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Edition 11, 2011

16

**SUNNYBROOK HEALTH SCIENCES CENTRE,  
TORONTO, CANADA**  
MUSICA<sup>2</sup> images convince radiologists and  
technologists at Sunnybrook

26

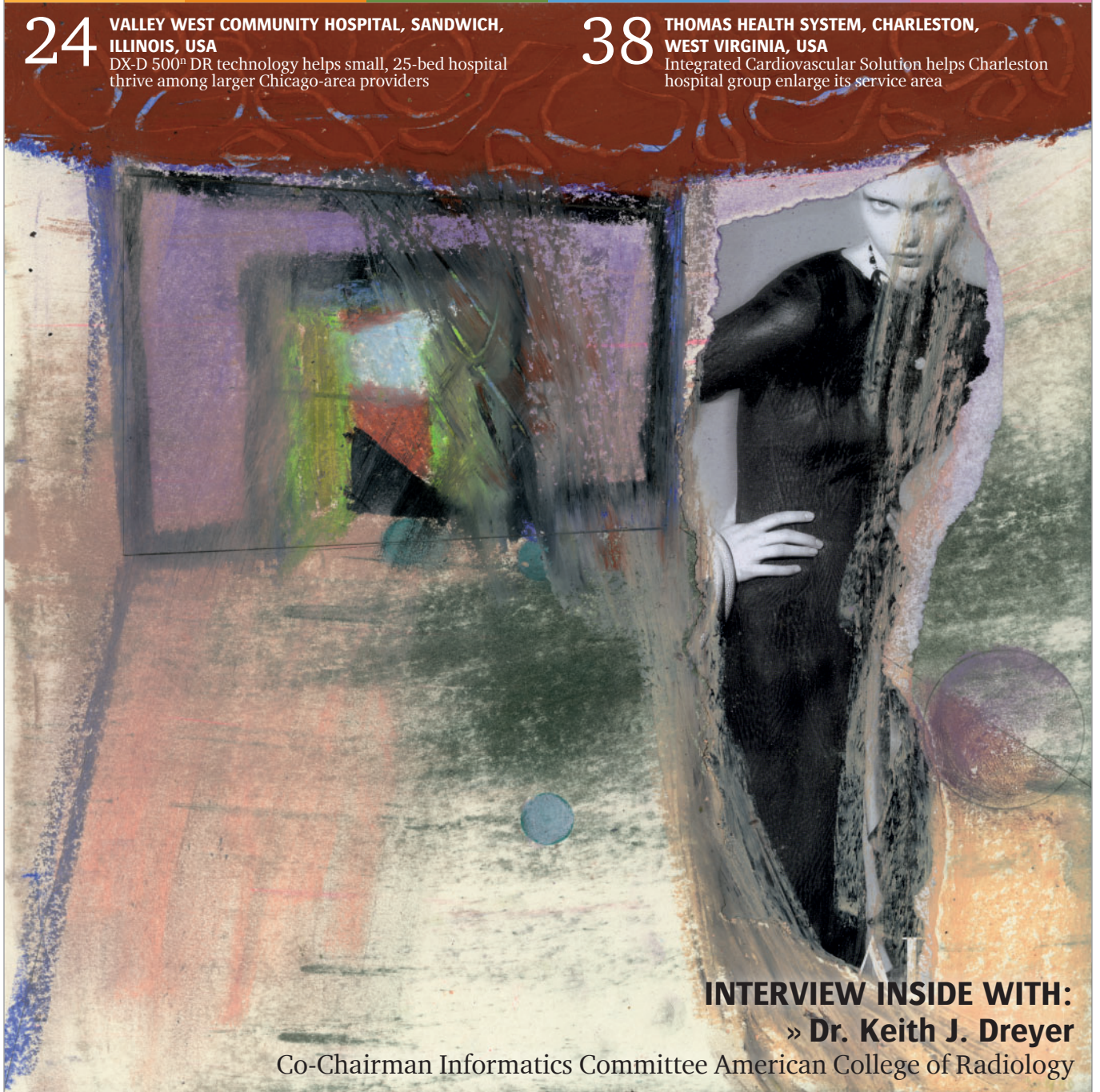
**IRMANDADE SANTA CASA DE MISERICÓRDIA DE  
SÃO PAULO, BRAZIL**  
Challenging transition to digital takes São Paulo  
hospital closer to its patient care and quality goals

24

**VALLEY WEST COMMUNITY HOSPITAL, SANDWICH,  
ILLINOIS, USA**  
DX-D 500<sup>®</sup> DR technology helps small, 25-bed hospital  
thrive among larger Chicago-area providers

38

**THOMAS HEALTH SYSTEM, CHARLESTON,  
WEST VIRGINIA, USA**  
Integrated Cardiovascular Solution helps Charleston  
hospital group enlarge its service area



**INTERVIEW INSIDE WITH:**

**» Dr. Keith J. Dreyer**

Co-Chairman Informatics Committee American College of Radiology

# Crossing the boundaries of art and science

For renowned Belgian artist Anne-Mie Van Kerckhoven, her art is all about image and reality. By using innovative and advanced media and digital imaging techniques in a new way, she creates a fresh and unique artistic language. Displaying her works not at a traditional gallery in Chicago, but instead at a research center, is all part of her focus on crossing the boundaries of art and science.

Agfa HealthCare also has a story to tell. It's about using new technologies and traditional know-how to create solutions that meet new needs. It's about how our medical imaging solutions open up new views to caretakers. It's about being a leader in Imaging Informatics and our commitment to offer IT solutions that exceed individual hospital boundaries and move into regional networks. It's about how we deliver Imaging Excellence, Clinical Confidence.

Our story will become apparent as you read through this edition of *THERE* magazine, specially released on the occasion of RSNA 2011. 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 about how the value of the Electronic Health Record (EHR) can be optimized providing a comprehensive, longitudinal view of the patient record. Working together, Agfa HealthCare's solutions can be part of a challenging project to improve the performance of medical imaging activities, or can enhance clinical care and aid research.

Stepping beyond traditional borders is not easy; it can take us out of our 'comfort zone'. But when we do this, we reveal new possibilities, and, yes, new realities. Perhaps exploring the visions Anne-Mie Van Kerckhoven has created will open up new visions about reality for you...

*MARC DE FRÉ*  
Director Marketing Communications

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- 4 LUCUS AUGUSTI UNIVERSITY HOSPITAL, LUGO, SPAIN**  
Self-configuring DX-D 600 X-ray room helps technologists work faster and smarter
- 6 MONT BLANC MEDICAL IMAGING CENTER, SALLANCHES, FRANCE**  
Flexible DR imaging helps physicians better serve patients
- 8 OCHSNER HEALTH SYSTEM, NEW ORLEANS, LOUISIANA, USA**  
Agfa HealthCare's IMPAX Data Center and XERO technology help Louisiana hospital group rebuild regional healthcare
- 12 BETHANIEN HOSPITAL, MOERS, GERMANY**  
Mobile DR solution improves ICU patient comfort
- 14 HINDUJA HOSPITAL, MUMBAI, INDIA**  
Taking the ideal workflow from a vision to reality
- 16 SUNNYBROOK HEALTH SCIENCES CENTRE, TORONTO, CANADA**  
MUSICA<sup>2</sup> images convince radiologists and technologists at Sunnybrook
- 19 TECHNOLOGY CORNER**
- 20 "HEALTHCARE IS NOT A GIANT RETAIL BUSINESS"**  
Dr. Keith J. Dreyer
- 22 PRIVATE PRACTICE DR. LUC DELCOIGNE, RONSE, BELGIUM**  
"Family radiologist" adopts CR for mammography to lower patient dose
- 24 VALLEY WEST COMMUNITY HOSPITAL, SANDWICH, ILLINOIS, USA**  
DX-D 500<sup>n</sup> DR technology helps small, 25-bed hospital thrive among larger Chicago-area providers
- 26 IRMANDADE SANTA CASA DE MISERICÓRDIA DE SÃO PAULO, SÃO PAULO, BRAZIL**  
Challenging transition to digital takes São Paulo hospital closer to its patient care and quality goals
- 28 CREDIT VALLEY IMAGING ASSOCIATES, MISSISSAUGA, CANADA**  
Evolving technology fosters closer look at DX-D 300 DR for outpatient use
- 30 QUEENSLAND HEALTH, QUEENSLAND, AUSTRALIA**  
IMPAX closes Queensland's reporting gap
- 33 NEW TECHNOLOGIES**
- 34 SCREENING UNIT HESSEN 3, WIESBADEN AREA, GERMANY**  
Mobile breast cancer screening shifts into high gear
- 36 PALMETTO HEALTH, COLUMBIA, SOUTH CAROLINA, USA**  
Joint IMPAX PACS solution brings more consistent and productive EMR to merged hospitals
- 38 THOMAS HEALTH SYSTEM, CHARLESTON, WEST VIRGINIA, USA**  
Integrated Cardiovascular Solution helps Charleston hospital group enlarge its service area

# In a Saturnian World

Works of Belgian artist, Anne-Mie Van Kerckhoven,  
exhibited at The Renaissance Society, University of Chicago



Photography by Filip Van Ibe

**Anne-Mie Van Kerckhoven has been developing her art for more than 30 years. “From the very start I’ve been systematically working in an artistic language that uses unseen methods and media.”**

Van Kerckhoven pioneered multimedia from the beginning in a highly refined yet idiosyncratic body of work, which includes videos, drawings, text, music performances, computer-based animations, and digital light box photomontages. She combines non-conformist media and digital imaging techniques with graphic and color choices that are reminiscent of pop-art, of artists like Warhol and Liechtenstein. “I like to use the vivid color of flowers. Flowers use them to procreate; to attract insects. I use them to express progression of ideas,” says Van Kerckhoven, reluctant to analyse too much of her style with hindsight. “The color palette I use changes continuously with the advancement of ideas.”

Van Kerckhoven is intrigued by the mass media’s representation of women’s images. She also crosses the boundaries of art and science which have always interacted in her work. “The exhibition in Chicago is situated in a research center away from the classical art places, and highly demanding on the trail-blazing dimension of the artist’s work. One of the first European artists to exhibit there was Paul Klee.” Van Kerckhoven’s exposition is called “In a Saturnian World” inspired by Paul Verlaine’s “Poèmes Saturniens”.

She says, “It treats the desperate connection between evil and the longing for beauty in the artist’s mind. Saturn is the planet which represents melancholy, the dark side of man, but also all that is

attractive but hard to reach. My exhibitions try to combine many aspects of today’s society in a systematic, reasonably scientific way. They form a series that help me make a statement, a theory on society.”

The 18 main works exhibited in Chicago through December 18 are joined to one another with series of drawings and two interactive projections. “They are fragments and interpretations of reality that I have linked. The whole installation is my kind of mandala, which connects aspects of reality in one dimension. When you add a horizon in a mandala, you create insight. My works in Chicago tell a story about reality. That’s why I have called them ‘Mastering the Horizon’”. •

On the cover of this edition of *THERE* magazine, you can see “Je vous attends” by Anne-Mie Van Kerckhoven.

The Renaissance Society is a non-collecting museum founded in 1915 to encourage the growth and understanding of contemporary art. The Society presents four or five exhibitions each year, featuring both internationally and locally renowned artists. Located on the University of Chicago campus, it is one of America’s oldest museums devoted exclusively to contemporary art.

# Self-configuring DX-D 600 X-ray room helps technologists work faster and smarter

A new 860-bed hospital complex has become the centerpiece of the City of Lugo in Spain's Galicia region. A recently installed DX-D 600 direct radiography solution is today the core of its radiology department

**INTERVIEWEES** Felix Rubial, Medical Director · Julio Rodriguez, Chief of Radiology · Pablo Ambroa, Technologist · Begoña Amenedo, Radiology Nursing Supervisor



"Agfa HealthCare offers the most modern and complete solution. In our opinion, the Cesium Iodide detectors on the DX-D 500 and DX-D 600 provide the advanced technological solutions that we are seeking."

JULIO RODRIGUEZ, Chief of Radiology

Opened in December 2010, Lucus Augusti University Hospital (HULA) has become the region's most modern medical facility serving a population of 225,000. While it has invested in multiple DR solutions from Agfa HealthCare, it's among the first regionally to install a fully automated DX-D 600 solution that offers maximum study versatility and high throughput for an integrated, innovative X-ray room.

