hospital in the province of Ontario which provides all its services in both official languages. In addition to serving the region's francophone community, it is the only hospital in the province to provide medical training in French. With the implementation of Agfa HealthCare's IMPAX PACS solution, incorporating IMPAX Reporting with speech recognition in both languages, Montfort is set to meet the needs of its patients and physicians.

"Sometimes we're reporting cases before the emergency doctors even know that the study has been done."

DR. FABIANO TAUCER,  
Chief of Diagnostic Imaging

Since its founding in 1953, Hôpital Montfort has endeavored to put its patients' needs first. In 1997, the hospital faced its toughest challenge, when the Ontario government decided to close the hospital completely as part of a provincial cost-cutting campaign. The hospital, along with the local community, rallied to contest the closure, and succeeded in persuading the government to keep Hôpital Montfort, the only francophone hospital in Ontario, open.

In 2005, the Ontario government awarded Montfort over \$171 million CAD / 130 million EUR for a major expansion project, which has now been completed. "We essentially doubled the size of the hospital," says Dr. Fabiano Taucer, Chief of Diagnostic Imaging at Montfort.

Now, the hospital offers 300 beds, and has 1,500 employees and 300 doctors. With the larger facility size came increased expectations. "When we received funding for our expansion, we were asked to predict our anticipated volumes," explains Dr. Taucer, "and with the expansion complete, we now need to reach those predicted volumes. Our hospital and our department must actively work towards achieving those goals and targets."

## DECREASE IN TURNAROUND TIME TRANSLATES INTO MAJOR EFFICIENCY GAINS

For Hôpital Montfort, and for Dr. Taucer, the IMPAX solution from Agfa HealthCare, incorporating IMPAX Reporting with speech recognition, plays a significant role in meeting the hospital's ever-expanding objectives.

"One of the most important benefits of IMPAX is that it has allowed us to significantly decrease our turnaround time," says Dr. Taucer. "That's a huge gain in efficiency. Now, the patient comes in, is directed to the modality, the study is immediately available to the radiologist, who can instantly read it, dictate a report with voice recognition, and with the click of a button, it is available system-wide, to the emergency doctors and to the inpatient doctors. There's no need for any transcription."

Before IMPAX, the diagnostic imaging department performed 200 to 250 examinations per day. Now, the department handles 350 to 500 exams per day, equivalent to 300 to 450 patients. There are 11 radiologists, approximately 60 technologists, and about another 20 support staff.

## 20-YEAR PARTNERSHIP WITH AGFA HEALTHCARE

The hospital has a history with Agfa HealthCare that goes back more than two decades. The partnership started with X-ray film, and expanded into digital in 1996 with the installation of the hospital's first IMPAX. Initially supporting just CT and ultrasound, the solution was upgraded in 2009 to IMPAX 6, featuring digital dictation, and now includes all hospital modalities: digital radiography, digital mammography, bone densitometry, sonography, CT, MR and nuclear medicine.



“The IMPAX PACS, along with the reporting solution, has significantly improved our turnaround time.”

DR. FABIANO TAUCER,  
Chief of Diagnostic Imaging

“We went virtually overnight from having transcriptionists type our reports to having voice recognition,” Says Dr. Taucer.

**INTEGRATION WITH IMPAX KEY STRENGTH OF BILINGUAL SPEECH RECOGNITION SOLUTION**

In selecting the speech recognition technology, a key point for Dr. Taucer and the hospital was Agfa HealthCare’s ability to offer digital dictation in both French and English. As a francophone teaching hospital, supporting French-speaking patients, medical professionals, and students, this aspect was crucial for Montfort. “We need to be able to produce our reports in both official languages and this system can fully support that,” says Dr. Taucer.

Another important factor was integration. “This voice recognition system is completely integrated with IMPAX. It is not a separate system. This is very important because integration tends to be the most challenging part of working with computers.”

**EASY ACCESS TO DATA HELPS MONTFORT MEET GOVERNMENT AND ADMINISTRATIVE REPORTING NEEDS**

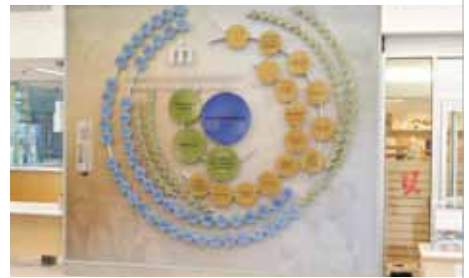
Because healthcare in Canada is publicly funded, requirements relating to government oversight must be addressed as part of system design. The information

management capabilities of IMPAX help Montfort streamline internal processes and meet reporting requirements at the same time.

“In order to become more efficient, we implemented a managerial methodology that we applied to CT, MR, and to ultrasound. To do this, we needed to acquire data in terms of when a study was done, when it was reported, and so on,” says Dr. Taucer. “IMPAX helps us keep track of these things and makes the data readily available.”

IMPAX also supplies information that helps Montfort obtain funding. “A provincial government initiative was started several years ago to decrease wait times for certain diagnostic imaging procedures, specifically CT and MR,” says Dr. Taucer. “Some of the data that we need to provide to be eligible for the additional funding is available through IMPAX.”

For Dr. Taucer, the key benefits are linked to improved patient care. “At Montfort, the patient is always at the centre of everything,” he says. “The IMPAX PACS, along with the reporting solution, has significantly improved our turnaround time. This means our patients can receive a diagnosis faster and start treatment sooner.” •



**AGFA HEALTHCARE’S CONTRIBUTION**

- » In-depth PACS and reporting expertise
- » Solid understanding of hospital/department needs
- » Local team supported by global organization
- » Knowledge of local/regional needs beyond image management

**DID YOU KNOW...**

- » Montfort was founded in 1953 by the Daughters of Wisdom, a religious order.
- » It is the only French hospital in the Canadian province of Ontario that offers medical teaching in French.
- » The hospital partners with the University of Ottawa to provide clinical teaching in French.
- » It boasts a state-of-the-art simulation laboratory to teach healthcare providers new skills. Based on simulation labs in the aerospace industry, Montfort’s lab features five high-tech androids.

**SOLUTIONS**

**IMPAX 6**

- » Scalable, web-deployable image and information management solution
- » Workflow optimized for different user types
- » Web-deployable for access to data from any location – local or remote
- » Easy, centralized management of users, system and software

**IMPAX Reporting**

- » Single workstation where physicians have complete access to their reporting tools
- » Report and image information sharing across the facility





# Quality of image processing software key in hospital's decision to implement DR

Sint-Jozef Hospital's radiology team decides on DX-D 300 and DX-D 800\* direct radiography solutions based on MUSICA<sup>2</sup> image quality and innovative exam room concept

**INTERVIEWEE** Dr. Koen Vandembroucke, Chief Radiologist



"Our radiologists particularly appreciate the dynamic image, with a wide bandwidth in contrast and brightness, and the constant quality of the images with similar examinations on different patients. Whether you are examining extremities or central parts, you always get the same image quality. You can look for better image quality solutions, but you won't find them."

DR. KOEN VANDENBROUCKE,  
Chief Radiologist

a team of 110 clinicians providing a wide range of services to patients, Sint-Jozef Hospital may not be the biggest of hospitals, but probably one of the most networked hospitals in the Belgian healthcare scene. In an effort to provide high-level care, the hospital has developed a collaboration model which extends its competence and capacity to that of surrounding tertiary centers throughout the region.

## NETWORKING WITH TERTIARY CENTERS FOR OPTIMAL PATIENT WORKFLOW AND CLINICAL PATH

Departmental-based collaboration with Ghent, Antwerp and Brussels university hospitals in many clinical fields, such as hematology, nephrology, oncology and cardiology, allows patients to be referred to the best specialists without losing touch with their base hospital close to home. Clinicians from these tertiary care centers even have consultations on-site at the Sint-Jozef campuses.

When the Sint-Jozef Hospital's medical imaging department decided to implement direct radiography with Agfa HealthCare, the team was persuaded primarily by the excellent image quality offered by its MUSICA<sup>2</sup> imaging software. The team was also impressed by the versatile examination room that's part of the DX-D 800 solution,

which features an integrated video camera allowing optimal positioning of the patient without irradiation. This has reduced fluoroscopy runtime by 75%, reports Chief Radiologist Dr. Koen Vandembroucke.

With two campuses in the Antwerp region, totalling some 300 beds and



optimizes the use and the versatility of the room”, he explains.

With a reputation as a technology advocate inside the hospital, Dr. Vandembroucke believes that vendor consistency and loyalty deliver excellent results, and does not prevent independence of choice and span of opportunities. “We have had an outstanding relationship with Agfa HealthCare for more than ten years now. We are convinced that Agfa HealthCare’s gold standard imaging software, MUSICA<sup>2</sup>, provides us with the best DR solution available for all our projection radiography examinations.” •

“This collaboration supports our aim to implement the care paths that have been developed as best practices by the authorities,” explains Dr. Koen Vandembroucke, Chief Radiologist at Sint-Jozef Hospital, who was involved in developing this collaboration strategy as the hospital’s medical director. Dr. Vandembroucke is also the driving force behind some of the hospital’s recent technology choices in the field of medical imaging.

The hospital is a long-time Agfa HealthCare customer. When researching options for DR, the radiologists put the MUSICA<sup>2</sup>-based image quality of Agfa HealthCare’s CR technology forward as a benchmark. “When we decided to go into direct radiography with Agfa HealthCare, we were mainly inspired by the excellent image quality offered by MUSICA<sup>2</sup> image processing software as we knew it from CR. During our analysis of the market, we realized that many offerings focused on the physical dimension of the DR solution, and were offering digital detection without a satisfactory image processing solution. We couldn’t find the image quality anywhere that Agfa HealthCare offered us in CR and was now promising in DR.”

**“We are convinced that Agfa HealthCare’s gold standard imaging software, MUSICA<sup>2</sup>, will provide us with the best DR solution available for all our radiographic and fluoroscopic examinations.”**

DR. KOEN VANDENBROUCKE,  
Chief Radiologist

### RADIOLOGISTS IMPRESSED BY MUSICA<sup>2</sup> IMAGE QUALITY ON DX-D 300 DR SOLUTION

Based on this research, Dr. Vandembroucke and his team decided to install Agfa HealthCare’s DX-D 300 and DX-D 800 direct radiography systems. “In our DX-D 300 room, we upgraded the existing equipment with Agfa HealthCare’s imaging software. Our radiologists were immediately enthusiastic about the image results. They found it provided twice the image quality, at least. Radiologists particularly appreciate the dynamic image, with a wide bandwidth in contrast and brightness, and the constant quality of the images with similar examinations on different patients. Whether you are examining extremities or central parts, you always get the same image quality. You can look for better image quality solutions, but you won’t find them.”