HULA's radiology department performs nearly 300,000 annual patient exams among its inpatient, outpatient and emergency services populations. One of the department's radiology rooms was recently outfitted with Agfa HealthCare's DX-D 600 DR solution. "This room is the most advanced in our department," says Dr. Julio Rodriguez, Chief of Radiology. "It's a fully digitized area where the system automatically scans the patient and sets positioning and exposure parameters for the exam."

## FULLY AUTOMATED X-RAY PROCESS SPEEDS EXAMS

HULA's radiologists and clinical staff particularly like how the DX-D 600 delivers a fully automated X-ray process as well as exceptional image quality thanks to its Cesium Iodide detector technology and MUSICA<sup>2</sup> image processing software, which produces images with high contrast and sharpness.

The much-acclaimed MUSICA<sup>2</sup> and NX acquisition station within the DX-D 600 solution facilitate faster image display. "MUSICA<sup>2</sup> provides significantly higher quality images. It also allows us to enhance images, print them if necessary, and even make high-quality full-screen enlargements," said Pablo Ambroa, Technologist. "The ability to quickly adjust images on the workstation is especially helpful. This reduces the need to redo

## AGFA HEALTHCARE'S CONTRIBUTION

» The versatile, fully automated ceiling-suspended DX-D 600 is a top-of-the-line direct radiography solution, which is ideal for facilities with a high patient load looking to streamline workflow and increase throughput.

HULA also has other DR solutions from Agfa HealthCare; four DX-D 500 solutions for general radiography and one DX-D 100 mobile solution for patients with multiple injuries. "These digital solutions allow us to serve many more patients due to their speed and reliability," says Dr. Rodriguez.

“I feel radiology is the most important diagnostic activity in every hospital. When well-performed, it quickens the entire service process. Installing the DX-D 600 was a fundamental step in our achieving this benefit.”

FELIX RUBIAL, Medical Director



exams because the finished images were not useful. With the system’s software, we can now easily produce a valid image that otherwise would have been unacceptable and discarded.”

According to Begoña Amenedo, Radiology Nursing Supervisor at HULA, the DR technology behind the DX-D 600 has completely changed their working conditions. “There is a much closer relationship between the technologist and the patient, which also humanizes the examination. The technologist has a better patient contact, helps position him for the procedure, and can pay more attention to the care in the process.”

This is possible due to the solution’s state-of-the-art auto-positioning technology, fully automated tracking and ease of manual movement in all directions. Automated positioning combined with a pre-programmed NX exam tree, MUSICA<sup>2</sup> processing and seamless integration and connectivity to the other CR/DR solutions as well as the RIS/PACS help technologists work faster and smarter to enhance their productivity through more expedient patient exams.



“MUSICA<sup>2</sup> software provides significantly higher quality images than other systems.”

PABLO AMBROA, Technologist

“Now the technologist works more directly with the patient. We can accommodate the technology to the patient’s own needs.”

BEGOÑA AMENEDO,  
Radiology Nursing Supervisor



#### GREAT VALUE ATTACHED TO X-RAY SOLUTIONS THAT QUICKEN THE ENTIRE SERVICE PROCESS

For HULA’s management, DR solutions provide three benefits: the use of more precise, digital technology enhances workflows; the significant reduction in waiting time facilitates more patient procedures; and use of the latest imaging technologies enriches the daily work experience of radiology personnel.

Felix Rubial, HULA’s Medical Director, also believes radiology is the most important diagnostic activity in every hospital. “Expedient, well-performed radiology quickens the entire service process. We feel performing every diagnostic process quickly and efficiently is fundamental.”

While the dual-detector DX-D 600 solution represents a major step forward in image quality, exceeding the quality HULA used to have, it’s also an

important requirement that radiologists obtain excellent diagnostic quality. “From management’s point of view, we have to ensure our professionals have the most advanced technology available that allows them to produce the best quality image,” Felix Rubial says.

He concludes, “I think HULA has excellent diagnostic technology. And since Agfa HealthCare has chosen to support our hospital, we have chosen to stand with them. They offer the finest solutions and we use them in the best way possible. Our relationship is truly a partnership.” •

#### DID YOU KNOW...

- » In addition to Spanish, the region has its own language: Galician.
- » HULA serves 93,000 emergency patients and performs 14,000 surgeries per year.
- » SERGAS (“Galician Health Service”) is part of the Spanish government’s public health decentralization policy. Since 1991, SERGAS has built and integrated a total of 319 primary care units and hospitals.

#### SOLUTIONS

##### DX-D 600

- » Dual-detector, high-productivity, high-throughput general radiography system with three configuration options: manual, semi-automatic, and fully-automatic
- » MUSICA<sup>2</sup> image processing for excellent contrast detail and exam-independent, consistent image quality
- » NX acquisition workstation for smoother workflow
- » Cesium Iodide DR detector technology
- » DICOM connectivity to PACS, HIS/RIS
- » Can be integrated with Agfa HealthCare’s CR systems, bundling the high quality and flexibility strengths of each technology

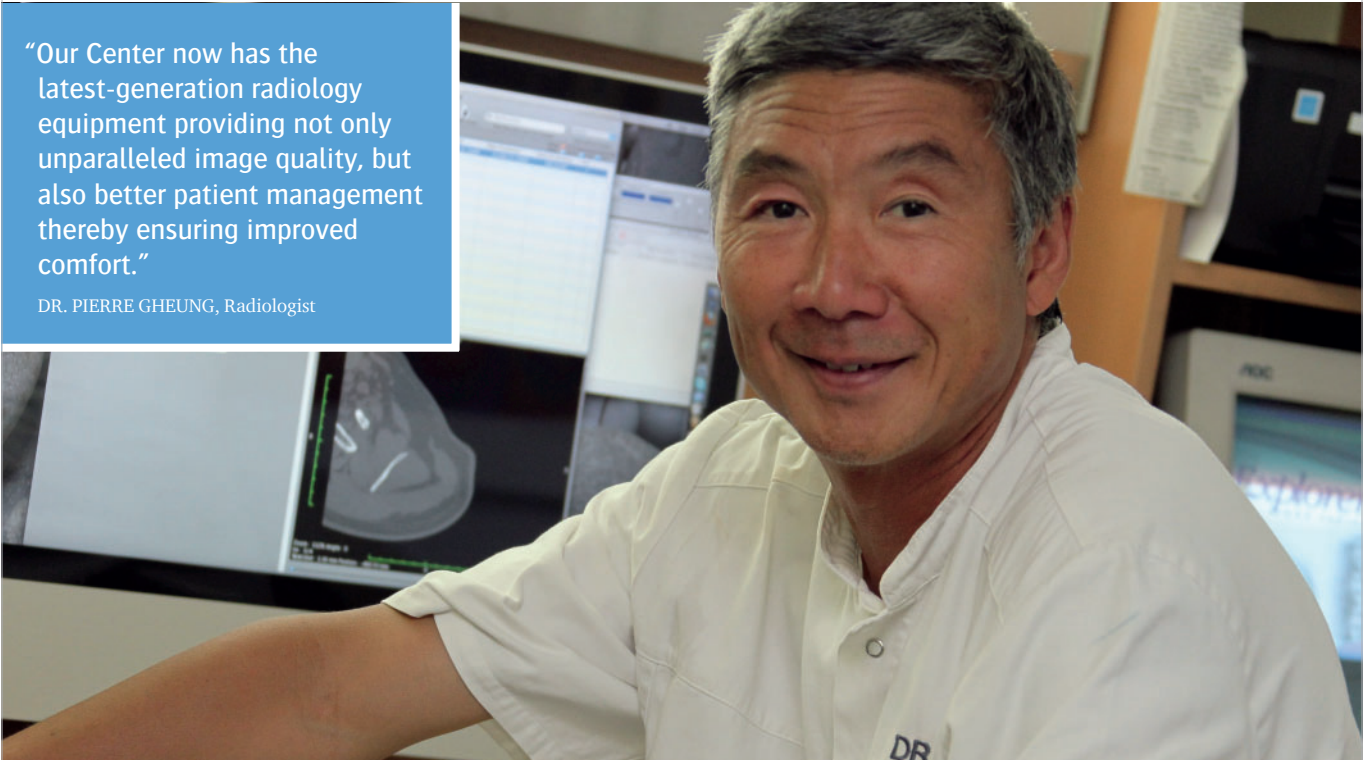
# Flexible DR imaging helps physicians better serve patients

French imaging center enhances its highly-regarded reputation through improved patient management, especially for procedures involving restricted mobility

**INTERVIEWEES** Dr. Pierre Gheung, Radiologist, Former Head Physician in Paris and Former Chief Resident of Paris Hospitals  
Stéphanie Brondex, Technologist · Francine Beaujouan-Berger, Technologist

“Our Center now has the latest-generation radiology equipment providing not only unparalleled image quality, but also better patient management thereby ensuring improved comfort.”

DR. PIERRE GHEUNG, Radiologist



**The Mont Blanc Medical Imaging Center recently installed various digital radiology solutions from Agfa HealthCare for general procedures and digital mammography. Dr. Pierre Gheung, Radiologist, explains: “Our Center now has the latest-generation radiology equipment providing not only unparalleled image quality, but also better patient management thereby ensuring improved comfort.”**

As the only independent radiology practice in the valleys of Chamonix and the highlands of Megève, the Mont Blanc

Medical Imaging Center is centrally based in Sallanches, a small town full of natural charm and idyllic surroundings at the foot of the Mont Blanc, the highest peak in Europe. In fact the practice, established over 50 years ago, enjoys stunning views of the mountain, much to the delight of the five radiologists, their staff and patients.

## COMPACT FOOTPRINT MAKES EQUIPMENT IDEAL FOR A SMALL TOWN PRACTICE

At the end of 2010, the practice embarked on a comprehensive project to improve the performance of its medical imaging activities. Agfa HealthCare was selected for this ambitious effort, the first stage of which involved implementing the DX-D 300, a direct radiography solution. Its cesium iodide detector technology

offers excellent image quality and immediate image availability, while its MUSICA<sup>2</sup> image processing software delivers consistency and superior contrast detail. The solution also impresses with its multi-functionality, which facilitates a broader range of X-ray studies. Its compact footprint makes it perfect for a small town practice.

“The DX-D 300’s ergonomic design means X-ray studies can be conducted faster than in the past – a real plus for patients because it reduces their waiting time.”

DR. PIERRE GHEUNG, Radiologist

## AGFA HEALTHCARE’S CONTRIBUTION

- » Solutions that meet the practice’s needs
- » Attentiveness and strong relationship
- » Ability to make an offer tailored to the practice

Alongside this project, the practice also undertook to modernize its mammography activities, a critical part of the business since it represents more than a third of all consultations. Once again, Agfa HealthCare was chosen and the practice installed the DX-M system\*, benefiting from the innovative technology of needle-based detectors. With the MUSICA<sup>2</sup> image processing software, it's an ideal solution for digital mammography.

Considering the quality of Agfa HealthCare's mammography solutions, the practice also installed IMPAX for Breast Imaging which offers, in particular, the ability to archive images for over 10 years. X-rays can now be read outside the examination room on a diagnostic workstation with high-definition displays. "This diagnosis is essential for detecting and analyzing micro-calcifications during breast cancer screening campaigns," remarks Dr. Pierre Gheung.

#### IMPROVED PATIENT COMFORT DURING EXAMS AND BETTER PATIENT MANAGEMENT

At the heart of Agfa HealthCare's user-friendly solution is the motorized positioner of the DX-D 300, which offers impressive flexibility and easy positioning (sitting, standing or lying) for all patients, especially those with reduced mobility. Its ergonomic design means X-ray studies can be conducted faster than in the past. "It's a real plus for patients because it reduces their waiting time," underscores Dr. Pierre Gheung.

With respect to mammography, and particularly when screening for breast cancer, the psychological dimension comes into play because women are often stressed when faced with breast exams. "In addition to a significant reduction in X-ray doses, the DX-M solution allows a high work pace and rapid preview of images which gives us more time to reassure and accompany the patient through the entire examination. This is essential in mammography," explains Stéphanie Brondex, Technologist at the practice.

#### HIGH THROUGHPUT AND FLEXIBILITY ENHANCE WORKING CONDITIONS

Ease of use, time savings and skills enhancement - technologists and radiologists at the Mont Blanc Medical Imaging Center are delighted with the new Agfa HealthCare radiology solutions,



which significantly improve their working conditions.

First, their ergonomic design and flexibility makes equipment manipulation much easier and reduces the maneuvers required during the X-ray examination. The DX-D 300 instantly acquires and quickly displays the image after the exam, eliminating the need to switch from one room to another to process and review images, resulting in noticeable time savings for the technologists and the patients.

Secondly, these solutions offer high performance, including excellent image quality as well as dynamic and immediate



"With DX-M, we have more autonomy in our work since we now control X-ray image quality ourselves on-screen. That is rewarding!"

FRANCINE BEAUJOUAN-BERGER, Technologist

"The DX-M solution allows a high work pace and a rapid preview of images which gives us more time to reassure and accompany the patient through the entire examination. This is essential in mammography."

STÉPHANIE BRONDEX, Technologist

on-screen image presentation. Francine Beaujouan-Berger, Technologist at the practice, remarks: "With the DX-M, we have more autonomy in our work since we now control X-ray image quality ourselves on-screen. That is rewarding!"

Thanks to IMPAX, mammography images are transmitted directly from the examination room to a workstation where four high resolution views are displayed simultaneously. In addition, the diagnostic help tools can assist radiologists in interpreting X-ray images, resulting once again in improved comfort and significant time savings. •

#### SOLUTIONS

##### DX-D 300

- » Automatic and fully motorized positioning
- » Flat panel detector with cesium iodide for reduced dosage

##### MUSICA<sup>2</sup> image processing

##### DX-M for general radiology

- » Choice of conventional plates or needle-based detector
- » High productivity
- » Ease of use

##### DX-M for digital mammography

- » Needle-based detectors for excellent image quality
- » Dosage reduction
- » MUSICA<sup>2</sup> image processing

##### IMPAX for Breast Imaging

- » Quick and easy access to data
- » User-friendly and secure system
- » Unique and optimized user interface

#### DID YOU KNOW...

- » The Mont Blanc Medical Imaging Center performs about 100 daily X-ray examinations.
- » The Center comprises two radiology practices, one each in Sallanches and Chamonix, and employs 5 radiologists, 6 technologists and 9 medical secretaries.
- » Mont Blanc's peak stands at 4,810.45 meters.

\* Note: The DX-M CR system is not cleared for mammography indication in the US.

OCHSNER HEALTH SYSTEM, NEW ORLEANS, LOUISIANA, USA

# IMPAX Data Center and XERO technology help Louisiana Health System rebuild regional healthcare

After Hurricane Katrina, most healthcare facilities in and around New Orleans were shuttered. Ochsner Health System escaped significant damage and helped rebuild healthcare capacity in New Orleans, acquiring and integrating three beleaguered community hospitals into its delivery network in the process. Extension of Ochsner's digital radiography and PACS to these hospitals played an important role in their recoveries

**INTERVIEWEE** Dr. Lynn Witherspoon, System VP & Chief Medical Information Officer





## SOLUTIONS

### IMPAX Data Center and XERO technology

- » Enables point-of-care access to complete patient images and data
- » Reduces costs by saving time; expediting patient care through increased productivity
- » Doesn't require installation of client software
- » Uses existing infrastructure to connect across traditional healthcare environments; not just PACS
- » Works off any standard Internet browser/modest broadband connection

"The viewer has the attributes we wanted – referring clinicians can access images from IMPAX Data Center either from the EHR workspace or from their browser."

DR. LYNN WITHERSPOON, System VP  
& Chief Medical Information Officer



Officer, Dr. Lynn Witherspoon. Logically, after Katrina struck in late August, 2005, Ochsner Health System was immediately focused on extending its health information technology into the acquired community hospitals.

"Our HIS, EHR and IMPAX PACS systems were up and available to support patient care 48 hours after the storm, powered by the Ochsner Medical Center's generators and cooled by on-site wells," Dr. Witherspoon recalls. The region's power grid and other infrastructure were so badly damaged that the hospital had to be self-sufficient for more than a month thereafter.

By early the following year, the decision was made to expand the Health System through acquiring a critical access hospital south of New Orleans, then three other facilities within the city. Additional acquisitions in Baton Rouge and the North Shore of Lake Ponchartrain followed over the next several years.

"A contributing factor in those decisions was confidence in Information Services' ability to scale Ochsner core systems, creating a standard clinical care environment, staff consolidation, and cost savings," Dr. Witherspoon explains. "Access to patients' health records and medical images anywhere in the system was huge."

"Agfa HealthCare immediately reached out to Ochsner Health System after the storm to help us extend digital imaging capabilities into the acquired community hospitals," Dr. Witherspoon says. "They provided equipment, support, services – anything we needed – with just a handshake in those early post-Katrina days. Agfa HealthCare was there for us and for the citizens of our community."

It was a 'worst case' scenario rarely seen in American history. New Orleans, one of the nation's most vibrant cities, was near ground zero for an assault by powerful Hurricane Katrina. The levees broke and the city was inundated. Katrina was responsible for the most substantial devastation of an American city since the 1906 San Francisco earthquake. Total property damage throughout southern Louisiana was estimated at \$81 billion.

But Ochsner Health System and its main New Orleans site, 473-bed Ochsner Medical Center, survived thanks in part to being near the Mississippi River where flood waters rose only modestly. Other facilities were not so fortunate. In the storm's aftermath, only three of the city's dozen major facilities were able to immediately resume clinical activities. Six years later, four remain closed.

Ochsner Health System, Southeast Louisiana's largest non-profit healthcare delivery system eventually grew to 35 clinic sites and eight hospitals, doubling its delivery capacity in the six years following the storm.

### INFORMATION TECHNOLOGY FOCUS PROVES VALUABLE FOR SERVICE CONTINUITY AFTER KATRINA

"We've long viewed health information technology including our Electronic Health Record (EHR) and PACS as vital enablers of the high quality, cost-effective medicine we pride ourselves in," says Ochsner's System Vice President and Chief Medical Information

"Because all images are moved to IMPAX Data Center, our radiologists now have rapid access to prior studies done elsewhere and can access any study done anywhere."

DR. LYNN WITHERSPOON, System VP  
& Chief Medical Information Officer





## AGFA HEALTHCARE'S CONTRIBUTION

» IMPAX Data Center Viewer, powered by XERO, an enterprise medical image viewer, allows clinicians to access patient information securely, independent of location, on a variety of browsers. It serves a key role in creating a longitudinal patient EHR, designed to store images and related information.

**“Agfa HealthCare not only provided excellent solutions for our needs, but they went the extra mile for us after Katrina.”**

DR. LYNN WITHERSPOON, System VP & Chief Medical Information Officer

### AN INTEGRATED EHR WITH DATA AND IMAGES SHARED THROUGHOUT A LARGE COMMUNITY

With the successful aggregation of clinical data and clinical deployment of Ochsner's EHR prior to Katrina, enterprise image management seemed a natural next step. “The objective was to provide physicians point-of-care access to the longitudinal medical record including images from all radiology modalities as well as nuclear medicine, cardiology, obstetrics, ophthalmology, and other imaging ‘ologies,’” Dr. Witherspoon says.

Early efforts to build a central image management platform had been unsuccessful, and further efforts to identify a partner for such a facility were interrupted by Hurricane Katrina. After PACS was deployed across the growing Health System, Ochsner returned once again to enterprise image management. Agfa HealthCare's recently developed IMPAX Data Center had by then been successfully deployed in Europe and was offered to Ochsner about 18 months after the storm. “We were impressed with Agfa HealthCare's performance after Katrina as well as their successful deployment of IMPAX Data Center in Europe,” Dr. Witherspoon recalls.

“It was the solution we were looking for; a means to aggregate all of any patient's medical images, no matter where collected in the system, and the capability to display them not just for radiologists but for any provider anywhere within Ochsner Health.”

“We began building IMPAX Data Center in early 2008 and were quickly able to centralize images created in any of our regional IMPAX PACS instances. In addition, we have successfully included DICOM images from other sources including cardiology, ophthalmology, and nuclear medicine. Lessons from Katrina dictated that we include disaster tolerance in our plans and Agfa HealthCare provided a mirrored solution for both the database and the Storage Area Network (SAN). We installed the replicated database and storage facilities in a back-up data center remote from our main campus data facility,” Dr. Witherspoon continues.

In addition to the expected cost reductions associated with eliminating traditional X-ray management, IMPAX Data Center also enabled Ochsner to better leverage radiologist resources. “Because all images are stored to IMPAX Data Center, our radiologists now have more rapid access to prior studies done elsewhere and can access any study done anywhere in the system on a near-real time basis,” Dr. Witherspoon says. “Requiring specialists on-site everywhere to interpret Ultrasound, CT, MR, nuclear medicine, and other special studies is expensive and not realistically achievable across our growing system. Being able to process work from other regions both improved time to interpretation and reduced the number of radiologists we would otherwise require,” he adds.

### SUCCESSFULLY ACCESSING IMAGES AND DATA FROM REMOTE LOCATIONS

Finding a satisfactory image viewer proved a bit more elusive. Ochsner required that the viewer be accessible from the EHR or just a Web Browser with no additional software requirements. Additionally, the viewer needed to access IMPAX Data Center throughout all regional facilities. With a plethora of choices, Agfa HealthCare made its IMPAX Data Center Viewer powered by XERO available to Ochsner. “The viewer has the attributes we wanted – referring clinicians can access images from IMPAX Data Center either from within their EHR workspace or from their browser. The viewer uses the latest web technologies to render images in the browser and doesn't require any software to be installed on the workstation. And it behaves like a viewer should – clean user interface, fast, integrated images and reports, and it provides a good image manipulation tool set. We are in the process of replacing our old legacy PACS viewer in conjunction with our deployment of a new EHR,” Dr. Witherspoon says.

Dr. Witherspoon cites the benefits of collaborating with a knowledgeable IT solutions provider. “Choosing the most appropriate IT and network solutions partner is critical, but in this case it came with a bonus. Agfa HealthCare not only provided excellent technology and solutions for our clinical image management needs, but they went the extra mile for us after Katrina. Their solutions support our mission to expand services throughout New Orleans and the surrounding region by growing our Health System,” he says. •

#### DID YOU KNOW...

- » Images stored to IMPAX Data Center are immediately replicated to a redundant facility to provide disaster recovery assurance.
- » Today's Ochsner Health System is divided into three regions: New Orleans; the communities across Lake Pontchartrain north of the city; and the City of Baton Rouge, the State of Louisiana's capital.

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 ONTWERPER HEEFT ONTPOPT.  
 P. 80-82-83. KWEE SWAN - LIAT. 1966

IN DE WETENSCHAP DE BEDEFINING  
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 DAT HET LICHAAM DEEL UITMAAKTE  
 VAN DE NATUUR, NIET VAN DE CULTUUR.  
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 IN ONZE GEEST, WAARVAN HET IN  
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 DE GEEFTRUWING, 2004

PREDICTION 2: SOMETIME BETWEEN 2002 AND 2008,  
 EARTH-BASED GRAVITATIONAL WAVE DETECTORS WILL  
 WATCH BLACK HOLES COLLIDE AND WATCH THEIR  
 COLLISIONS TRIGGER WILD VIBRATIONS OF  
 SPACETIME WARPAGE. BY COMPARING THE  
 OBSERVED WAVES WITH SUPERCOMPUTER  
 SIMULATIONS, WE WILL DISCOVER HOW  
 THE WARPAGE BEHAVES WHEN IT  
 INTERACTS WITH ITSELF  
 DYNAMICALLY AND  
 NONLINEARLY.  
 P. 121. KIP S. THORNE. 2000-2002

IN A SATURNIAN WORLD  
 Anne-Mie Van Kerckhoven

# Mobile DR solution improves ICU patient comfort

Agfa HealthCare's DX-D 100: mobile, compact, easy-to-use, fast display of high quality images, lower X-ray dose

**INTERVIEWEES** Dr. Hans Bender, Head of Radiology and Nuclear Medicine · Heike Witzer, Head Technologist  
Marcus Eidmann, Head of Procurement



“We require prompt care to meet KTQ quality accreditation. The new technology from Agfa HealthCare means that diagnostic findings are available in a day, which is a significant contribution to speeding up the process.”

DR. HANS BENDER, Head of Radiology and Nuclear Medicine

**ICU patients require special attention with a minimum of movement to facilitate recovery. Germany's Bethanien Hospital turns to a trusted partner's innovative direct radiography technology to help support that goal.**

Located in Moers, the 680-bed hospital is a primary care center focusing on surgery, internal medicine, thoracic

illnesses, gynecology and oncology with several multi-disciplinary tumor centers. Its radiology department annually performs about 60,000 examinations serving in- and outpatients equally. It also does bedside imaging in the hospital's ICU, which brings special challenges especially in thorax and abdomen studies.