### LAYOUT OF DX-D 800 ROOM AS IMPORTANT AS IMAGE QUALITY

The radiology team was also impressed by the physical layout of the DX-D 800 room and the examination table. “Both in form and aesthetics, it felt like it was a new concept, not just a converted X-ray room. The table can be positioned as low as necessary and the patient can be reached from any side. Furthermore, the DX-D 800 also provides a safer environment for the patient. The remote-controlled table and video camera allow for positioning the patient without irradiation. Fluoroscopy runtime has been reduced by 75%,” says Dr. Vandembroucke. The head of the imaging department also opted to include an additional ceiling-suspended DX-D 600 X-ray tube in the room, in order to allow for patients that cannot be placed on the DX-D 800 table to be examined. “It



#### SOLUTIONS

- » DX-D 300, DX-D 800, DX-M direct and computed radiography solutions
- » Integrated MUSICA<sup>2</sup> gold standard imaging software

#### AGFA HEALTHCARE’S CONTRIBUTION

- » Ergonomic and innovative concept for DR room
- » Efficient DR solutions with wide range of radiographic and fluoroscopic examinations
- » Reduced patient exposure with video camera for positioning
- » Excellent image quality with MUSICA<sup>2</sup>

# RIS/PACS from Agfa HealthCare helps hospital in Orange achieve four key objectives

Combining RIS/PACS with existing HIS results in improved management of patient data and major efficiency gains

**INTERVIEWEES** Jean-Philippe Navarro, Hospital Director, responsible for Finance and Information Systems · Dr. Philippe Maman, Radiologist · Françoise Pons, Medical and Health Services Manager

**For Centre Hospitalier Louis Giorgi (Louis Giorgi Hospital) in Orange, four key goals were behind the decision to implement Agfa HealthCare's RIS/PACS solution. The hospital wanted to improve the quality of patient care, increase staff satisfaction, reduce costs and increase productivity. Now that the IMPAX PACS solution is in place, and fully integrated with the hospital's HIS, Louis Giorgi Hospital has achieved these goals and marked a major step forward in its progress towards a fully digital hospital environment.**

With more than 12,000 admissions and 40,000 external consultations a year, Louis Giorgi Hospital is a busy community hospital serving the population of northern Vaucluse, in the Rhone Valley in the southeastern part of France. It is also part of an inter-hospital medical network with the Vaison-la-Romaine and Valréas hospitals, which are also located in the area of Vaucluse.

Louis Giorgi Hospital has been making steady progress towards digital for some time. This most recent implementation, featuring Agfa HealthCare's RIS/PACS solution, is just the latest in a series of progressions that will ultimately take this hospital all the way to an Electronic Medical Record (EMR).

In 2010, the hospital launched a public call for tenders for a combined RIS/PACS solution. Management at the hospital saw this step as a natural progression that would contribute to both patient care and productivity improvements. From a financial point of view the acquisition also made sense, as the implementation insured a progressive return on investment.

## **CUSTOMIZED SOLUTION IN LINE WITH HOSPITAL'S FUNCTIONAL, TECHNICAL AND FINANCIAL REQUIREMENTS**

Agfa HealthCare won the bid for several reasons. The strength of the local Agfa HealthCare team, with proven capability to manage a project of this size and scope, was key, as was the ability to customize the RIS/PACS solution in line with the hospital's functional, technical and financial requirements. In addition, Agfa HealthCare was able to guarantee that the implementation would follow the hospital's required timelines, as well as provide a smooth integration with the existing information system.

The relationship between Agfa HealthCare and Louis Giorgi Hospital dates back several years. The hospital uses ORBIS\*, Agfa HealthCare's clinical and administrative information system, and also uses its computed radiography solutions. This relationship also contributed to the decision to select Agfa HealthCare for this project.

## **INTEGRATION WITH HIS PROVIDES HIGH LEVELS OF DATA MANAGEMENT**

"The success of the project is primarily due to the strong collaboration between the hospital's management team, the project teams and the radiologists. These three groups worked together to provide a smooth integration of the new RIS/PACS with our existing ORBIS administrative information system, resulting in a high-performing HIS," says Jean-Philippe Navarro, Hospital Director, responsible for Finance and Information Systems.

The system receives input from the admissions' office, staff can quickly and easily book appointments, schedule exams, consult the master schedule and display the occupancy status of the rooms in real time, via an easy-to-use interface. The solution permits easy access to patients' data and the information is secured.

**"The success of the project is primarily due to the strong collaboration between the hospital's management team, the project teams and the radiologists. These three groups worked together to provide a smooth integration of the new RIS/PACS with our existing ORBIS administrative information system, resulting in a high-performing HIS."**

JEAN-PHILIPPE NAVARRO, Hospital Director, responsible for Finance and Information Systems





“Faster image interpretation goes together with easy access to prior examinations of the patients. I’d say that IMPAX has already become an essential tool for us.”

DR. PHILIPPE MAMAN, Radiologist



#### MANAGING COMPLEXITIES OF RADIOLOGY WORKFLOW WITH EASE

“From my workstation, I now have a detailed overview of all the department’s activities,” says Françoise Pons, Medical and Health Services Manager. “IMPAX RIS also lets me create precise statistics on all activities and processes, which really helps me to better manage radiology workflows.”



#### AGFA HEALTHCARE’S CONTRIBUTION

- » Proven ability to manage a project of this size and scope
- » Proficient, professional local team able to work collaboratively with hospital management and radiologists
- » Integrative expertise to help provide smooth integration of the new RIS/PACS with hospital’s ORBIS administrative information system

From the radiologists’ point of view, there are many benefits, including an electronic workflow system, streamlined study reviews, and improved reporting and results distribution. They can instantly interpret the images on a console equipped with a high-resolution dual screen and use tools to refine their diagnoses. Reporting is facilitated by the digital dictation function that’s integrated into IMPAX RIS.

“Faster image interpretation goes together with easy access to prior examinations of the patients. I’d say that IMPAX has already become an essential tool for us,” says Dr. Philippe Maman, Radiologist.

Now that the IMPAX project is completed, Louis Giorgi Hospital is focusing on other projects, including deploying health information systems within the facility, transmitting images to outside institutions via teleradiology and working toward the EMR, which will be powered by IMPAX from Agfa HealthCare. •



“From my workstation, I now have a detailed overview of all the department’s activities.”

FRANÇOISE PONS,  
Medical and Health Services Manager

#### DID YOU KNOW...

- » The emergency department at Louis Giorgi Hospital operates within a national framework, managing emergency patients along with the hospitals of Vaison-la-Romaine and Valréas (42,000 admissions a year combined)
- » Agfa HealthCare has provided a six-week training program on the RIS/PACS to staff at the hospital, since January 2011
- » By offering an unlimited archival period, IMPAX allows Louis Giorgi Hospital to realize significant savings

#### SOLUTIONS

##### IMPAX RIS

- » Supports the complete radiology workflow and integrates management reporting
- » Features user profiles to minimize training and maximize efficiency
- » Includes a full range of reporting and results distribution tools to minimize report turnaround times
- » Increases revenue through automatic billing data transmission
- » Includes digital dictation for reports

##### IMPAX 6.4

- » Workflow optimized for the different users in an enterprise
- » Web-deployable for access to data from any location – local or remote
- » Easy, centralized management of users, system and software
- » Connectivity for an integrated view of patient data
- » Integration at the desktop, pulling together disparate information systems

# Digital Imaging in the Cloud

## Agfa HealthCare considers the increasing drive towards Cloud computing and why it is an important trend that is changing the face of modern Healthcare IT

Everyone is talking about Cloud computing, yet if you asked 10 separate IT professionals to define it, you might well end up with 10 completely different definitions. To date, possibly the clearest and most comprehensive definition has been provided by the National Institute of Standards and Technology (NIST). It describes it as on-demand self-service, broad network access, resource pooling, rapid elasticity, and measured service.

For customers, it quite simply means enjoying all the benefits of flexible on-demand access to IT resources without all the purchasing, deployment and management overheads usually associated with IT service procurement and provision.

### **ECONOMIC AND GREEN ISSUES DRIVING DEMAND**

The recent economic downturn coupled with the 'green agenda' of many healthcare organizations means that cloud services are becoming increasingly important. Today, a typical business uses around 15-20% of its server capacity and 25% of its storage. Yet, by sharing resources and using IT more efficiently, this could be increased to as much as 80%.

For some companies and their service providers, the ability to engage in cloud services represents quite a departure in their working model. Agfa HealthCare, however, recognizes it primarily as a change to the business and delivery model of existing IT infrastructure and applications. By bringing together capabilities such as IT management outsourcing, sharing and outsourcing data center facilities; server and storage virtualization and service management under the umbrella of cloud services, we enable our customers to harness the power of technology more efficiently, while still enjoying solutions tailored to their specific business operations.

### **EXPLOSIVE DATA GROWTH MAKES OPEX A CRITICAL FOCUS**

Clinical imaging already accounts for the bulk of hospitals' digital information, and recent research by the ESG Research Report shows it will become an even more significant percentage of hospital data over the coming five years. Its North American Healthcare Provider Information Market Size & Forecast, published in January 2010, showed the average amount of

data managed per hospital is expected to increase from 168 terabytes in 2010 to 665 terabytes by 2015. Clinical Imaging on its side accounts for the bulk of hospitals' digital information and will become an even more significant portion of hospital data, growing from 43% of data in 2010 to 52% to 2015.

Although the cost of storage hardware actually drops between 15-30% per year, the Total Cost of Ownership (TCO) of storage continues to rise, with Operational Expenditures (OPEX) accounting for as much as 80% of the cost. This explosive data growth makes managing and reducing OPEX the parameter that healthcare organizations really need to focus on the immediate future.

However, while OPEX is perhaps the most important driver in choosing cloud services, there are a number of other challenges in clinical imaging that can be addressed simultaneously. One of these is the zero-tolerance for IT downtime. As IT and its associated applications become increasingly critical to supporting clinical workflow and digital diagnostic support systems are required on a 24/7/365 basis, no unplanned downtime is conceived and healthcare management, professionals and other staff are unwilling to accept any lack of system availability. Unfortunately, that is not the current reality, so there is a clear need for better and more robust data protection strategies provided by cloud and managed services to significantly reduce the risk of any downtime.