## TRUST AND INNOVATION ARE FOUNDATIONAL ELEMENTS

For many years, the Bethanien Hospital has worked with Agfa HealthCare. Recently, its existing PACS was replaced by an enterprise-wide IMPAX PACS supporting the department's wide range of digital modalities including a 16-slice CT and 1.5 Tesla MRI.

Marcus Eidmann, Head of Procurement, says the foundation of this collaboration

is based on trust and innovation, as well as excellent customer service. “Ten years ago, Agfa HealthCare offered the best value for its X-ray film. We later installed Agfa HealthCare's RIS and PACS, both of which have been paid off rather quickly. Today, we're reaping the rewards of another impressive innovation: the DX-D 100 mobile DR solution,” he says.

Adds Dr. Hans Bender, Head of Radiology and Nuclear Medicine, “For me, Agfa HealthCare means a long-term partner that supported us in the film era. That's why we've chosen them as a partner in the digital age.”

Effective integration into existing IT and HIS environments were important criteria in choosing the DX-D 100, as was its mobility and easy positioning around an

## DID YOU KNOW...

- » The Bethanien Hospital Foundation was started in 1852 by citizens in the North Rhine-Westphalia region that were committed to social initiatives.
- » The region's close ties with mining, which occurred at the beginning of the last century, promoted the hospital's expansion and strengthened its finances.



**“A well-established partnership and impressive innovations – that is how we see the cooperation with Agfa HealthCare. That is also why we became a reference hospital.”**

MARCUS EIDMANN, Head of Procurement

ICU patient’s bed. The consistently good experience with MUSICA<sup>2</sup> intelligent image processing software also played important roles in its selection, as well as its easy upgradability to MUSICA<sup>2</sup> for new facilities.

“MUSICA<sup>2</sup>’s advantages combined with the DX-D 100’s new needle phosphor detectors allow us to significantly improve image detail and sharpness while simultaneously reducing X-ray dose,” Dr. Bender says. “We can obtain very high quality images, particularly where the patient is lying prone in the ICU,” he adds. “In these cases, we can reduce the radiation dose by 10 to 15%.”

Heike Witzer, Head Technologist, strongly agrees. “The DX-D 100’s advantages are better image quality and speed, which means that multiple studies can be made one after another. This is particularly useful in the ICU. The resolution and functionality of the DX-D 100’s post-processing software is considerably better and images can be evaluated immediately for diagnostic



**“The DX-D 100’s advantages are better image quality and speed, which means multiple studies can be made one after another.”**

HEIKE WITZER, Head Technologist

quality. If retakes are necessary, they can be done straightaway.”

The mobile DX-D 100 also serves as a backup for X-raying limbs, she adds, making it ideally suited for use in the pediatric clinic due to the considerable dose reduction.

#### **SPEED IS CRITICAL TO GERMAN QUALITY ACCREDITATION**

In the morning, administrative data about ICU patients is entered into Agfa HealthCare’s RIS worklist which is linked via the hospital’s wireless data network to the DX-D 100. In this way, all data can be preloaded automatically and printed with other information such as each patient’s room number. After bedside image capture and processing, and clearance by the radiologist, the images are stored immediately in IMPAX. “Images and summary findings are then directly available anywhere in the hospital, with full findings posted later the same day,” says Heike Witzer.

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

##### **RIS, HIS, DX-D 100, IMPAX**

- » DX-D 100 images can be displayed, evaluated and validated immediately.
- » Digital workflow moves quickly, and DR images can be sent instantly via IMPAX.
- » The solution offers potential for dose reduction.
- » MUSICA<sup>2</sup> processing software significantly and consistently improves image visualization, clarity and detail.
- » DX-D 100 makes bedside imaging easier and less disruptive.

##### **RIS/PACS**

- » Allows digital images and data to be quickly sent on a secure network within a hospital, throughout a region or around the world.
- » Has the ability to digitally manipulate images for greater detail and clarity.
- » Improves clinical productivity and expedites patient treatment.

Dr. Bender values the almost real-time presentation of images anywhere on the network. He also appreciates the DX-D 100’s high storage capacity. Speed, he says, is fundamental to meeting the German healthcare quality accreditation called KTQ (Cooperation for Transparency and Quality in Healthcare). “The requirement for fast patient care is met by making findings available on the same day imaging is performed,” he adds. “And the DX-D 100 makes a notable contribution to speeding up the process.”

#### **SOLID RETURN ON INVESTMENT**

Agfa HealthCare’s full line of solutions contributes to achieving various radiology department goals as well as financial objectives of the hospital, explains Marcus Eidmann. “Our investment in a wide range of Agfa HealthCare systems was made as part of a conversion contract. Operating costs are limited to cleaning, maintenance and electricity, with payback resulting from reduced process costs including staff and an overall improvement in operational quality. Because these advantages are so obvious, we did not even need a return on investment calculation.”

Marcus Eidmann is also very satisfied with the service and support from Agfa HealthCare. “The systems usually run without a hitch. If a problem does occasionally arise, it is resolved immediately.” •

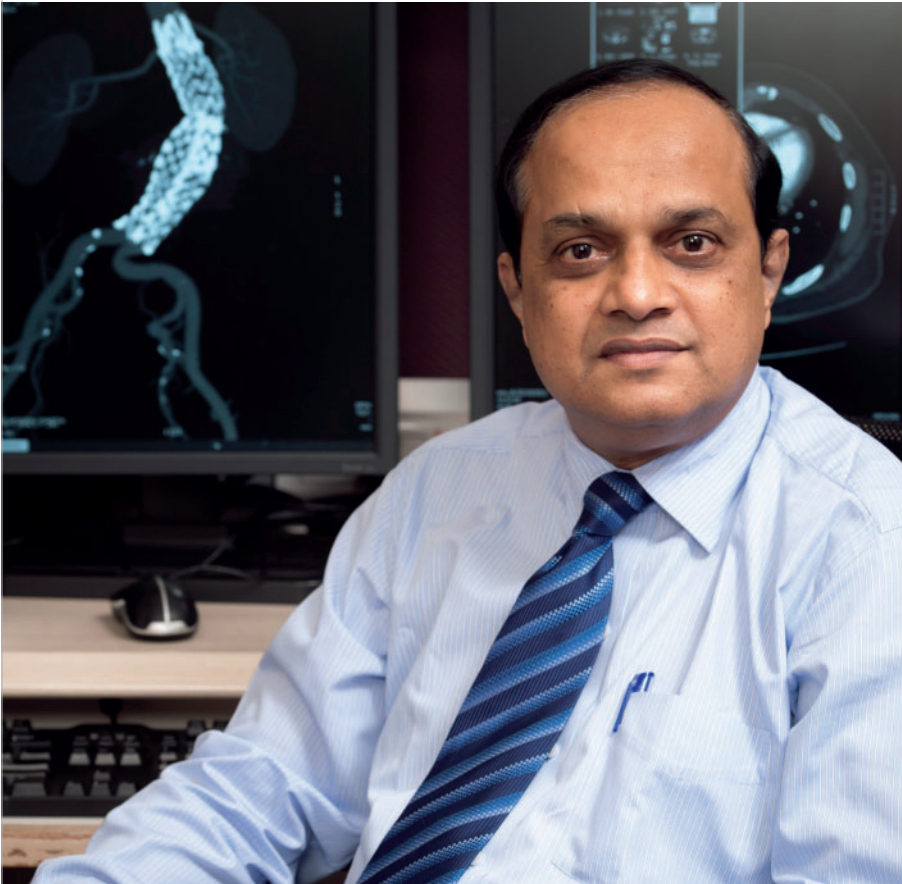
#### **SOLUTIONS**

- » The mobile DX-D 100 comes to the patient; not the other way around.
- » Innovative needle crystal technology and MUSICA<sup>2</sup> image processing software provide top image quality with the potential for considerably lower radiation dose.
- » The NX workstation has an intuitive user interface which makes work easier.

# Taking the ideal workflow from a vision to reality

With IMPAX, Hinduja Hospital provides better care to patients while improving radiology workflow and efficiency

**INTERVIEWEE** Dr. Jagdish Modhe, Head of the Imaging Department



“I’m very happy with the solution. My colleagues and I wonder now how we did our reports before IMPAX and speech recognition.”

DR. JAGDISH MODHE,  
Head of the Imaging Department

## **SPEED-UP REPORT TURNAROUND TIMES WITH IMPAX AND SPEECH RECOGNITION**

Technology has long played a central role in helping Hinduja achieve its patient care goals. “Our hospital was the best-equipped in the city of Mumbai, we had all the state-of-the-art equipment, but in radiology we were facing a challenge,” says Dr. Jagdish Modhe, Head of the Department of Imaging. “The problem was report turnaround times, as well as film storage and retrieval. We were experiencing delays in transcribing reports, up to one day, or even a couple of days, and these delays were not acceptable.”

“When I visualized an ideal workflow, I pictured a process where once a study was done, my colleagues and I could report on it within a very short period of time, using speech recognition, and sign with a digital signature,” says Dr. Modhe. “This approach also fits in nicely with the philosophy of the hospital – to focus on patient comfort with a quick, early diagnosis that helps to minimize hospital stays.”

Following the installation of Agfa HealthCare’s CR 75.0 digitizer, Dr. Modhe could see the benefits of being able to transfer images across the hospital. He also realized that, in order for his ideal workflow to achieve all that he envisioned, it would need to be built on PACS, and utilize speech recognition.

For 60 years, Hinduja Hospital has taken the lead in Mumbai in healthcare expertise and technology. About six years ago, the radiology department decided to address increasing bottlenecks in report turnaround times, and image storage and retrieval, with a wide-ranging technology plan. Agfa HealthCare’s IMPAX PACS solution, along with an in-depth integrative expertise, provided the foundation on which the new radiology structure is built. Featuring speech recognition capabilities and incorporating general radiology, angiography, CT and MRI, the IMPAX solution is fully integrated with Hinduja’s HIS.

From its beginnings as an outdoor clinic in 1951, the Hinduja Hospital has grown into one of the leading private hospitals in Mumbai. Founded by Shri Parmanand Deepchand Hinduja, in the aftermath of India’s partition, the hospital’s evolution has been guided by the continued support and involvement of the Hinduja family.

This 380-bed multi-specialty, major hospital center offers a wide range of healthcare services and caters to patients from all socio-economic levels. The hospital also provides charity to 20% of its patients, ensuring equal care and service to the ‘Charity’ and ‘Paying’ patients without discrimination.



## SOLUTIONS

### IMPAX

- » Provides complete image archiving, digital display, networking and distribution that is faster and more efficient than traditional processes
  - » User-friendly interface
  - » Integrated with speech recognition, HIS, 3D workstation, and STATdx Diagnostic Clinical Decision Support System
  - » Runs on high-availability cluster with storage system for long- and short-term image storage
- The hospital also uses Agfa HealthCare's CR solutions and DRYSTAR imagers.

### KEYSTONES OF IMPAX WORKFLOW: SPEECH RECOGNITION AND DIGITAL SIGNATURES

A special feature of the workflow at Hinduja Hospital is the use of digital signatures. Dr. Modhe sees this as the last element in the ideal workflow he envisioned years ago. "Now that we have resolved the government and licensing issues, we are implementing this last piece," he says. He expects this to deliver even greater efficiency gains.

"I'm very happy with the solution," says Dr. Modhe. "We have had very good support from the Agfa HealthCare team in India, during the installation, after, and now. In fact, my colleagues and I wonder now how we did our reports before IMPAX and speech recognition," he concludes. •

### DID YOU KNOW...

- » The first-ever instance of "awake craniotomy" for epilepsy surgery in India was performed at Hinduja Hospital.
- » Hinduja was the first multi-specialty, major hospital in India to be awarded the prestigious ISO 9002 Certification.
- » Hinduja Hospital's fully-automated Laboratory Medicine Department is the first hospital laboratory in India to be accredited by the College of American Pathologists.
- » Through its "Surgical Solutions for Obesity" clinic, Hinduja offers a dedicated team of physicians and an array of services and support.
- » Hinduja Hospital launched the first screening center for breast cancer in Mumbai in 2005.



"We have had very good support from the Agfa HealthCare team in India, during the installation, after, and now."