### **IT THAT CREATES BUSINESS VALUE**

IT staff shortages and the retention and recruitment of IT staff is an on-going industry-wide issue. Clinical imaging's hardware/software intensive systems require continuous dedicated activities, both for implementation and support. Furthermore, with funds stretched and every penny needing to be accounted for, IT resources are being judged

increasingly on their ability not simply to keep the lights on but create business value. With only 30% of the hospital's IT budget available for innovation, cloud and managed services provide the environment to enable the creation of more strategic business solutions. Last, but by no means least, is the challenge of how to alleviate the pressure of squeezed budgets and the drive for cost savings. For many healthcare organizations, large capital expenditure requirements – such as those required for storage, servers, diagnostic workstations, PACS and advanced diagnostic software – are a bottleneck when it comes to deploying new capabilities. With Agfa HealthCare's provision of an all-inclusive-fee-per-use service that includes technology refreshments, budgets can be more accurately managed, and extra funds allocated to those areas that could help create greater business value.

### **CONSULTATION IS KEY**

As with most solutions, in cloud and managed services there is no such thing as 'one size fits all'. Key to the success of any solution is a full appreciation of each customer's situation, aspirations and constraints so that the right solution can be selected and put in place. At the heart of Agfa HealthCare's cloud-based solutions is a consultative approach to solving the many challenges in healthcare. Agfa HealthCare works with each customer to find the model that best fits their needs and provides the peace-of-mind they are looking for in relation to IT performance.

To address the many and differing needs of customers, Agfa HealthCare has developed a portfolio of Managed and Cloud Services ranging from Remote Management to Managed Hosting to Solution as a Service. Together they provide a variety of fully- or partially-managed services, either on- or off-site.

# Faster diagnoses with new mobile DR solution

Immediate access to high-quality images at patients' bedside helps physicians diagnose conditions and commence treatment plans more quickly

**INTERVIEWEE** Dr. Timo Kallio, Chief of Diagnostic Imaging Department

**Kymenlaakso Central Hospital faces many of the same challenges as other hospitals in Finland, and around the world: providing top-quality care while adhering to staff and budget constraints. With the introduction of the DX-D 100 mobile DR solution, the hospital is meeting the bedside imaging needs of patients within the intensive care unit, the cardiac care unit and emergency, and also gaining valuable staff time.**

Kymenlaakso Central Hospital is a 260-bed district hospital in the city of Kotka, serving a regional population of about 175,000. In the hospital there are approximately 770 employees. Finland operates a three-level system of healthcare, where more specialized care is provided at secondary level facilities such as Kymenlaakso Central Hospital. The hospital's diagnostic imaging department performs some 75,000 exams per year, including X-ray, ultrasound, CT, MR, and angiography (excluding coronary angiography), and has six radiologists, 31 technologists, three assisting staff and five office personnel.

## NEED FOR A "GOOD AND FAST" SOLUTION FOR MOBILE IMAGING

One of the biggest issues for the hospital is one shared by many healthcare providers: not enough staff for the existing workload. "Our standards are quite high," says Dr. Timo Kallio, Chief of the Diagnostic Imaging Department. "So the costs of examinations and operations are going up all the time. As a result we have to be more efficient throughout the system. In this case, we needed a good and fast solution for mobile imaging."

**"It is now much easier to handle the work inside the department."**

DR. TIMO KALLIO,  
Chief of Diagnostic Imaging Department

The hospital's choice for a bedside imaging solution was the DX-D 100 mobile DR solution from Agfa HealthCare. The DX-D 100 is a compact, mobile unit designed to be operated by a single person, and to address a variety of imaging tasks.

## BETTER PATIENT CARE COMBINED WITH COST SAVINGS

Improving the experience of hospital patients is another focus for Kymenlaakso. Agfa HealthCare's DX-D 100 DR solution also contributes to this goal. "With this kind of system we can provide better care for patients, and achieve cost savings too," says Dr. Kallio.

Kymenlaakso Hospital uses mobile imaging in the intensive care unit, emergency department, and the cardiac care unit. The system that they used before had serious limitations. "With our old system, we could take exposures at the bedside, but had to return to the X-ray department for processing. This flow would make us lose a lot of time in case retakes were necessary, for instance when the patient's position had to be corrected. Now, everything happens at the bedside, the doctors can see the images right away, and the DX-D 100 is easy to take to other departments," says Dr. Kallio.

## FULL INTEGRATION WITH IMPAX FOR MORE WORKFLOW GAINS

The hospital has worked with Agfa HealthCare for many years, and uses Agfa HealthCare's RIS/PACS solutions to manage diagnostic images and information, as well as Agfa HealthCare's computed radiography solution. The DX-D 100's connectivity with IMPAX makes it possible to wirelessly transfer the X-ray images.

The relationship with Agfa HealthCare extends to other hospitals nearby. Six facilities in the area, including two central hospitals, also use Agfa HealthCare's

IMPAX and RIS. "We have a connection to the university hospital as well, which is very handy, so we can send images to other hospitals," says Dr. Kallio.

## MAIN DIFFERENCE IS SPEED

For Dr. Timo Kallio, and for Kymenlaakso Central Hospital, the benefit of the technology from Agfa HealthCare, and specifically the DX-D 100 mobile DR solution, come down to efficiency. "It is the speed of the work; you have the image immediately, that's the main difference," says Dr. Kallio. "But for staff, it is more efficient as well. It is now much easier to handle the work inside the department." •



## SOLUTIONS

### DX-D 100 mobile DR solution

- » Incorporates NX acquisition workstation touch screen
- » Uses MUSICA<sup>2</sup> image processing, for excellent contrast detail
- » Full integration with RIS/PACS
- » Fully motorized for one-person operation; large wheels make maneuvering easy

### DX-M solution

- » Used for digital mammography
- » Needle-based detectors deliver excellent image quality
- » Integrated MUSICA<sup>2</sup> image processing technology

### IMPAX 5.2

- » Scalable, web-deployable image and information management solution

### RIS

- » Electronically manages radiology operations, and helps streamline workflow



# Educational initiatives strengthen mammography programs in Ukraine

Agfa HealthCare is instrumental in providing training and solutions to Ukraine's growing community of mammography radiology specialists

**INTERVIEWEE** Dr. Galina Maistruk, Gynecologist-Oncologist, Kiev, Ukraine

In Ukraine, mammography is undergoing an evolution. While the country has lagged behind in the early detection of breast cancer, as a result of an insufficient infrastructure for diagnosis and screening, and limited number of trained mammography radiologists, exciting new initiatives are helping to narrow the gap for the country's 45 million inhabitants. Dr. Galina Maistruk, leading partner of the charity program "Together Against Breast Cancer", has joined forces with Agfa HealthCare to install computed radiography solutions and improve radiologists' knowledge through the School of Modern Mammography. Together, they are working to bring Ukraine closer to European standards in mammography.

Ukraine currently does not provide breast cancer screening programs. Although the country has a high incidence of breast cancer-related mortality, it also shows a relatively low incidence rate of breast cancer, with 46-47 cases per 100,000 inhabitants. "The incidence rate is lower than The Netherlands, or Sweden," says gynecologist-oncologist Dr. Galina Maistruk, one of Ukraine's leading authorities on breast cancer and oncology-related pathologies. "However, the higher rate of breast cancer-related mortality can to a large extent be explained by the fact that we don't have early detection technology at hand."

## **INTRODUCING CR SOLUTIONS AND IMPAX PACS FOR MORE COST-EFFECTIVE AND FLEXIBLE MAMMOGRAPHY**

Following a turbulent history, with decades of low investment in healthcare infrastructure, the private sector is now assisting public authorities to help address the lack of equipment, particularly in the southeast states of the country, where the cancer incidence is highest.



There are about 300 facilities at present with mammography equipment, but only 20% of this equipment can be considered up to date, says Dr. Maistruk. "The private hospitals are trying to take over from the government, but few of them are able to organize reliable and consistent follow-up of patients."

Dr. Maistruk heads the Avon charity program "Together Against Breast Cancer", which recently donated a

"For years, Agfa HealthCare has provided on-the-spot training to mammography specialists using Agfa HealthCare's solutions. The company is actively involved in educating radiologists to work with CR solutions to the benefit of the patients."

DR. GALINA MAISTRUK,  
Gynecologist-Oncologist

**“The curriculum of the School of Modern Mammography has been developed by Agfa HealthCare. It incorporates the European guidelines for mammography diagnostics and screening.”**

DR. GALINA MAISTRUK,  
Gynecologist-Oncologist

number of Agfa HealthCare’s CR 85-X and CR 35-X mammography solutions and IMPAX MA3000 diagnostic display stations for breast cancer diagnosis to regional cancer centers in the southeast region of the country. The initiative is part of Avon’s global support of breast health.

The introduction of PACS and CR for mammography has opened new opportunities, says Dr. Maistruk. “To start, we can concentrate our investments on solutions that last for eight years. That means more cost-effective mammography, which is also more flexible, allowing us to obtain second opinions quickly. This also contributes to raising the quality of diagnoses. Raising the qualification levels of the mammography radiologists has therefore increasingly been the focus of the program since 2010. This is why we created the School of Modern Mammography.”

#### **WORKING TOWARD EUROPEAN GUIDELINES FOR BREAST CANCER SCREENING**

The goal of the School of Modern Mammography is to raise the level of knowledge and qualification standards for Ukrainian radiologists. Approximately 60 Ukrainian radiologists, specialists in the diagnosis of breast diseases, attended the educational program for the first time in 2010, in Yalta, where they participated in a four-day field-specific training session on mammography diagnostics.

The scientific seminar was a partnership project of Avon, the Women’s Health and Family Planning Charity Fund, and the Crimean Republican Oncology Hospital, along with Agfa HealthCare. “Agfa HealthCare took charge of the curriculum for the postgraduate training course. The seminar was presented by leading experts from Leuven University (Belgium) and the Russian Scientific Oncology Center, which is named after academician Blokhin of the

Russian Academy of Medical Sciences. Agfa HealthCare is also helping us to determine the best way to achieve European guidelines for breast cancer screening,” says Dr. Maistruk.

In 2012, Dr. Maistruk will organize another educational session. “We have 40 radiologists coming in for the training sessions,” she says. “They are able to network with each other, and we provide them with information on international training sessions and best practices.”

“We are seeking a more holistic approach to mammography,” she continues. “It is about embracing technological change: the organization of diagnostic units, task and workflow management; integration of the examinations in hospitals; availability of specialists and assembly of the clinical teams; quality of service and infrastructure; and also patient motivation, and patient results management. It is a modern view not just of the procedure, but of the chain of events and activities. That’s what we cover in the School of Modern Mammography curriculum, which has been developed by Agfa HealthCare. It incorporates the European guidelines for mammography diagnostics and screening.”

#### **AGFA HEALTHCARE HELPS STRENGTHEN LEARNING PROCESS**

Taking part in programs offered by the School also helps participants improve their English language skills, bringing Ukraine to the level of the rest of the European Union, explains Dr. Maistruk. She also points out the important role of vendors, such as Agfa HealthCare, in the learning process for local mammography radiologists. “For years, Agfa HealthCare has provided on-the-spot training to mammography specialists using Agfa HealthCare solutions, such as the CR 85-X and CR 35-X solutions as well as the IMPAX MA3000 diagnostic display station. The company is actively involved in educating radiologists to work with CR solutions to the benefit of the patients.”

And finally, there is the question of how to encourage women to come in for mammography examinations, to which the answer remains uncertain. “The best equipment and the best doctors are useless unless women come in for regular annual breast examinations,” says the Chairman of the Board of the Foundation for Women’s Health and Family Planning.

#### **Leading lady in fight against breast cancer**

Dr. Galina Maistruk holds an MD from the National State Medical University, Kyiv, in Obstetrics and Gynecology, and has been practicing as a gynecologist-oncologist since 1991. She has also been active in public health, working as a medical consultant in reproductive health and family planning for the UN mission in Ukraine, as a national medical consultant for the USAID/PATH Breast Cancer Assistance Project, and as a national representative and member of the executive board of the European Breast Cancer Coalition, “Europa Donna”. Dr. Maistruk is the founder and head of the Board of the Ukrainian NGO “Women’s Health and Family Planning”, a member of the council of the National NGO’s Coalition, “Advocacy Against Cancer”, and a faculty member of Kyiv-Mogila Academy Public Health School.

The Foundation and the “Advocacy against Cancer” NGO coalition have been consistently campaigning for years in the local women’s magazines to increase awareness of the importance of breast screening. Dr. Maistruk claims that more women are now presenting for mammography screening. “Early diagnosis is a key factor in fighting breast cancer and doctors can expect successful treatment in 95% of all cases. Breast cancer death rates dropped by 30% in the EU thanks to well-organized mammography screening which allows early diagnosis. Mammography screening quality standards have been developed and successfully implemented in Europe. We are only at the beginning of our adherence to such standards in Ukraine.” •

#### **AGFA HEALTHCARE’S CONTRIBUTION**

- » Mammography solutions that improve staff satisfaction and efficiency
- » In-depth expertise in implementation of breast screening programs
- » Partner in education

#### **SOLUTIONS**

##### **CR 35-X digitizer**

- » Versatile, small footprint digitizer for decentralized computed radiography environments

##### **CR 85-X digitizer**

- » Multi-user, multi-application digitizer with compact footprint, for centralized computed radiography environments

##### **IMPAX MA3000**

- » Mammography diagnostic display station



## 360 RESTAURANT, CN TOWER, TORONTO, CANADA

The revolving restaurant at the Toronto CN Tower features a magnificent view of Toronto more than 351 meters (1,151 ft) below. The highest “cellar in the sky” is created to resemble a typical underground wine cellar, including a 9,000 bottle storage capacity and a tasting table.



FLORIDA HOSPITAL CELEBRATION HEALTH, ORLANDO, FLORIDA, USA  
FLORIDA HOSPITAL HEARTLAND MEDICAL CENTER, SEBRING, FLORIDA, USA

# Emergency treatments enhanced by DX-D 100's versatility and excellent image quality

DR solutions for emergency and mobile procedures support two hospitals' regional reputations for top-quality patient care

**INTERVIEWEES** Sally Grady, Director of Imaging Services, Florida Hospital Celebration Health · Zbigniew Nawrocki, Director of Ancillary Services, Florida Hospital Heartland Medical Center



With eight hospitals, 14 walk-in medical centers, more than 800,000 yearly X-ray exams and 1 million annual admissions, Florida Hospital is ranked number one statewide in many categories and includes Celebration Health. A separate facility, Heartland Health Medical Center, is part of Adventist Health Multi-Hospital Group. Both hospitals today lead in offering DR/mobile imaging quickly linked to HIS/PACS.

Two hospitals in Florida recently made the leap into DR technology for emergency and mobile imaging – Florida Hospital Celebration Health and Florida Hospital Heartland Medical Center. Both are owned by Adventist Health System, which was founded in 1973 to support and strengthen Seventh-day Adventist healthcare facilities primarily in the southern and southwestern United States. With 37 hospitals, it is today among the nation's largest non-profit healthcare providers.

Celebration Health opened in 1998 in the planned community of Celebration, a town of 7,400 inhabitants begun in the early 1990s by the Walt Disney Company and nearby Disney World Resort. It has 174 beds and recently opened a five-story Patient Tower with 4-Star Hotel comforts including all private rooms, virtual concierge on each floor, and meditation gardens among other patient safety and comfort features.



### DR'S WIRELESS HIS/PACS INTEGRATION IMPROVES PHYSICIAN EFFICIENCY

Already the county's busiest emergency department (ED), the Emergency Care Center recently expanded to include 32 private rooms with a more soothing environment for patients and enhanced efficiency amenities for staff. Because the ED is adjacent to the main radiology department, it was felt that valuable space for a dedicated X-ray procedure room could be more wisely allocated to patient care. Yet there was still a need to provide on-site imaging for critical cases so patients wouldn't experience delays being transported to the main radiology department.

Says Zbigniew Nawrocki, Heartland's Director of Ancillary Services, "We were aware of impressive advances in image quality and PACS integration in mobile DR, and felt this technology would meet our need for fast X-ray studies in the emergency department by providing immediate, point-of-care images." After on-site evaluation of four different mobiles, the hospital selected Agfa HealthCare's DX-D 100 mobile DR solution with a DX-D 30C wireless detector.

"Image quality was a key element in choosing the DX-D 100, which the radiologists preferred over other solutions," he says. "Versatility was another, since the DX-D 100 provides

remarkable results not only for chest, but abdomen and extremity exams as well."

But a critical factor was the mobile unit's ability to wirelessly integrate with the hospital's IMPAX PACS solution from Agfa HealthCare and third-party HIS. "While other mobiles had elements of this capability, they were add-on type accessories where the DX-D 100 featured it as a self-contained, fully integrated function."

With this capability, technologists perform exams, immediately access the PACS on the DX-D 100's display screen (no need for a separate computer), insert demographic data and upload to IMPAX as well as the HIS. Adds Zbigniew Nawrocki, "Everything is now completed at the point of care. For the ED physician, it means an improvement in turnaround time for mobile exams. With previous mobile units, there was considerable delay from image acquisition to availability on IMPAX. Now, when a study is completed, the doctor can directly access the IMPAX solution and within moments, see images and data displayed. This truly speeds up treatment in the place where it is needed most: the emergency department."

The new mobile DR solution's image quality, ease of use and fast results are so impressive that it is regularly wheeled from the ED to surgery to support imaging needs there. Often, up to 40 mobile studies are performed daily between the

Located south of Orlando in Sebring, Florida Hospital Heartland was built in 1998 after 60 years at a nearby location. It today features 159 private rooms nestled on 86 waterfront acres. It houses the region's largest radiology service and offers the county's only Heart & Vascular Center certified for coronary angioplasties, a Stroke Center, hospitalist team program and pediatric unit paired with the Walt Disney Pavilion for Children.

#### DID YOU KNOW...

- » When planning Celebration City, Disney experts studied healthcare providers nationwide for its hospital. It selected Adventist Health due to its emphasis on whole person health, nutritious diet and moderation for a healthful lifestyle.
- » Heartland Medical Center received the 2011 Gallup Great Workplace Award, recognizing it as one of the best-performing workforces in the world.
- » Celebration Health's new Patient Tower has been awarded Silver Level status by LEED, which recognizes environmental leadership in the building industry.
- » During its annual three-day Medical Mission Trip to Centro Medico Vista del Jardin in the Dominican Republic, Heartland Medical Center's Mission Team accomplished more than 73 surgeries, 90 ER consultations, and 200 general medical consultations. They also brought medical equipment donations, all to enhance the quality of healthcare in this rural area.



**"Everything is now completed at the point of care. For the ED physician, it means a major improvement in productivity."**

ZBIGNIEW NAWROCKI, Director of Ancillary Services, Heartland Medical Center

ED, routine bedside exams and the OR. “The DX-D 100 often goes out for another use as soon as it is rolled back to the emergency department,” he concludes.

### MUSICA<sup>2</sup> FOUNDATIONAL TO DR'S EXCELLENT IMAGE QUALITY

Celebration Health is also a leader in applying DR to emergency care. It late last year installed a dedicated emergency procedure room with ceiling-suspended DX-D 500<sup>n</sup> to quickly perform a variety of DR-based exams. It is part of an expansion of the department that doubled bed capacity from 25 to 50.

“Our emergency department is extremely busy aside from serving the town of Celebration,” says Sally Grady, Director of Imaging Services at the facility. “Our reputation draws patients from a 25 mile radius as well as the continuous stream of visitors to Orlando’s many attractions and those seeking specialty services, like our 4-unit robotic surgery offering. We call it ‘destination medicine’. People will intentionally drive past other, closer healthcare facilities to come to our hospital.”

This results in a heavy demand for emergency X-rays. There were 65,000 ED visits last year resulting in 29,571 annual imaging studies, with 5% growth expected in 2012. High image quality, expedient workflow and the flexibility to handle whatever cases come through the door are paramount goals for any ED radiology solution.

“We’ve been using CR in the ED since 1998, and while performing satisfactorily, felt DR was the next leapstep in imaging performance quality,” Sally Grady adds. “When the DX-D 500<sup>n</sup> became available, the radiologists and I closely studied its performance and versatility for ED imaging. Thanks to MUSICA<sup>2</sup>, no other solution can beat its image quality. Today, the radiologists will not accept any imaging solution that cannot work with MUSICA<sup>2</sup>.”