DR. JAGDISH MODHE,  
Head of the Imaging Department



### USER-FRIENDLY INTERFACE, INTEGRATION AND FLEXIBILITY TRIGGERED IMPAX CHOICE

For Dr. Modhe and his team, at that time, PACS was a brand new area to research. "It's not like buying a scanner or an X-ray unit, it's a solution, and it has to be customized," he says. First, the team, which included radiology and IT colleagues from Hinduja, determined what they needed in a PACS, and in a PACS vendor. "We wanted a vendor who would be flexible, who would be able to respond to our needs as they evolved, and we wanted a customized solution catered to our needs," says Dr. Modhe.

Their search included meetings with multiple vendors, a variety of site visits, and then a visit to the Imelda Hospital in Bonheiden, Belgium, an Agfa HealthCare customer. That visit proved to be the turning point for Dr. Modhe and his team. "What stood out for us were Agfa HealthCare's strengths in integration and flexibility," says Dr. Modhe. "That, plus the level of user-friendliness at the front end."

### AGFA HEALTHCARE'S CONTRIBUTION

- » In-depth experience and expertise of Agfa HealthCare team in India
- » Leading PACS technology customized to fit hospital needs
- » Built-in flexibility that guarantees the solution will continue to meet needs, as they evolve

### COMBINED EXPERTISE OF AGFA HEALTHCARE AND HINDUJA EXPERTS MADE A STRONG PROJECT TEAM

As the Agfa HealthCare/Hinduja team moved forward on the IMPAX implementation, they addressed some unique challenges. One challenge was the hospital's in-house HIS, which had to be integrated with IMPAX. "That challenge was met by our IT department, the HIS provider and the Agfa HealthCare team together, who identified the problem areas, and figured out how to overcome them," says Dr. Modhe.

Another challenge was the management of images and information relating to a specific group of patients, who would be referred to Hinduja for a single radiology exam. "The challenge was how to take into account this one-time visitor to our hospital, how do we keep the profile and all the demographics in our storage?" The unique ID number that's the foundation of data management with IMPAX resolved this challenge with ease.

"What stood out for us were Agfa HealthCare's strengths in integration and flexibility."

DR. JAGDISH MODHE,  
Head of the Imaging Department

# MUSICA<sup>2</sup> images convince radiologists and technologists at Sunnybrook

Performing more than 300,000 imaging exams annually including 100,000 plain radiographic procedures, Sunnybrook Health Sciences Centre uses Agfa HealthCare's CR, DR and RIS/PACS solutions to enhance clinical care and aid research

**INTERVIEWEE** Henry Sinn, Director of Medical Imaging

It was originally called Sunnybrook Veterans Hospital when opened shortly after WW II. While still retaining its veterans' care component, Sunnybrook Health Sciences Centre (Sunnybrook) has evolved into one of Canada's leading academically focused hospitals, fully affiliated with the University of Toronto. With the largest regional trauma center and the second largest cancer center in Canada, Sunnybrook's mission is "We care for our patients and their families when it matters most. In partnership with the University of Toronto, Sunnybrook leads by discovery, innovation, teaching, and learning" while its vision is "Sunnybrook invents the future of healthcare".

Part of Sunnybrook is the Sunnybrook Research Institute (SRI) located on an adjacent campus. It employs 600 scientists and invests more than \$100 million annually in medical research involving molecular and cellular biology, clinical epidemiology, brain, heart and cancer studies. A key SRI discipline involves advancing medical imaging techniques and applications.

## MEDICAL IMAGING DEPARTMENT AND IMAGING RESEARCH INTERACT TO ACHIEVE ACADEMIC AND RESEARCH MANDATES

A tight interaction between Sunnybrook's medical imaging department and imaging research at SRI is evident, according to Henry Sinn, Director of Medical Imaging at the hospital department. "For example, our Radiologist-in-Chief is also an SRI associate scientist, and many staff radiologists here are associate scientists and investigators at SRI."

Sunnybrook has invested in an integrated RIS/PACS, a corporate applications solution provided by Agfa HealthCare for its high quality and dependability in imaging informatics. The solution



"On multiple levels, Agfa HealthCare's DR, CR and PACS solutions have repeatedly demonstrated their value."

HENRY SINN, Director of Medical Imaging

provides a common platform for clinicians and researchers to access images for clinical, academic and investigation purposes and more importantly, for collaboration when required.

In addition, IMPAX PACS is integrated with one of North America's largest regional medical imaging/information archives – Toronto East Network (TEN). This is also powered by Agfa HealthCare's IMPAX system that faithfully manages

2.5 million exams annually, supporting multiple digital imaging solutions at 23 hospitals with data flowing seamlessly even at peak, high volume periods. "Sunnybrook is currently generating 14 Terabytes of image data to be stored in this offsite diagnostic image repository and has the largest share of archive capacity among member hospitals in the TEN group," says Henry Sinn.



## RADIOLOGISTS AND TECHNOLOGISTS FIND DR IMAGE QUALITY TO BE EXCELLENT

The General Radiography Division has 10 general radiographic rooms, a fleet of 10 mobile X-ray machines as well as a dedicated ceiling suspended U-Arm radiographic DR system serving a three-bay trauma room in Canada's first and largest trauma center. Most DR systems in use are supported by computed radiography digitizers from Agfa HealthCare. Over the summer,



“With image quality highly emphasized here, we felt it was time to advance to the excellent detail that DR brings with MUSICA<sup>2</sup> image processing software.”

HENRY SINN, Director of Medical Imaging

## AGFA HEALTHCARE'S CONTRIBUTION

- » A mix of CR, DR, RIS/PACS solutions designed to cost-effectively enhance radiology productivity with excellent image quality
- » Ability to propose realistic solutions that address customer needs, complemented by reliable, consistent and knowledgeable support

a new DX-D 500<sup>n</sup> ceiling-mounted DR solution was installed in each of two procedure rooms.

“With image quality highly emphasized here, we felt it was time to advance to the excellent detail that DR brings to all general and special procedures enhanced by Agfa HealthCare's MUSICA<sup>2</sup> image processing software,” Henry Sinn said. “Radiologists and technologists like the resolution, latitude, contrast and range from the DX-D 500<sup>n</sup> and its accompanying NX workstation. The image quality is excellent. Of course, our long experience with Agfa HealthCare's CR and IMPAX, as well as its impeccable reputation as the backbone of TEN, were positives as well.”

With the choice made, installation of the two Agfa HealthCare DR solutions began, as well as the company's DX-S integrated, point-of-care CR digitizer with state-of-the-art image quality for general radiographic exams.

For the DR rooms, the DX-D 500<sup>n</sup> uses two high quality Cesium Iodide detectors resulting in fast cycle times and rapid image preview between exposures. Detectors also offer the potential for significant patient dose reduction.

Henry Sinn adds technologists immediately saw a major improvement in exam turnaround thanks to these attributes, as well as the ease of operating each solution's accompanying NX workstation with MUSICA<sup>2</sup> image processing software.

“We recently had an example of how the DX-D 500<sup>n</sup> greatly enhances productivity,” Henry Sinn added. “We typically have four to five technologists performing exams each workday in the outpatient area. But after a recent holiday ending in a long weekend, and the first week of having both new DX-D 500<sup>n</sup> systems in full swing, we inadvertently wound up having just three technologists on duty for a heavy orthopaedic clinic patient schedule. Not only were all patients examined promptly with fewer technologists, but we estimated the exam

room's efficiency improved by 75 percent over our previous configuration thanks to the DX-D 500<sup>n</sup>'s fast preview, high image quality, simplified operation and overall versatility.”

Image quality, obviously, remains the top attribute for any X-ray solution installed at Sunnybrook. “Our academically focused radiologists are a tough crowd to convince,” concludes Henry Sinn. “On multiple levels, Agfa HealthCare's DR, CR and PACS solutions have repeatedly demonstrated their value.” •

## DID YOU KNOW...

- » Sunnybrook made history in 2008 when it received an unprecedented \$74.6 million research award.
- » As of 2010, it was estimated that more than half of all Canadians have EMRs.

## SOLUTIONS

### IMPAX PACS and RIS

- » Workflow optimized for different users throughout an enterprise
- » Web-deployable for access to data from any location – local or remote
- » Protection of patient privacy and data security
- » Easy, centralized management of users, system and software
- » Connectivity for an integrated view of patient data
- » Seamless integration pulling together disparate information systems

### DX-D 500<sup>n</sup>

- » Ceiling-suspended high productivity DR system
- » Ease of operation thanks to ceiling suspension
- » Two Cesium Iodide detectors; excellent image quality with dose reduction potential
- » Fast image preview for enhanced productivity
- » Wide range of exams, including general, ER and pediatrics

### NX workstation

- » Intuitive user interface, requiring minimal training for maximum effectiveness
- » Convenient workflow at point-of-care
- » MUSICA<sup>2</sup> advanced image processing software, automatically adjusting image to maximum parameters

### DX-S

- » Small footprint, enabling a full range of X-ray exams at point-of-care
- » Uses Directrix and Scanhead technologies for high image quality and speed
- » Exceeds other CR systems in image quality, speed and flexibility



MYSTIC KIDS  
Anne-Mie Van Kerckhoven

# Technology Corner

## EUREKA!

### Agfa HealthCare introduces program aimed at advancing the results-driven innovation culture in its HealthCare IT division

More than two millennia have passed since the day Archimedes ran naked through the streets of Syracuse proclaiming 'EUREKA': 'I have found it'. Discoveries leading to innovation, however, belong to all times, and in the face of today's challenges, innovation is increasingly gaining importance. With its EUREKA program, Agfa HealthCare continues to find ways to keep innovation and ideas flowing through the organization and into the market.

#### **INNOVATION IS CRUCIAL TO THE SURVIVAL OF A COMPANY**

Innovation is driven by challenges and opportunities. This is why Geert Claeys, Technology Manager for Healthcare IT, promotes Agfa HealthCare's EUREKA program, which started in March 2011. He explains: "In our rapidly changing world, we must heavily invest in innovation since we cannot compete based on (software) production costs versus the emerging countries. Fortunately, we have a history of innovation. The IT industry also provides many opportunities for driving change and innovation: internet technology, mobile applications and new devices such as tablets create endless possibilities. In healthcare, these new ideas and technologies can help increase quality of care and decrease costs."

#### **EMBEDDING INNOVATION IN THE ORGANIZATION**

Agfa HealthCare has always been committed to achieving innovation, including through collaboration with universities and research centers. Geert Claeys continues: "But understanding that every staff member has a certain creativity opens up yet another approach: purposefully encouraging an environment in which people can innovate. That is the purpose of the EUREKA innovation program: to more firmly embed entrepreneurship and innovation in the mindset of the Agfa HealthCare organization, and to unlock the potential that exists in our own staff."

The EUREKA program is being rolled out to the different R&D sites of the Healthcare IT division, some of which already have a strong innovation culture. Over the next 10 years, the division aims to instigate two 'disruptive innovations' that will have a significant impact on healthcare, as well as to originate a greater number of smaller, incremental innovations.

#### **EUREKA! HIGH-LEVEL SPONSORSHIP IS CRITICAL**

The EUREKA program provides an agile and lightweight innovation process. There are few conditions for participation – such as tangible results within one year – and a strong sense of community, which is supported by an interactive community portal. Geert Claeys: "At our innovation day, participants will demonstrate their results to their colleagues and senior management, including Volker Wetekam, Vice President of the Healthcare IT division, and Luc Thijs, President of Agfa HealthCare, and receive direct feedback. This way, every participant can clearly see that the EUREKA program, and their own efforts, are supported by our senior management."

Each year, the five proposals with the most promising potential to change healthcare within five years will be nominated to join the 'HI5 Club'. The most interesting will receive the HI5 Innovation Award.

#### **FIRST RESULTS**

The project has been enthusiastically received within Agfa HealthCare. The original goal of a 10% participation rate was achieved soon after launching the program. 60 project proposals have already been entered, 25 of which have now gone on to the prototyping phase.

Geert Claeys concludes: "By the end of 2012, the first incremental innovations will become visible to our customers. The disruptive innovations will take more time to be brought to the market. We'll see the proof of the pudding in 10 years time."

#### **Geert Claeys, Agfa HealthCare**

Geert Claeys joined Agfa HealthCare in 1987. From the beginning, he had a special interest in innovation and new technologies. The combination of healthcare and IT, and the social role they play together, has always been particularly attractive to him. Geert Claeys is Technology Manager for Healthcare IT and leads the EUREKA project.