Additionally, the hospital has eight Agfa HealthCare NX workstations throughout the complex through which all ED modalities integrate; CR and DR. “These solutions work off a standardized workstation design, which makes it easy for technologists to adopt new modalities,” she says.

Of the ED’s three procedure rooms, the DX-D 500<sup>n</sup> handles 80 percent of all studies with the other two used for



“The radiologists will not accept any solution that cannot work with MUSICA<sup>2</sup>.”

SALLY GRADY,  
Director of Imaging Services, Celebration Health

overflow. “Its easy positioning capabilities make it ideal for many exams, as well as imaging the huge retiree population in Central Florida, many of whom have limited mobility,” Sally Grady adds.

In keeping with its preference for DR, Celebration Health just acquired a new DR mobile solution: a DX-D 100 with wireless detector. While heavily used in the ED for bedside studies (about 35 daily), it is also wheeled to the intensive care unit for imaging there. Because it instantly sends data and images to Celebration Health’s IMPAX PACS and third-party RIS/HIS, the added time needed to run exposed cassettes back to a workstation for uploading is eliminated. “It cuts 6-8 minutes off each exam, which in emergency or ICU treatment is a huge amount of time.”

Sally Grady says, “We chose these solutions not only for DR and MUSICA<sup>2</sup>’s quality results, but also the shared experiences other Florida Hospital facilities reported with competitive units. We learned by talking to each other that these Agfa HealthCare solutions best met our goals.” •



### AGFA HEALTHCARE’S CONTRIBUTION

- » The DX-D 100 mobile DR solution with wireless detector is designed for bedside or emergency use performing a wide range of general X-ray studies, even for the least mobile patients. Short exposure time means images are immediately available for validation following acquisition.
- » The DX-D 500<sup>n</sup> DR system is a flexible, high image-quality, high-productivity solution for dedicated procedure rooms. Ergonomically designed for single-hand operation, it supports a highly versatile workflow which can reduce patient waiting times and improve their overall experience.

### SOLUTIONS

#### DX-D 100 mobile DR solution with wireless detector

- » Cesium Iodide DR detector for higher sensitivity (DQE)
- » Excellent image quality for improved diagnostic confidence
- » MUSICA<sup>2</sup> processing software for outstanding contrast detail and exam-independent, consistent image quality
- » Excellent connectivity to PACS, HIS/RIS and imagers
- » Wireless detector means no attached cable; improved flexibility

#### DX-D 500<sup>n</sup> ceiling-suspended DR system

- » Two detectors support very fast cycle times for high productivity
- » Fast preview between exposures
- » Cesium Iodide DR detector offers potential for significant patient dose reduction
- » MUSICA<sup>2</sup> software for exceptional contrast; constant image quality
- » Handles wide range of studies, from general X-ray to emergency

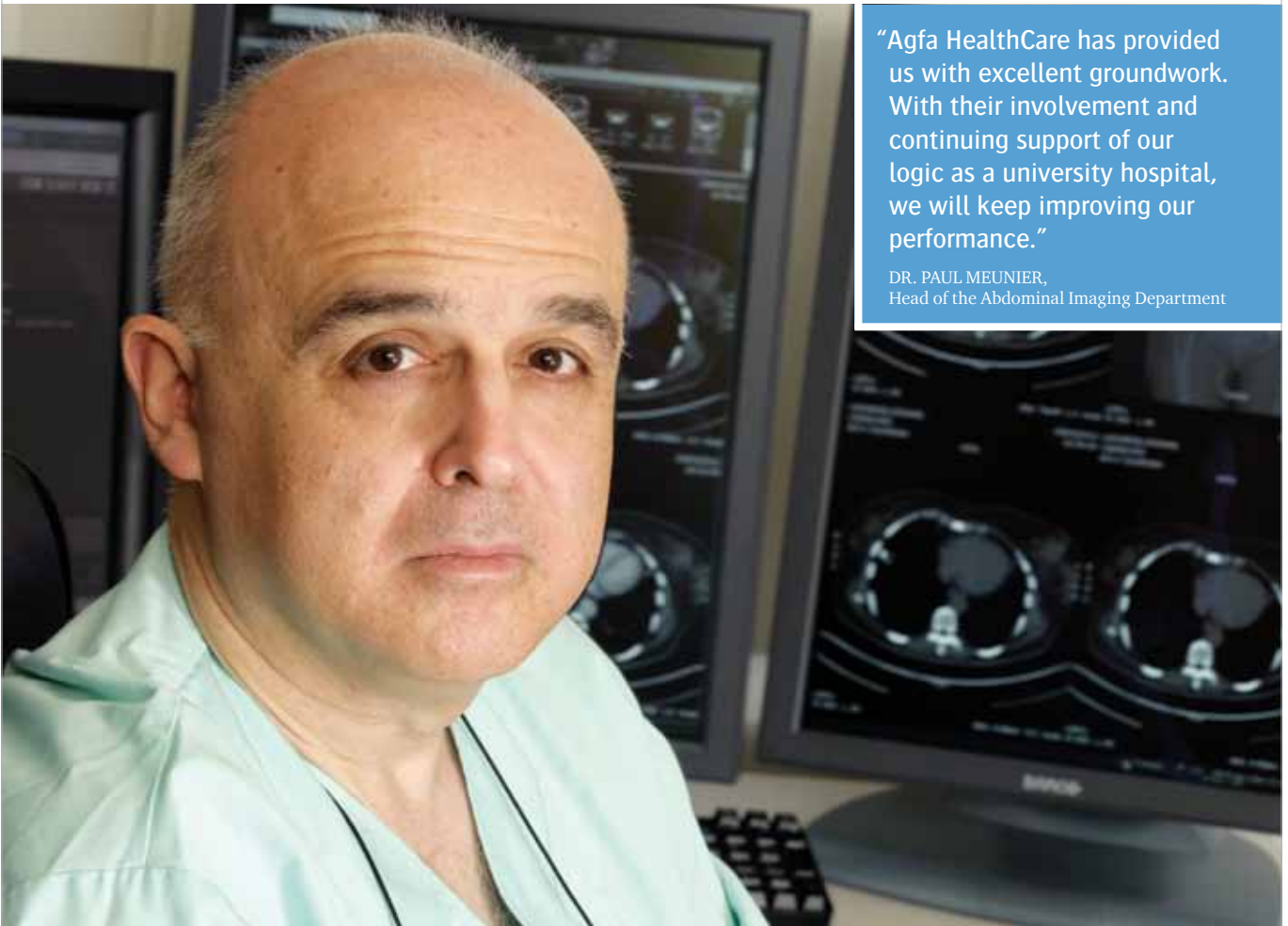


LIEGE UNIVERSITY HOSPITAL, BELGIUM

# RIS/PACS technology upgrade provides more teaching time for busy university hospital

Medical trainees, their supervisors and patients benefit from IMPAX upgrade at Liège University Hospital

**INTERVIEWEE** Dr. Paul Meunier, Head of the Abdominal Imaging Department



“Agfa HealthCare has provided us with excellent groundwork. With their involvement and continuing support of our logic as a university hospital, we will keep improving our performance.”

DR. PAUL MEUNIER,  
Head of the Abdominal Imaging Department

At this busy teaching hospital in the southern part of Belgium, education and training are incorporated into all processes and procedures. Within the department of medical physics, new versions of Agfa HealthCare’s IMPAX PACS, IMPAX Reporting and RIS are providing new ways to teach and supervise medical trainees, while streamlining departmental workflow.

Located in the southern part of Belgium, Liège University Hospital has 925 beds, and a staff of more than 4,000. A renowned teaching hospital, it is the only university hospital in southern Belgium associated with a faculty of medicine that offers both undergraduate and post-graduate medical training programs. Comprised of several

specialized and complementary hospital sites, as well as a number of associated clinics – six in total – the hospital also accommodates 500 Liège University students.

Within the hospital, the department of medical physics, which has about 30 registered medical consultants and



**“The report correction function that lets us review and make edits with speech recognition is very practical. The gains in time and efficiency are excellent.”**

DR. PAUL MEUNIER,  
Head of the Abdominal Imaging Department

a staff of more than 150, conducts more than 1,000 radiology exams per day. The department implemented its first RIS/PACS from Agfa HealthCare in 2006. In 2011, with the aim of enhancing workflows as well as teaching methodologies, the department undertook a significant upgrade to the IMPAX 6.5.2 PACS and IMPAX RIS 5.7 solutions.

### **FLEXIBLE, FAST REVIEW STATION AND ENHANCED SUPERVISION OF MEDICAL TRAINEES**

The IMPAX solution now in place provides functional, flexible and fast review of images and information, and enables simultaneous access to patient data, regardless of the hospital site where the user is located. It allows Dr. Paul Meunier, head of the hospital's abdominal imaging department and supervisor of medical trainees, to remotely monitor protocols so he can provide direct guidance and monitoring to his trainees.

### **SMOOTH, FAST MANIPULATION ENABLES EXCELLENT EXPLOITATION OF IMAGES**

The extended possibilities of image manipulation for the multiplanar

reconstruction or thickening of slices are supported by smooth, fast manipulation that permits excellent exploitation of images. What's more, the entire diagnostic procedure is improved, as all data necessary for reporting is ready at hand. For example, it is very easy to call up previous records and complete a study by consulting other types of tests, such as scintigraphs or PET scans. External images can easily be loaded from an ordinary CD-ROM provided by the patient.

### **ONLINE SPEECH RECOGNITION FOR REPORTING WITH ALL INFORMATION AT HAND**

As a result, radiologists and trainees can generate their reports using online speech recognition with all information and images right in front of them. “The report correction function that lets us review and make edits with speech recognition is very practical. The gains in time and efficiency are excellent,” says Dr. Meunier. Thanks to intuitive recognition, the supervisor can dictate corrections directly onto trainees' reports, without having to insert them using the keyboard.

The list of revised cases remains available, enabling the trainees to verify the accuracy of their diagnosis. Each case that needs revision is automatically reported into the supervision list of the senior physician, which allows a systematic quality control, with priority given to urgent cases.

Future projects under consideration include the development of increasingly personalized systems. For example, Dr. Meunier would like to set up a library of cases for students, classifying cases into categories. This library would be a very useful educational tool, providing interesting scenarios for contextual learning. The customized listing of reviewed cases would also assist each trainee by automatically highlighting cases he or she should review to note and understand corrections made by the supervisor. To optimize flow even further, the radiologists would like to be able to prioritize cases reported as urgent by their trainees or the technologists,



in addition to the current function identifying cases from the emergency department.