# “Healthcare is not a giant retail business”

There’s currently no unified ‘giant retail approach’ to the provision of American healthcare. It’s more like a cottage industry, with plenty of small players each providing their own care. But a technology-driven paradigm shift is looming: as most hospitals go digital, they will soon embrace cloud-based IT solutions and consumer-priced digital tools that will change the face of healthcare at ever-faster speed. Dr. Keith Dreyer, one of the US’ key thought leaders in the field of healthcare imaging and radiology, holds some outspoken opinions about the challenges this profession faces.

**INTERVIEWEE** Dr. Keith J. Dreyer, Vice-Chairman Radiology Massachusetts General Hospital, Assistant Professor of Radiology Harvard Medical School, Co-Chairman Informatics Committee American College of Radiology



“The tablet computer is an absolutely tremendous product for both consumers and professionals in medical imaging. The good news is quality medical solutions will come at strongly reduced, consumer-based pricing.”

DR. KEITH J. DREYER

Dr. Keith Dreyer, M.D., Ph.D., is an Assistant Professor at Harvard Medical School, Vice-Chairman of Radiology at Massachusetts General Hospital, Medical Advisor and Consultant for more than a dozen global healthcare corporations and Chairman of the Board of a major company. He has also held several board, committee and editorial positions for top-tier radiological societies including the RSNA and ACR. He has authored numerous books and papers, and lectures worldwide on radiology, imaging and health-related IT issues.

Few opinion leaders manage the straddle Dr. Keith Dreyer has built his reputation on: Assistant Professor at Harvard University, medical advisor and consultant to key players in corporate healthcare and public health, author, and much appreciated guest speaker. He is adamantly convinced that these diverse responsibilities allow him to maximize his value to his partners.



“New solutions are entering the market that not only encourage providers to allow access to patient data beyond their walls, but also to securely share this information back and forth with the patients themselves.”

DR. KEITH J. DREYER

Dr. Dreyer: “You have to understand the drivers and the motivators for all stakeholders. You need to think of technology and solutions that will address all those issues so that it can be deployed. If you consider a solution for a provider, but it’s not healthy for a patient, not able to be manufactured, and it doesn’t do any good to the payers, then it’s not going to gain much attention. In the US, healthcare is still a cottage industry composed of thousands of stand-alone hospitals, clinics and medical institutions, each unique and distinct from one another – there’s no unified Walmart approach to healthcare here. This means you really need to understand how each of the nation’s 5,000 hospitals are organized and structured so you can provide each with technology as well.”

#### **IN THE FUTURE, PATIENT HEALTH MANAGEMENT WILL DEFINE PHYSICIANS’ AND RADIOLOGISTS’ COMPENSATION**

Dr. Dreyer adds with healthcare costs rising so dramatically against the Gross Domestic Product in the US and Europe, the focus is shifting from service to quality-of-care and payment of accountable care. This will seriously affect the way radiology is practiced today. Physicians and radiologists will be paid based on how they manage their patients’ lives, and an aspect of that will be imaging.

The federal government is claiming more healthy patients for its money, says Dr. Dreyer. “This will be a challenge particularly to radiologists because they are so tied to keep up their service. Everything they do is a procedure, or an exam. Efficiency will no longer be the

sole focus. Quality is going to be key. The challenge today is that radiologists aren’t the prescribers of exams. So we need to make sure that ordering physicians will be much more mindful for what they are ordering.”

#### **FASTER TECHNOLOGY INTRODUCTION WILL BRING MORE MEANINGFUL USE OF IT**

Dr. Dreyer is amazed and excited at the speed with which healthcare and medical imaging practitioners adopt technology. Fifteen years ago, he points out, there were few PACS solutions in any of America’s hospitals. Now, it’s hard to find a hospital that doesn’t have a PACS solution. Upcoming technologies will be accepted even faster than in the past, as most hospitals have gone digital. “I believe in putting digital technology on top of existing digital solutions, almost like apps on smart phones or tablet PCs. This will probably result in decreasing cost of technologies that are going into hospitals. There’s a convergence between what is acceptable for healthcare today and what’s acceptable for consumers. For example, the tablet computer is an absolutely tremendous product for both consumers and professionals in medical imaging. The good news is quality medical solutions will come at strongly reduced, consumer-based pricing.”

#### **SHARING PATIENT DATA IN THE CLOUD**

Of course, data security will be critical to this evolution’s success. There’s going to be a paradigm shift, with hospitals changing from remote backup for permanent disaster recovery to cloud computing, says Dr. Dreyer. “In healthcare, patients move from location to location, and as they do, it’s very

difficult to get images to move with them. The cloud computing concept even offers greater security because the providers that offer such solutions are large data storage companies that are centered around data security. In contrast, 5,000 US hospitals in today’s cottage industry model are currently storing data by themselves. That’s not the best way to go. The big question is, when do you start to store things in the cloud? And in doing so, is it based on a patient-, provider-, or payer-centered view? The technology is the same but the marketing is different. New solutions are entering the market that not only encourage providers to allow access to patient data beyond their walls, but also to securely share this information back and forth with the patients themselves so they can make decisions by looking at their own medical information online.” •

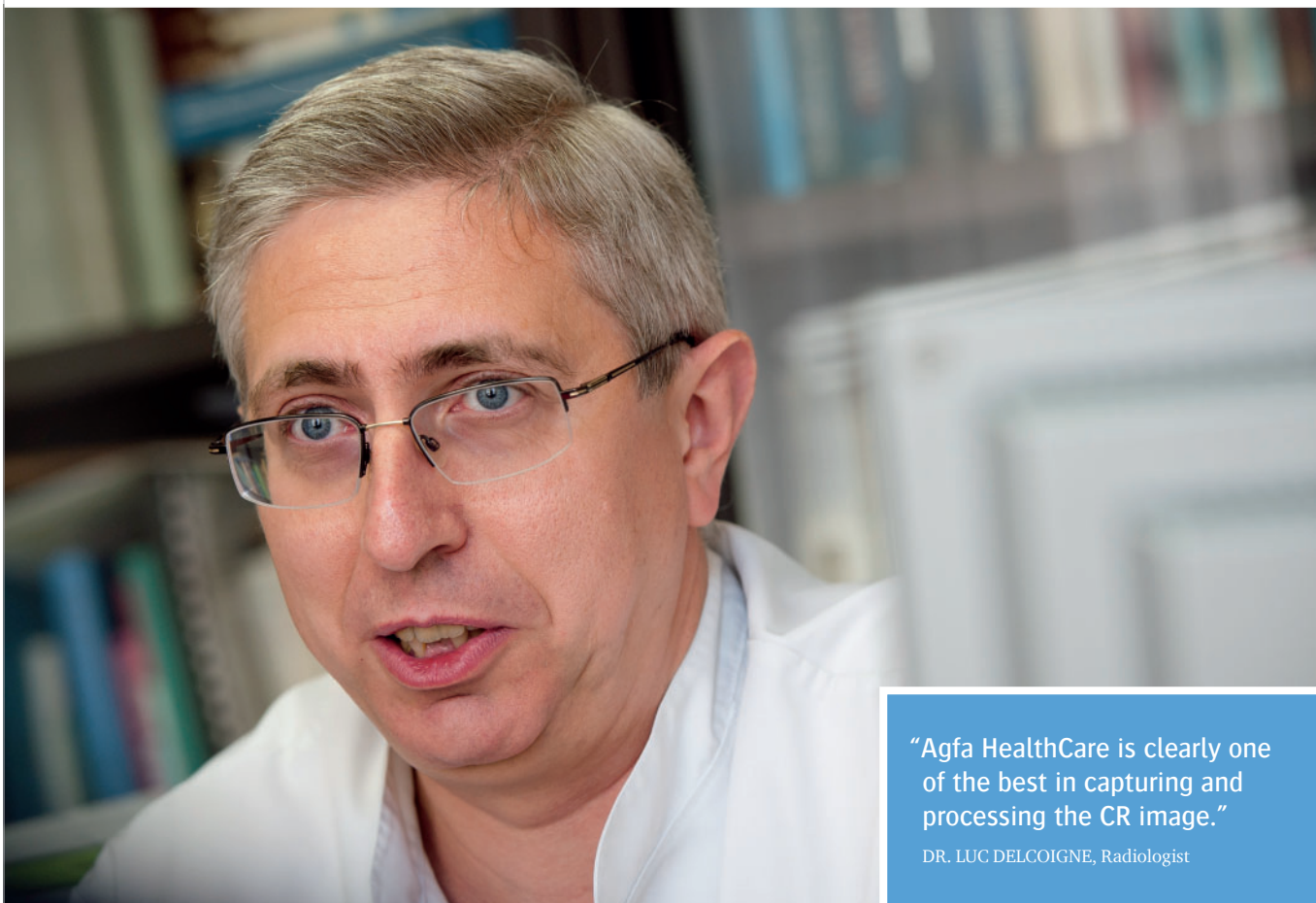
Looking at Dr. Dreyer’s achievements and activities, it is clear there’s little room for a social life. Discussions about work-life balance are wasted on Dr. Dreyer. His vision is as simple as it’s clear: “What many people consider hobbies is what I do as a job. I enjoy what I do. I love to program, practice medicine, lecture, write and teach. When starting companies or consulting with them, I make good friends with the people involved. I even tell colleagues of mine, ‘the best way to know me is to do projects together’. Spending quality, personal time on the golf course doesn’t happen in my life. Probably because I don’t play golf.”

PRIVATE PRACTICE DR. LUC DELCOIGNE, RONSE, BELGIUM

# “Family radiologist” adopts CR for mammography to lower patient dose

Patient-friendly imaging technology supports patient-radiologist relationship in local community practice

**INTERVIEWEE** Dr. Luc Delcoigne, Radiologist



“Agfa HealthCare is clearly one of the best in capturing and processing the CR image.”

DR. LUC DELCOIGNE, Radiologist

Private practice radiologist Dr. Luc Delcoigne strongly identifies with his family roots in Renaix, Belgium, which is Ronse by its Flemish name. He recently went for a complete line of Agfa HealthCare CR imaging and mammography solutions after a British National Health Service (NHS) study showed needle-based detector technology provides excellent image quality with a potential for significant patient dose reduction. As a “family radiologist” he owes that much to his loyal patients, he says.

Following in his father’s footsteps, Dr. Luc Delcoigne started his career as a General Practitioner at Ronse, one of Flanders’ most ancient towns and a good example of many Belgian, post-industrial locales seeking a new destiny. Ronse is an irrefutably multicultural community which has preserved much of its architectural beauty. Dr. Delcoigne’s practice in the town center is well-known by the locals. “When I became a radiologist, I wanted to be the medical imaging specialist of the many families that relied on my father for their health,” he smiles. “In my opinion, a radiologist

is a General Practitioner with the added specialty of imaging expertise.”

Dr. Delcoigne is anything but wary of technology. As the first private practice radiologist in Belgium, he installed a CT scanner as early as 1997. “As a sole practitioner, it inspires confidence in the patients and the referring doctors. They know I have the newest technology, but also the most reliable. As the only private radiologist outside the town hospital’s radiology department, I need to be flexible and reliable. I cannot afford to have patients wait for an examination



**“Patients find comfort and reassurance in meeting with the same family doctor on every visit.”**

DR. LUC DELCOIGNE, Radiologist

or have them go home because the equipment is not working.”

#### **POTENTIAL DOSE REDUCTION OF DX-M WITH BETTER IMAGE QUALITY**

Being a long-time user of Agfa HealthCare’s screen/film mammography solutions and CR solutions for general radiology, Dr. Delcoigne found the time right to make a new investment, combining his well-established need for flexible CR imaging with his growing activity in mammography. “I had been using the Agfa HealthCare screen/film solution for mammography, and wanted to move into digital. However, I was concerned about the higher radiation dose of CR mammography. Then I read about research by the NHS which mentioned needle-based detector technology, offering equal radiation dose as classical mammography.” Dr. Delcoigne was quickly convinced of the potential dose reduction and decided

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

- » Since the 13<sup>th</sup> Century, Ronse was a textile industry center. When Belgium became an independent country in 1830, more than half the city’s inhabitants earned their living through textiles.
- » The “language frontier” in Ronse began in the late 5<sup>th</sup> Century, as Roman culture withstood the reign of the Salian Franks.
- » The Ronse “Bommels” fest, which takes place annually in early January, is the first carnival of the year in Belgium. Its roots can be traced to the Middle Ages.

to install the Agfa HealthCare DX-M computed radiography mammography solution\*, which can also be used for general radiology. After just two months, he is clear about its benefits. “In general radiology, image rendering after capture is so fast that the images are waiting for me on the screen by the time I have repositioned the patient. It takes just 35 seconds to read the cassette and render the images. In breast imaging, I particularly appreciate the five-cassette buffer, allowing me to make mammography examinations on a continuous basis, with just two sets of cassettes. It takes a mere 10 seconds to transfer images to the DX-M and I have the image sets available on screen in less than 5 minutes. Agfa HealthCare is clearly one of the best in capturing and processing the CR image. And let’s not forget the small footprint and the fact that I have the best of relations with Agfa HealthCare experts.”

#### **DOSE REDUCTION OF UP TO 50% WITH DENSE BREASTS**

Connected to the DX-M CR solution is Agfa HealthCare’s IMPAX for Breast Imaging PACS solution. Dr. Delcoigne: “IMPAX is a multi-modality tool for both screening and diagnostic reviews. Given the current screening program in Belgium, all Belgian women of appropriate age are provided screening mammograms every two years. So within two years’ time, I will have priors of all patients coming in for breast screening digitally available on the IMPAX solution.”

Patients receive a CD-ROM of their examination, including DICOM images and an embedded DICOM viewer. “For breast imaging, we inform the gynecologist that these images require a 5 Mb pixel screen, but generally, they just rely on my reading to take the next steps. Like the patients, they also appreciate my

concerns about low radiation dose. With dense breasts, I find that dose reduction can even be as high as 50%, compared to conventional mammography. With Agfa HealthCare’s image processing software, MUSICA<sup>2</sup>, I can even further reduce dosage with shorter exposure times which still provide optimal image contrast.”

#### **RELIABLE, DIGITAL TECHNOLOGY BRINGS SOLO RADIOLOGIST’S PRACTICE OPTIMUM TO 25 – 30 PATIENTS DAILY**

“Some colleagues are astonished at my passion for technology,” smiles Dr. Delcoigne. “How do you make these investments profitable, they ask. Contrary to that thinking, I do not look at profitability as a straight line to increase the number of patients. It is more like a Gauss curve: I want the right number of patients to provide an optimal service. In a multi-modality solo environment, this would mean not more than 25 to 30 patients per day.” This volume allows the solo radiologist to see all patients personally and spend the necessary time discussing their health. “In my case, that’s what my patients expect of me and why I insist on working solo. Patients find comfort and reassurance in meeting with the same family doctor on every visit.” •

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

- » Support a solo radiologist’s private practice with reliable CR technology
- » Build a long-lasting relationship that reinforces the radiologists’ support of new technology

#### **SOLUTIONS**

- » DX-M solution for digital mammography and general radiography
- » Multi-modality IMPAX for Breast Imaging PACS solution

\* Note: The DX-M CR system is not cleared for mammography indication in the US.

# DX-D 500<sup>n</sup> DR technology helps small, 25-bed hospital thrive among larger Chicago-area providers

More than 19,500 procedures annually and a fast growing patient base require the throughput speed, image quality and operating ease offered by direct radiography

**INTERVIEWEE** Janey Ciontea, Diagnostic Imaging Manager



“Thanks to MUSICA<sup>2</sup>, images jump right out at you. The improvement in image detail is tremendous.”

JANEY CIONTEA, Diagnostic Imaging Manager

**A growing population from metro-Chicago’s westward expansion means potential new patients requiring more health exams at Valley West Community Hospital. With strong support from the 6,500 town residents and area physicians, the hospital is ready for growth. The radiology department embraced Agfa HealthCare’s DX-D 500<sup>n</sup> DR technology for its speed, image quality, workflow productivity, and straightforward simplicity comparable to legacy systems.**

This 25-bed short-term facility is part of KishHealth System, the primary service provider in DeKalb County with two

#### AGFA HEALTHCARE’S CONTRIBUTION

- » A wide range of digital solutions including CR, DR, RIS/PACS with web access, training and technical support
- » A decades-long partnership of achievement in Valley West’s continued success

hospitals and several specialty clinics. Valley West Community Hospital has Critical Access status and serves the rural area around Sandwich, encompassing a residential and farming population of about 40,000. It’s supported by local attending physicians providing healthcare expertise and services with a hometown feel. Quality and community service are key hospital goals.

“Many people here are lifelong residents, and it’s important to their emotional well-being to receive services from doctors and clinicians they know versus lengthy commutes to larger but more impersonal facilities in Chicago or its congested suburbs,” says Janey Ciontea, the hospital’s Diagnostic Imaging Manager.

But surviving in today’s financially tight healthcare environment requires more than being a friendly place where people

comfort you. “Thanks to being early adopters of information technology for healthcare, we strive to keep our procedures up-to-date so physicians will want to practice here, and in doing so, give residents, their family and friends a good reason not to leave town should hospitalization be necessary,” she adds.

#### SAME INTERFACE LOOK AND FEEL FOR CR AND DR FACILITATES MIGRATION

The health system implemented computed radiography digitizing back in 2002. In 2004, Valley West implemented Agfa HealthCare’s IMPAX PACS, a web-enabled solution. Following the installation eight years ago of a CR solution, incorporating Agfa HealthCare’s CR and NX workstation, the department wanted to modernize its second room. To support the growing population in the area, Valley West sought the throughput speed, image quality and operating ease offered by



“What impresses us most is how the DX-D 500<sup>n</sup> moves like a legacy X-ray system. Its free flowing tube head is quick and easy to position versus other digital units.”

JANEY CIONTEA, Diagnostic Imaging Manager



#### DID YOU KNOW...

- » When Valley West first opened, it served rural farming families. Today, it's on the edge of Chicago's outermost suburbs. IT-based healthcare helps it attract top doctors and clinicians.
- » Since 1888, Sandwich has hosted the annual Sandwich Fair, the oldest continuing county fair in Illinois and among America's largest antique fairs, drawing daily crowds of more than 100,000.

direct radiography despite the perception it was only cost-effective in high volume locations like mid-sized hospitals or major medical centers. In addition, Valley West felt there were certain examinations that benefited from a cassette-based workflow.

Janey Ciontea says the hospital's multi-vendor evaluation process eventually centered on Agfa HealthCare's new ceiling-suspended DX-D 500<sup>n</sup> high productivity DR system integrated with its latest CR digitizer, the DX-G, utilizing the NX workstation and latest version of MUSICA<sup>2</sup> image enhancement software. A key consideration was the workstation platform was similar to the station used for CR. “The technologists were already familiar with the NX workstation's image interface and management features, and envisioned an easy migration to the new DR room. The ability to take both CR and DR images in the same room was a plus,” she said.

The transition was quick and efficient, with the DX-D 500<sup>n</sup> being fully deployed within three days of its arrival at Valley West. After two days of training, the department's 14 technologists were able to examine patients almost immediately and send images to the IMPAX PACS. While the X-ray generator interface was different from CR, other functions like image management, editing, analysis and assessment were very similar, helping streamline the conversion.

#### DX-D 500<sup>n</sup> IMAGE QUALITY IMPROVES HOSPITAL'S REPUTATION AMONG PHYSICIANS; A CRITICAL BENEFIT FOR A SMALL FACILITY

“In addition to DR's image quality and workflow benefits, what impresses us most is how the DX-D 500<sup>n</sup> moves like a traditional X-ray system,” Janey Ciontea says. “Its free flowing tube head is quick and easy to position versus other digital units that too often require time-consuming sensor alignments to

perform an exam. Its X-ray table has a flat top design and is 35.5 inches wide, supporting 650 pounds. The table elevates off the floor to help mount the elderly or those with restricted movement. Its handling is very fluid, blending the best of the old with today's latest digital advantages.”

The DX-D 500<sup>n</sup> has an integrated generator and image storage folder management function allowing multiple images to be displayed on a single computer screen. As patient data is pulled off a worklist, technologists use NX workstation software to identify the exam and automatically set the DX-D 500<sup>n</sup>'s parameters to perform this exam. As the image begins to display in about three seconds, it can be quickly checked for overall quality and correct positioning right in the procedure room. It takes only an additional 10 seconds to reveal the entire field of view.

“The MUSICA<sup>2</sup> software is nothing short of excellent,” Janey Ciontea adds. “It's always been challenging to get optimal contrast and resolution in studies mixing bone with soft tissue. Either added exposures were taken or the doctor had to compromise one to achieve the other in a single view. Now, thanks to MUSICA<sup>2</sup>, resolution and contrast jump right out at you, without image burn out. The ability to have optimal detail for both is tremendous.”

There are also cost savings. Thanks to its fast display which enhances patient throughput, the department was able to balance its examination activities. “The DX-D 500<sup>n</sup> now performs nearly all general inpatient or outpatient studies, as well as ER cases,” she adds.

This in turn allows more time with the patient for improved care. “Having more and higher quality patient relations is a huge morale booster for technologists,” Janey Ciontea says.

“Then, there's the excellent ‘image’ of our hospital conveyed by the outstanding image quality seen by referring physicians,” she adds. “Many local practices have favorably commented on DR's excellent quality. Our X-ray results now equal or surpass those associated with huge radiology practices in much larger facilities.”

She concludes, “The DX-D 500<sup>n</sup> provides results at the forefront of medical imaging, and Valley West doctors and referring physicians appreciate having new technologies that reinforce their professionalism among patients and colleagues. It also facilitates their use of our hospital to keep residents in Sandwich when health issues arise. Best of all, it helps level the playing field with our big city neighbors. Everybody wins.”

#### SOLUTIONS

##### DX-D 500<sup>n</sup>

- » Ceiling-suspended high productivity DR system
- » Fluid, easy positioning thanks to ceiling suspension/ergonomic design
- » Combines best attributes of legacy X-ray systems with DR technology
- » Two Cesium Iodide detectors; excellent image quality with dose reduction potential
- » Fast image preview for enhanced productivity
- » Wide range of exams, including general, ER and pediatrics

##### NX workstation

- » Intuitive user interface, requiring minimal training for maximum effectiveness
- » Convenient workflow at point-of-care
- » MUSICA<sup>2</sup> advanced image processing software, automatically adjusting image to maximum parameters

##### DX-G

- » State-of-the-art image quality with potential dose reduction
- » Uses standard phosphor plates or needle-based detectors
- » Unique multi-cassette drop-and-go buffer helps speed exams
- » Small, convenient footprint

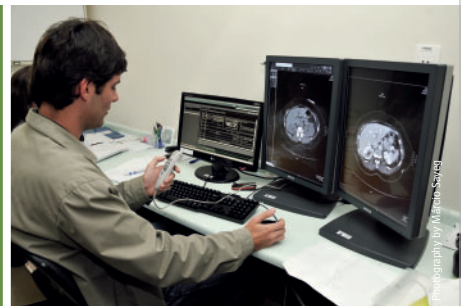
# Challenging transition to digital takes São Paulo hospital closer to its patient care and quality goals

Gradual introduction of CR/RIS/PACS solutions assisted by Agfa HealthCare specialists leads to improved patient flows, access from anywhere to examination results and images, integration with patient EMR through a unified HIS and improved diagnostic quality

**INTERVIEWEE** Gilberto Rocha, Information Technology Director

“Agfa HealthCare made the transition to digital possible in a non-invasive manner, with a measured transfer of resources.”

GILBERTO ROCHA,  
Information Technology Director



Irmandade Santa Casa de Misericórdia is a major hospital group in Latin America's largest city, São Paulo. With Agfa HealthCare's support, the investment in a five-year transition to CR/RIS/PACS solutions has improved both the diagnostic and logistic quality of patient care. It also increased the hospital's cost-efficiency and productivity, and made it a more attractive place to work for technologists, physicians and medical staff.

In the heart of São Paulo, Latin America's largest city, Irmandade Santa Casa de Misericórdia has long lived up to the challenge of providing charity healthcare to those in need. Founded in the 1500s, Irmandade Santa Casa de Misericórdia is a non-profit, philanthropic institution that provides care to patients from the public healthcare system as well as private patients, reinvesting the funds obtained privately for the benefit of the entire hospital group.

Currently, the institution takes care of approximately 5,000 patients per day and yearly performs more than 254,000 radiology examinations. All of this constitutes an immense daily challenge to both staff and technology, as well as the patients.