### **BETTER SUPERVISION OF MEDICAL TRAINEES**

For Dr. Meunier, the real advantage lies in the reinvestment in the supervision of his medical trainees and in better monitoring of the medical records of his patients.

“Agfa HealthCare has provided us with excellent groundwork,” says Dr. Meunier. “With their involvement and continuing support of our logic as a university hospital, we will keep improving our performance.” •

### **SOLUTIONS**

#### **IMPAX 6**

- » Optimization of workflow for all users
- » Enables access to data from local and remote locations
- » Simplified, centralized management of users, system and software
- » Provides integrated view of patient data
- » Full integration of RIS/PACS/Reporting on the workstation

#### **IMPAX RIS**

- » Full support of workflow of the radiologist and integration of reporting management
- » User profiles for improved efficiency and minimum training
- » Includes a range of reports and results distribution tools to minimize implementation delays
- » Integrates current hospital IT infrastructures

### **AGFA HEALTHCARE'S CONTRIBUTION**

- » Integrated flexibility so that the solution will continue to evolve according to requirements
- » Ability to understand and find solutions supporting the educational focus of the department
- » Comprehensive user training

### **DID YOU KNOW...**

- » Liège University Hospital is self-governing vis-à-vis Liège University (ULg) since 1987, but continues to maintain close ties with its Alma Mater.
- » Liège is a candidate city for the International Expo in 2017. International Expos are held in between World Expos, and are hosted by cities looking to heighten their profile in the international arena.

# DX-D 300's rapid image display helps diagnostic center perform more exams

One of India's largest private X-ray centers has installed a state-of-the-art DR solution to modernize its practice and increase patient studies

**INTERVIEWEE** Dr. Surender Reddy, Owner & Managing Director



Hyderabad, at the crossroads of Northern and Southern India, is among the nation's fastest growing areas thanks to the flourishing IT, biopharmaceutical and media industries. With nearly 16 million people, it is India's sixth most populous metro area.

Healthcare is also flourishing, with a 10 percent annual increase in patients forecast over the next decade. Demographic expansion, rising incomes and an aging population translate into disease profiles shifting from chronic ailments like malnutrition and infectious diseases to lifestyle-related disorders, such as arterial and circulatory conditions, cancer and diabetes.

With 22 locations across South India, Vijaya Diagnostic Centre has been meeting the region's needs for radiology studies, as well as pathology and microbiology tests, for more than 30 years with a wide range of technologies under one roof. It was founded by Dr. Surender Reddy, who has been instrumental in bringing new, state-of-the-art imaging technologies to India. The main center in Hyderabad is equipped with 128 slice CT, a dual head SPECT gamma camera, PET CT, and a 3.0 Tesla high field MRI. The latest imaging innovation to be added to this roster is DR, performed in a newly renovated procedure room. The center serves a wide range of public and private sector clients

"I consider the DX-D 300 an important tool that keeps our Centre at the forefront of diagnostics."

DR. SURENDER REDDY,  
Owner & Managing Director

including banks, airlines, factories and other prestigious organizations.

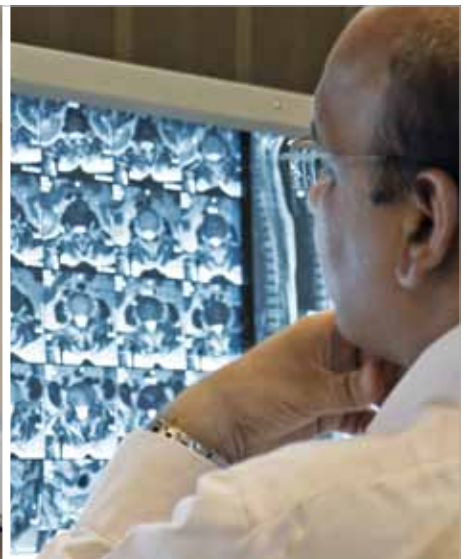
## DR'S IMMEDIATE IMAGE DISPLAY ENABLES MORE EXAMS

"The area's recent affluence has contributed to more lifestyle diseases as well as increased demand for our services by new businesses wanting pre-employment testing, including chest X-rays," Dr. Reddy says. "And once hired, many companies pay for X-ray exams for an employees' immediate family, such as the employee's spouse or children. As a result, we've seen our practice dramatically grow from one location in 1981 to 22 sites today. The average, daily X-ray volume at each location is 200 exams spread across multiple modalities, so we're always seeking better ways to handle this growing patient workload."

But finding the right approach to faster exams without sacrificing diagnostic confidence is a key challenge.

Until last year, Vijaya Diagnostic Centre relied on a variety of dispersed digital modalities from multiple vendors throughout its many locations linked by a third-party PACS. A primary limitation of many of these modalities was a 4 to 6 minute delay for images to display following acquisition. The technologist had to wait for each view to appear before proceeding to the next one, or releasing the patient. Over time, it severely limited the number of scheduled exams despite most locations being open 14 hours daily.





“When we upgraded a procedure room at our main facility, we saw an opportunity not only to advance to DR’s excellent image quality, but also increase staff productivity and patient throughput thanks to its near-instant image display,” said Dr. Reddy. At the same time, the doctor was impressed by DR’s potential to reduce X-ray doses to the patient due to its Cesium Iodide detector\*.

And with space always at a premium, the Centre decided a small footprint solution was desirable. Dr. Reddy and his radiology team asked to evaluate Agfa HealthCare’s compact, floor-mounted DX-D 300 DR solution.

#### **DX-D 300 PROVIDES AFFORDABLE PATH TO DR IN PRIVATE FACILITIES**

Radiology staff at Vijaya Diagnostic Centre found the DX-D 300 to be a straightforward, affordable solution offering many productivity benefits associated with going direct-digital. “Our radiologists felt it had the best blend of image quality with immediate image availability,” Dr. Reddy says. “Its MUSICA<sup>2</sup> image processing software also provides a consistent display regardless of the exam type preformed. The quality

doesn’t vary from one patient to the next, or between different technologists.”

This consistency reflects positively on the Centre’s professional reputation since physicians throughout India are often sent images for information or consultation. Also, because many foreign nationals now work in India on temporary visas, it is not unusual to send image files to home-town doctors in Canada, Australia, the UK or US.

Today, the main center’s DR procedure room can accommodate 150 or more patients daily just for the DX-D 300 because of the shorter exposure-to-display time, which Dr. Reddy says helps make it cost-effective in the long run. Technologists in particular like the ability to stay with the patient at all times, along with shorter waiting intervals between procedures that the DX-D 300’s fast image display fosters. The solution’s fully-motorized U-arm makes positioning easy even for difficult exams, such as those involving elderly or limited-mobility patients.

Dr. Reddy also believes the solution has the potential to reduce X-ray dose to the patient, a benefit he feels results from

less peak kilovolt power (kVp) used for exams. “I consider the DX-D 300 an important tool in our range of modalities that keeps our Centre at the forefront of diagnostics.”\*

#### **AGFA HEALTHCARE’S CONTRIBUTION**

» The DX-D 300 is a versatile, highly affordable solution offering image quality and productivity benefits of Direct Digital. In addition to excellent image quality, its Cesium Iodide detector technology offers immediate image availability. MUSICA<sup>2</sup> image processing delivers consistency and excellent contrast detail.

#### **DID YOU KNOW...**

- » Hyderabad was once a center for trading diamonds and pearls. Its new glitter is the Telugu language film industry, known popularly as Tollywood.
- » Hyderabad has more than 1300 IT companies and houses the Indian headquarters of Microsoft, Google and Facebook’s only office in India.

#### **SOLUTIONS**

##### **DX-D 300 floor-mounted DR solution**

- » Handles a broad range of general and specialty X-ray studies
- » Flexible and affordable, combining a single detector with fully motorized positioning
- » ‘U-arm’ allows lateral cross-table exams on rolling tables
- » Cesium Iodide DR detector technology offers potential for dose reduction

“DR’s ability to immediately display the image after acquisition increases staff productivity and patient throughput.”

DR. SURENDER REDDY,  
Owner & Managing Director



\* Note: Potential for dose reduction claim only applies to the DX-D 100, DX-D 300, DX-S, and DX-M (general radiography only) systems.

# Integrating digital radiology and pathology

The Pitié-Salpêtrière Hospital in Paris is extending the benefits of radiology PACS to its pathology department

**INTERVIEWEE** Prof. Frédérique Capron, Head of the Anatomical and Cytological Pathology Department



“We wanted to find out precisely how digital imaging could assist us in anatomical pathology. We know that digitization and computer-aided diagnosis have their place in medicine, and will contribute to the overall elevation of the discipline of pathology, and of medicine in general.”

PROF. FRÉDÉRIQUE CAPRON,  
Head of the Anatomical and Cytological  
Pathology Department

manages 21,000 to 22,000 patient files per year – hosts its own research team. Prof. Capron has been working with Agfa HealthCare on the pathology solution pilot, which combines digital slide scans, quantification by the TRIBVN computer-aided diagnosis system, and image storage on the IMPAX PACS platform in the radiology department.

The Pitié-Salpêtrière Hospital in Paris, one of the largest hospitals in Europe and part of the Assistance Publique-Hôpitaux de Paris (AP-HP), Europe’s largest hospital system, is marking another research milestone with its pilot of an integrated digital system for pathology. The hospital views the Agfa HealthCare Digital Pathology solution\*, which integrates digitized slides and computer-aided diagnostics with the Agfa HealthCare IMPAX PACS solution, as a major step forward in modern pathology.

The Pitié-Salpêtrière Teaching Hospital is Paris’s leading hospital for trauma injuries, and is home to the renowned Brain and Spinal Cord Institute (ICM). It is within this internationally acclaimed context that Prof. Frédérique Capron’s anatomical and cytological pathology department – which





“This ground-breaking project could benefit from cultural change within medicine and institutions as the cultural resistance against computer-aided diagnostics fades. Agfa HealthCare Digital Pathology’s benefits extend far beyond the anatomical pathology department, potentially including all medical specialities due to increased demand for data sharing and reduced diagnosis times.”

PROF. FRÉDÉRIQUE CAPRON,  
Head of the Anatomical and Cytological  
Pathology Department

For the first time, the benefits of digital radiology are extended to pathology through a shared image management system. As with IMPAX, the Agfa HealthCare Digital Pathology solution addresses the challenges of workflow optimization, interdisciplinary communication, diagnostic quality and a complete patient file.

“We wanted to find out precisely how digital imaging could assist us in anatomical pathology,” says Prof. Capron. “We know that digitization and computer-aided diagnosis have their place in medicine, and will contribute to the overall elevation of the discipline of pathology, and of medicine in general.”

#### **EASY SHARING OF PATIENT FILES STREAMLINES DIAGNOSTIC WORKFLOW**

Slides are scanned before being analyzed by the computer-aided diagnosis system, which quantifies the elements making up the digital image. This quantification is extremely useful for doctors and their

“For top-class diagnostics, communication needs to be improved. Sharing this information is a very positive step forward. It improves the quality of the patient’s medical file and leads to a more efficient delivery of patient care.”

PROF. FRÉDÉRIQUE CAPRON,  
Head of the Anatomical and Cytological  
Pathology Department

students in teaching hospitals, helping them see anomalies and identify regions of interest. Quantification facilitates a more confident diagnostic evaluation. Because the scanned slides generate a huge number of images, only the regions of interest selected by the doctor are sent to the IMPAX PACS. These selections are stored, together with gross views of histological specimen, in a complete patient file including all examinations and diagnoses. The system makes it easy to share patient files and access other imaging methods, improving multidisciplinary team discussions and streamlining peer review. “For top-class diagnostics, communication needs to be improved. Sharing this information is a very positive step forward,” says Prof. Capron. “It improves the quality of the patient’s medical file and leads to a more efficient delivery of patient care.”

#### **INSTITUTIONAL ACCEPTANCE TO SPEED UP THE ADOPTION OF THE PROJECT**

Storing all the digital images generated in anatomical pathology represents a considerable challenge. Although digital photography enables each digital image to be stored and identified easily, the regions of interest represent only part of the full slide. The complete medical information resides on a series of slides taken of a particular organ. The answer to this storage challenge is the future of Digital Pathology.

Prof. Capron concludes: “This ground-breaking project could benefit from cultural change within medicine

and institutions as the cultural resistance against computer-aided diagnostics fades. The benefits of Agfa HealthCare Digital Pathology extend far beyond the anatomical pathology department, potentially including all medical specialities due to increased demand for data sharing and reduced diagnosis times.” •



#### **SOLUTIONS**

##### **Agfa HealthCare’s Digital Pathology solution**

- » Introduces significant workflow optimization
- » Facilitates data exchange between pathology and other departments
- » Automatic integration of regions of interest selected by doctors
- » Built on existing IMPAX PACS system, without requiring additional infrastructure

#### **DID YOU KNOW...**

- » The anatomical and cytological pathology department has 45 to 50 employees and deals with 21,000 to 22,000 patient files per year, including one to four examinations per file on average.
- » The department uses 80,000 paraffin blocks per year to produce up to 1,500 slides per day.
- » A similar project is being developed in Quebec, Canada.



# Hospital moves to mobile DR to handle rising service demands

Major Australian hospital expands its clinical facilities including X-ray to meet an expected 60% increase in demand for services

**INTERVIEWEES** Andrew Featherstone, Section Manager, General X-ray and Theaters · Geoffrey Andrews, Director of Operations, Radiology



“Thanks to MUSICA<sup>2</sup>, the continuous quality seen in all images means better diagnostic confidence for the radiologist.”

ANDREW FEATHERSTONE,  
Section Manager, General X-ray and Theaters

physicians provide services to more than 50,000 inpatients and over 160,000 outpatients annually.

## LIMITED SPACE AND AGING POPULATION IMPACT SYDNEY'S NEED TO GROW

While many nations feel the pinch of the global financial recession, Sydney's economy has remained strong. This has resulted in many new residents from within Australia as well as expatriates. Yet the city is bounded geographically by its famous harbor to the east, preserved national parkland to the north and south and mountains to the west.

“Go about 30 km in any direction and you reach the city's limit,” says Geoffrey Andrews, Director of Operations for Radiology. “We can't grow outward anymore. Existing infrastructure and facilities have to adapt within these limits to handle the increasing population.”

For the San, a major expansion of its original Clinical Services Building and adjacent structures is currently underway to meet an expected 60% increase in demand for medical services between now and 2026. “It is about more people living in our service area, especially the aged,” he says. “Working faster and smarter means adopting new practices made possible by the latest advances in technology.”

In a regional first, Sydney Adventist Hospital installs two DX-D 100 mobile DR solutions with wireless detectors to expedite images/data to PACS, HIS and beyond.

Its original name was The Sydney Sanitarium, which is why today's 500-bed Sydney Adventist Hospital is still known locally as “the San”. Throughout the Asia-Pacific region, the San is highly regarded for its charitable work in developing nations with the

1986 launch of the HealthCare Outreach (HCO) Program. Since then, almost 100 HCO trips to 13 countries have been made with over 3,000 free surgeries performed.

In Sydney, the hospital's reputation focuses on cardiology (Australia's first integrated private cardiac center), orthopaedics including sports medicine, cancer treatment and support, and New South Wales' largest private emergency care service. About 2,200 staff and 700



& emergency medicine, intensive care and neonatal care units. But after every procedure, exposed phosphor plates had to be walked back to radiology for processing before uploading on our IMPAX PACS. It could take 15 minutes to half an hour to complete this step.”

While attending a recent Radiological Society of North America (RSNA) exposition, Geoffrey Andrews and a team from the San saw a demonstration of Agfa HealthCare’s original DX-D 100 mobile DR solution. With today’s wireless connectivity, he and his team were intrigued by its ability to quickly link to IMPAX along with its excellent image quality. “Wireless linkage truly speeds mobile workflows thanks to the near-instant availability of images and data on IMPAX, uploaded right at the patient’s bedside,” Geoffrey Andrews says. “We saw great potential to schedule more mobile exams throughout the hospital because technologists didn’t have to continually run back and forth to process plates.”

“The DX-D 100 speeds mobile workflows thanks to the near-instant availability of images and data on IMPAX, uploaded right at the patient’s bedside.”

GEOFFREY ANDREWS,  
Director of Operations, Radiology



to this high level so all imaging has the same look, feel and detail regardless of its source.”

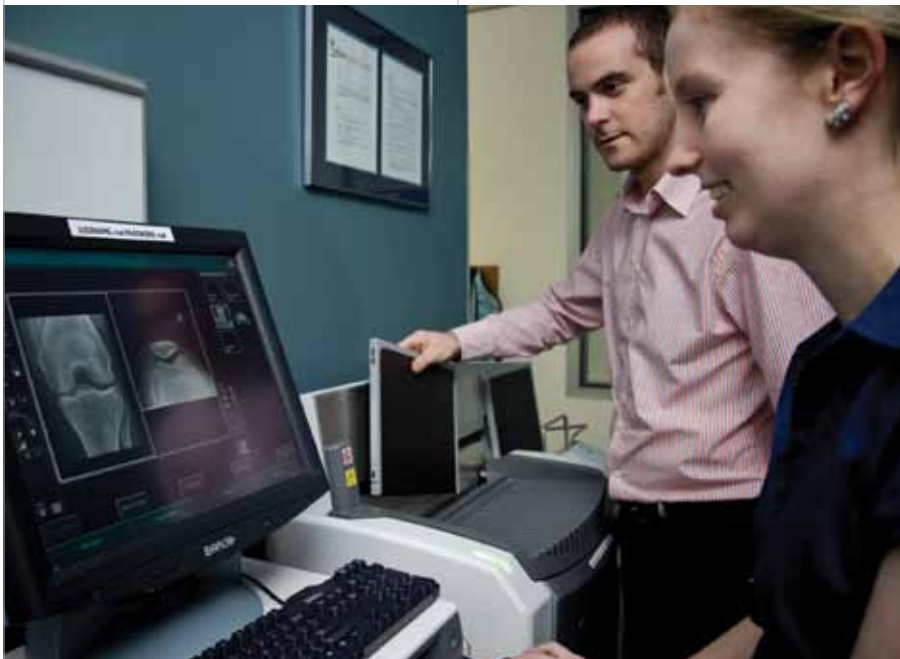
In radiology, this means new solutions to expedite workflow and disseminate information to keep healthcare processes flowing smoothly. But solving a vexing bottleneck at the San involved mobile radiology.

Says Andrew Featherstone, Section Manager, General X-ray and Theaters, “We’ve been using mobile CR to perform bedside exams throughout the complex, including surgical theaters, accident

**CONSISTENT IMAGE QUALITY ACROSS MODALITIES A KEY MUSICA<sup>2</sup> BENEFIT**

Another benefit is the mobile solutions’ ability to run all images through MUSICA<sup>2</sup> image processing software. “All our image sources, from multiple, general procedure rooms to Agfa HealthCare’s DX-G CR system, now display consistent image quality across exam types thanks to the high-quality uniformity this software adds,” says Andrew Featherstone. “The DX-D 100 brings bedside mobile procedures up

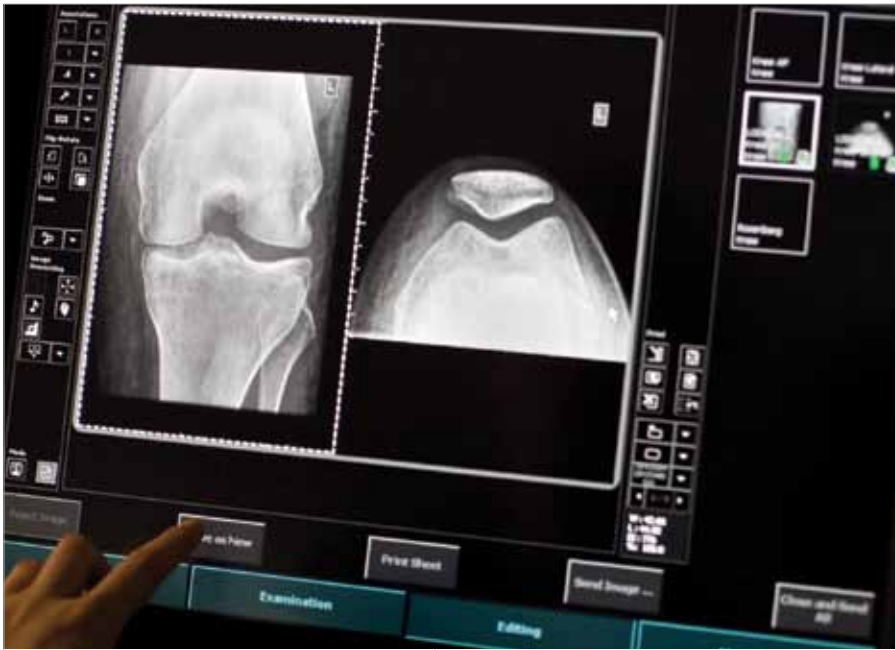
The DX-D 100 was chosen following various on-site evaluations for image quality, connectivity, and user friendliness. One benchmark involved comparing image results from three different vendors.



**DID YOU KNOW...**

- » Dr. M. Kellogg, who founded the original Sydney Sanitarium, was the brother of Dr. John Harvey Kellogg, inventor of the corn flake breakfast cereal still sold under the Kellogg name.
- » The San is first to have Agfa HealthCare’s DR mobile units with wireless detectors, not only in Australia, but the entire Asia-Pacific region.
- » The San’s expanded Clinical Services Building will include space and facilities to support up to 14 new operating theaters, 180 inpatient beds, an Integrated Cancer Center and new patient arrival area. Estimated construction costs are 148 million EUR.





“Images from the various solutions were sent to one of our radiologists, who reviewed them in detail,” says Geoffrey Andrews. “We were already sold on the DX-D 100’s light weight, easy mobility, user-friendly operation, and wireless IMPAX connectivity. Now, image quality would be the deciding factor.” Reviews were conducted ‘blind’, meaning only a select few in radiology knew the source of the trial images.

“The image quality of the DX-D 100’s needle phosphor plates was at the top of the range,” adds Andrew Featherstone. “The contrast, latitude and detail in all images covering various exams mean better diagnostic confidence for the radiologist.” Two DX-D 100 mobile solutions were deployed at the San in mid-January.

Almost immediately, management wanted to evaluate a novel time- and work-saving feature involving the DX-D 100 and the San’s customized RIS.

Andrew Featherstone says, “We’re now experimenting with registering new ward and emergency admissions directly to our RIS through the mobile DX-D 100. We’re pushing the boundaries to see how much efficiency can be gained to meet the challenges ahead.”

Overall, the department hopes to achieve a 25% productivity increase in performing mobile exams and dispatching radiologists’ reports as a result of the DX-D 100’s many time-saving features predicated on quick access to images.

Andrew Featherstone adds an underappreciated DX-D 100 benefit is actually quite valuable: the untethered cassette. “Not having a cable dragged about the floor and in contact with the patient’s bed goes a long way to reduce potential tripping hazards, especially in emergency situations where everyone moves quickly.”

“Not having a cable dragged about the floor and in contact with the patient’s bed goes a long way to reduce potential tripping hazards, especially in emergency situations where everyone moves quickly.”

ANDREW FEATHERSTONE,  
Section Manager, General X-ray and Theaters



## SOLUTIONS

### DX-D 100 mobile DR solution with wireless detector

- » Fast assessment of images after exposure
- » Improved patient and operator comfort
- » Higher image quality for improved diagnostic confidence
- » Cesium Iodide DR detector for higher sensitivity (DQE)
- » MUSICA<sup>2</sup> image processing software for outstanding contrast detail and exam-independent, consistent image quality
- » Excellent connectivity to PACS, HIS/RIS and imagers
- » Wireless detector means no attached cable; improved flexibility

## AGFA HEALTHCARE’S CONTRIBUTION

- » The DX-D 100 mobile DR solution for bedside or emergency use performs a wide range of general X-ray studies, even for the least mobile patients. Short exposure time means images are immediately available for validation following acquisition. Its wireless functionality supports quick, seamless integration with RIS/PACS or HIS.





## DINNER IN THE SKY, BRUSSELS, BELGIUM

Dinner in the Sky offers the best views you can imagine and accommodates 22 people with three staff in the middle (chef, waiter, entertainer...). It looks more dangerous than it is, with absolute safety measures, authorised by the toughest countries such as US, Canada and Australia.

# Integrating intelligence and modality workstation functionality with PACS will enable more productive clinical workflows

**INTERVIEWEE** Prof. Dr. Mathias Prokop, Head of Radiology, Radboud University Nijmegen



“We expect to move with Agfa HealthCare to a PACS solution which integrates 3D images on a hospital-wide scale and allows them to be shared efficiently.”

PROF. DR. MATHIAS PROKOP,  
Head of Radiology, Radboud University  
Nijmegen

Increased use of advanced image processing software will allow radiologists and clinicians faster access to relevant data and optimize the diagnostic process, says Prof. Dr. Mathias Prokop, Head of Radiology at Radboud University Nijmegen in The Netherlands. “This will create more productive clinical workflows and keep our care affordable.”

According to Prof. Prokop, the most important issue in healthcare over the next 20 years will be its total cost. “Exploding healthcare costs in the West, as well as China and Japan, will put the financial health of our nations in jeopardy. We therefore urgently have to find ways to work a lot more productively. The time spent per case by radiologists

and clinicians needs to be optimized by intelligent systems: processes that can be automated, should be made so in order to make time for those tasks where human interactions are most important. PACS will be one of these intelligent systems; it will have to play a major role in simplifying workflows and allowing us to focus on our fields of expertise rather than making us do things that could better be done by a computer. We need to develop concepts to easily integrate new software in PACS, in a user-friendly and safe manner.”

“Many healthcare professionals believe that PACS must evolve to fully integrate 3D and 4D datasets and up-to-date image processing techniques,” continues Prof. Prokop. “However, in the field, seamless integration is still not yet achieved. We’ve been an Agfa HealthCare customer since 2002 and have chosen to continue working with them because the new IMPAX Next Generation PACS solution has made important steps in this direction. This includes multiplanar reconstruction (MPR), medical image processing (MIP) and 3D rendering functionalities, allowing users to view data from different perspectives other than those in which they were acquired. We expect to move with Agfa HealthCare to a PACS solution which integrates 3D images on a hospital-wide scale and allows them to be shared efficiently.”

## A PACS THAT RECONSTRUCTS IMAGES ON THE FLY

Today, it is necessary to intervene manually on many activities that could be automated: for example, linking multiple series of a patient, either for follow-up series or multiphase acquisitions. This is usually done manually but could be automated intelligently, especially if 3D datasets are available for comparison. Another example is the way current PACS solutions handle three-dimensional



“We need a single PACS interface that is seamless, using input from third-party modality vendors. So, each vendor will have to find ways to integrate its own workstation functionality into the PACS environment. It is good to see Agfa HealthCare is already addressing part of this concern with the upcoming IMPAX 7.0 solution.”

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image datasets from modern modalities such as CT, MR, and ultrasound. PACS usually works a data repository and provides only rudimentary image processing options. Frequently, coronal or sagittal MPR, MIP or volume-rendered images of varying thickness have to be reconstructed on the scanner or a dedicated workstation and the resulting images are then sent to the PACS. This increases the number of series and images stored on the system. In addition, this workflow does not provide for problem-adapted sections that may be needed for evaluation of complex abnormalities. For this purpose, the user usually has to pull up specific software or retreat to a different workstation to solve the issue.

“Rather than this, what you want is a PACS solution which reconstructs images from your 3D dataset on the fly,” says Prof. Prokop. “So you require less storage and still get the same information. Instead of storing actual images, one could store virtual hanging protocols that describe how the data is processed for display. If necessary, you can then use the data to explore complex pathology.”

It’s not so much a matter of storage limitations; rather it’s a matter of efficiency in diagnostic workflow. Prof. Prokop does not expect a further increase in data volume with the current morphological examinations. “For morphologic evaluation, image datasets from modern CT and MR scanners have not grown substantially over the past years. The advent of 3D ultrasound, however, may add to the data volume that has to be stored. The next major jump in data volume, however, will happen when imaging moves to 4D,

adding the factor time to 3D.” He expects the volume could increase by a factor of ten when this occurs.

#### MODALITY WORKSTATIONS WILL DISAPPEAR

In the future, image processing will play an increasingly important role. It will involve traditional techniques currently provided by dedicated workstations but it will move more and more into techniques that optimize image quality and automatically pre-process data to make it more readily accessible for immediate interpretation.

“Eventually, this will be the first step to optimizing our clinical processes, ensuring that we can access relevant data more quickly, matching data and performing preliminary data processing to optimize the clinical diagnosis process.” Here Prof. Prokop sees a considerable challenge for the next-generation PACS: these processing tasks need to happen in the PACS environment; not on the modality-related workstations, he says.

“These modality-related workstations will ultimately disappear. They have their own strengths, but finally, as a user, you end up with a workstation for each specific application. At our institution, we have nine different workstations just to cover all modalities and all clinical requirements. That’s unacceptable. We need a single PACS interface that seamlessly integrates advanced software from third-party vendors without having to get accustomed to different front-ends for each application. Software vendors will have to find ways to integrate their own workstation functionality into a PACS environment. It’s good to see Agfa HealthCare is already

addressing this concern with the upcoming IMPAX 7.0 solution\*.”

#### EPR WILL INTEGRATE PACS

Built-in intelligence such as computer-assisted detection, quantification or diagnosis software will determine the future of PACS, acknowledges Prof. Prokop. PACS will be central in the diagnostic process. But will it continue to exist separately or will it become part of the EPR? “Over time – let’s say in ten to fifteen years – PACS will be integrated in the EPR together with other image data such as from dermatology or pathology. Being able to look at all images from within the EPR seems the most logical flow, provided it offers the clinician and radiologist the right amount of information at the right time: the patient’s case history, prior exams, etc. The EPR will therefore need an intelligent interface that allows for adapting the information it provides to the needs of various specialists, such as surgeons, internists or radiologists, in order to have them work as productively and accurately as possible. It will take us to the most productive clinical workflows,” he concludes. •

#### Internationally renowned CT expertise

Prof. Dr. Mathias Prokop (1960, München) studied medicine in Marburg and Hannover, Germany and is currently Head of Radiology at Radboud University Nijmegen in The Netherlands. His expertise in imaging technologies, translated into more than 250 scientific articles and a book on body CT, has made him one of Europe’s foremost imaging specialists. He’s also heavily involved in image quality research and is a keen advocate of advanced PACS as a driver for clinical efficiency.

\* Agfa HealthCare’s IMPAX 7.0 solution is works in progress.



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