Photography by Marco Savio

## AGFA HEALTHCARE'S CONTRIBUTION

- » Ability to propose realistic solutions that address the project's complexity as well as the customer's existing workload and ambitions
- » Reliable, consistent, and knowledgeable support
- » Understanding user needs and responding accordingly
- » Providing training to users

## ENORMOUS CHALLENGE TO CONVERT ENTIRE MULTI-SITE ENTERPRISE TO DIGITAL

With 2,000 patient beds across ten hospitals, in addition to outpatient facilities, emergency care units as well as training centers, the hospital group's radiology department was facing a growing challenge to provide timely and efficient care to its patients and referring doctors. "Every month, 9,000 general X-rays are performed at the Central Hospital alone, complemented by 1,300 US scans, 1,000 MRI studies, 2,600 CT procedures and 1,000 mammography exams," says Gilberto Rocha, Director of Information Technology. "The transition to digital seemed essential, if nothing else to improve the turnaround time for results."

After the hospital group's Corporate Board approved the radiology department's request to transition to a digital radiology workflow, three core units were selected to pilot the conversion: the Central Hospital, a large outpatient clinic facility called Ambulatório de Especialidades Geraldo Bourroul, and Hospital Santa Isabel, which provides care to privately insured patients. "An additional complexity for this pilot phase involved separate HIS platforms between the facilities: the Central Hospital and the outpatient clinics used their own proprietary system, but Santa Isabel used a third-party HIS," explains the IT Director.

A relationship with Agfa HealthCare was established, and priority was given to integrate the department's CR/RIS/PACS solutions with two pre-existing HIS databases. An Agfa HealthCare RIS was

installed in all administrative services, from scheduling to reporting. Two Agfa HealthCare CR solutions, a CR 35-X system for decentralized radiography and a CR 85-X system for centralized environments, including 13 diagnostic workstations with 3D reconstruction capability, were linked to an Agfa HealthCare IMPAX solution.

The complete solution became operational earlier this year. There were dramatic changes: "We had a major gain in report turnaround time to consulting physicians," says Gilberto Rocha. "Digital images are rapidly available to radiologists and the diagnostic report is entered directly into the IMPAX solution through a speech recognition tool." The number of images system-wide is expected to increase from 25,000 to 30,000 per month.

## GRADUAL TRANSITION SUPPORTED BY WELL PREPARED TRAINING PROGRAM

The benefits of the digital workflow extend throughout the group. Physicians can now access patient data and images at any site, be it intensive care units, walk-in centers, surgical suites or medical offices. They can even access images from their homes through the Internet. Patients benefit from a more efficient workflow that comes from easy access to prior examinations and patient EMR data. The pilot phase involved 500 users, from administrative staff scheduling exams to radiologists responsible for reports as well as physicians needing exam findings to manage their patients. The subsequent training effort was well prepared and scheduled. "All our physicians were trained by Agfa HealthCare staff, while we trained key users among department administrators and technologists," explains Gilberto Rocha. The continuing relationship with Agfa HealthCare was especially important after system inauguration because of the inevitable need for adjustments. "The Agfa HealthCare team has worked in close collaboration with us throughout the transition," says Mr. Rocha.

"Agfa HealthCare made the conversion to digital possible in a non-invasive manner, with a measured transfer of resources lasting up to five years. As a philanthropic institution, this approach was essential to us, given the huge daily workload of our radiology staff and the fundamental changes digital workflows entail in our working environment. This is why we are grateful that Agfa HealthCare specialists,

including a full-time Agfa HealthCare project manager assigned to Santa Casa, worked with us throughout the entire process and configured, implemented, and integrated their solutions with both HIS platforms. "With this experience in mind, we expect to eventually implement a unified HIS in all associated units," says Mr. Rocha, "and we plan to use the experience acquired with this first PACS to extend the system to other locations. It is part of our strategic IT planning." •

## SOLUTIONS

### RIS/PACS:

- » Contains all images and supporting data from conventional or digital studies and makes them accessible within a department, hospital, region or worldwide
  - » Reduces administrative workload through more expedient digital workflows
  - » Maximizes staff productivity
  - » Dramatically shortens report turnaround time
- ### CR 35-X and CR 85-X
- » Highly versatile, small footprint CR digitizers suitable for a broad range of applications including general radiology, pediatrics, orthopaedics and extremities

## DID YOU KNOW...

- » The hospital is well known for its museum which displays hundreds of medical instruments including one of the first X-ray units imported to Brazil.
- » The museum also houses an incredible 15<sup>th</sup> or 16<sup>th</sup> Century artifact: the 'foundling wheel', a wooden cylinder built into a wall where babies were anonymously left to be cared for and raised in the institution.
- » Records account for over 4,000 babies who over the centuries were taken in by Santa Casa through the wheel.
- » Houses of Mercy (Misericórdias) are philanthropic institutions created in Portugal in 1498 to provide care to those in need. There are at least 26 Houses of Mercy in Brazil.



Photography by Márcio Sayeg

"We had a major gain in report turnaround time to consulting physicians."

GILBERTO ROCHA,  
Information Technology Director

# Evolving technology fosters closer look at **DX-D 300 DR for outpatient use**

Credit Valley Imaging Associates discovered many cost and image quality benefits when it evaluated the latest DR imaging solution to update its practice

**INTERVIEWEES** Heather Gillis, General Manager · Dr. Stephen Florence, Radiologist and Managing Partner · Mary Ann D'Souza, Technologist



Already proven for high-volume imaging in busy hospital radiology departments, the DX-D 300 DR technology's speed and image quality benefits are today being accepted by stand-alone imaging centers.

For many radiology departments and community-based imaging centers, technology choices were historically based on price and patient throughput. Take Credit Valley Imaging Associates (CVIA) in Mississauga, Ontario, for example. It needed to replace aging imaging units in two procedure rooms. However, it also wanted to improve efficiency, image quality and patient throughput. With space at a premium, Heather Gillis, CVIA's General Manager, decided to take a closer look at Agfa HealthCare's new DX-D 300 floor-mounted direct radiography system.

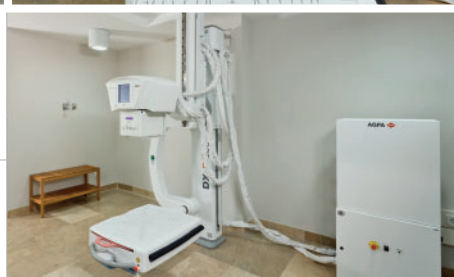
The radiology group that owns CVIA has a strong relationship with Agfa HealthCare at the local hospital. For

Heather Gillis, key decision factors were: competitive pricing, supplier relationship, service quality, and most importantly, improved image quality and patient care. Last year, CVIA became the first site in North America to install the Agfa HealthCare DX-D 300 DR system.

## **DR'S SPEED LETS ONE PROCEDURE ROOM HANDLE ALL STUDIES; SECOND ROOM CLOSED**

Since installing the DX-D 300 in one of the two rooms, Heather Gillis has seen both workflow efficiency and image quality improvements that also translate into fewer repeat and secondary studies.

"Our efficiency has improved to the point that we have now closed down the second



"We can examine more patients because positioning time has decreased since we're performing more examinations in convenient upright positions, and the image is captured within three seconds."

HEATHER GILLIS, General Manager

“Once we select the view, we use the remote control to move the unit right into position. We just align the patient and take the exposure without any steps in between to delay the process.”

MARY ANN D’SOUZA, Technologist



“By downsizing to one DR room from two original CR procedure rooms, we have reduced our labor costs.”

DR. STEPHEN FLORENCE, Radiologist and Managing Partner

procedure room and utilized this space for additional imaging services,” she says. One room with its original equipment was kept intact for a few months just in case there was any downtime with the new DR unit. That never happened, and Heather Gillis is now confident the one DR room will keep pace with the volume that two previously handled.

“The fact is we can examine more patients because positioning time has decreased since we’re performing more examinations in convenient upright positions, and the image is captured

within three seconds.” Perhaps most important is the gain in image quality achieved with the DX-D 300. According to Heather Gillis and Mary Ann D’Souza, Technologist, various physicians immediately saw the difference.

Says Dr. Stephen Florence, Radiologist and CVIA Managing Partner, “There is significant improvement in contrast and resolution, and better penetration of the mediastinum. As a result, we’ve achieved a higher level of diagnostic confidence, particularly concerning small nodules and interstitial lung disease with an overall better evaluation of the mediastinum.”

Even referring physicians have seen the difference in image quality. Both Dr. Florence and Heather Gillis have received feedback from Dr. Ronald Grossman, a pulmonologist at nearby Credit Valley Hospital, that the DX-D 300’s image quality is so much better than other digital systems that he can evaluate the patient’s condition based on the chest X-ray and refer fewer patients for chest CT. And that, of course, helps further reduce a patient’s lifetime radiation dose.

Beyond image quality improvements, Dr. Florence is also impressed with the system’s efficiency. “By downsizing to one DR room from two original CR procedure rooms, we have also reduced our labor costs,” he adds.

Plus, he notes that with a new ‘U-arm’ on the DX-D 300, the detector can be positioned lower than other units so patients requiring weight-bearing knee or foot studies can stand on the floor versus balancing on a step-stool or other elevated furniture.

### TECHNOLOGISTS FIND SYSTEM EASY TO USE

To help transition to DR, Mary Ann D’Souza recommends that facilities evaluate the imaging chain and rethink workflow to take advantage of the system’s speed. Not only does the DX-D 300 offer faster patient throughput, but D’Souza is also very impressed by the system’s ease-of-use, estimating a time-saving of five minutes per patient study.

Her favorite feature is its infrared remote control. “Once we select the view, we use the remote control to move the unit right into position. We just align the patient

## SOLUTIONS

### DX-D 300

- » 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

and take the exposure without any steps in between to delay the process.”

She also believes technologists may be taking fewer exposures for each study. The system’s large field-of-view enables a long chest capture in one exposure rather than two. Also, the DX-D 300 image processing algorithms help reduce the amount of window leveling or other image adjustments. Other systems often require additional image manipulation, and specific regions of interest may not be captured on a single exposure, mandating others be made. Over time, this can increase a patient’s lifetime X-ray exposure.

While the gain in image quality is most important, the efficient patient throughput also impresses Heather Gillis. “This is such a vast improvement in technology,” she says. As CVIA continues to use the new DR system, she is ready to renovate the former second procedure room for new services in the very near future. •

## DID YOU KNOW...

- » The DX-D 300’s motorized arm rotation, height, source-image distance and detector rotation can be adjusted three ways: via its console, infrared remote control, or buttons on the tube head and bucky.
- » Located west of Toronto, Mississauga is Canada’s sixth most populous municipality. It has nearly doubled in population in each of the last two decades.

## 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. Optional MUSICA<sup>2</sup> image processing delivers consistency and excellent contrast detail.

# IMPAX closes Queensland's reporting gap

Agrarian communities have equal access to speedy diagnoses and real-time specialist opinions

**INTERVIEWEE** Dr. Lawrence Sim, Director of the Radiology Informatics Support Unit



Photography by Michael Marston  
© The State of Queensland

“Using teleradiology reporting has reduced the report turnaround times to 24 hours or less and in urgent cases specialist opinion can be sought instantly.”

DR. LAWRENCE SIM, Director of the Radiology Informatics Support Unit

One of the greatest challenges for Queensland Health, responsible for healthcare services for the state of Queensland in Australia, is the sprawling geography of the 1.7 million km<sup>2</sup> state. Of the state's approximately 4.6 million inhabitants, about 15% live in agrarian settings. Thanks to Queensland Health's state-wide implementation of Agfa HealthCare's RIS/PACS solution, a large-scale project that includes 97 facilities across the state, residents now have equal access to specialist opinions and diagnoses, whether they live in a city, town or in a more agrarian setting.

Improving the level of healthcare services provided to all residents and ensuring consistency across the state is a priority for the Queensland Government. To achieve this, the state has strengthened its focus on eHealth and introduced new technologies that deliver benefits both to patients and to healthcare administrators.

The Radiology Support Group at Queensland Health started from this strategic priority and translated it into a single, over-arching goal: to close the reporting gap. Dr. Lawrence Sim is Director of the Radiology Informatics

Support Unit, within Radiology Support. “The remote radiology reporting network that has been established is a significant improvement on what previously existed,” he says. “Before its implementation it took up to two weeks for a report to come back. Using teleradiology reporting has reduced the report turnaround times to 24 hours or less and in urgent cases specialist opinion can be sought instantly.”

## 130 HEALTH FACILITIES WAITING TO GET CONNECTED WITH A PACS SOLUTION

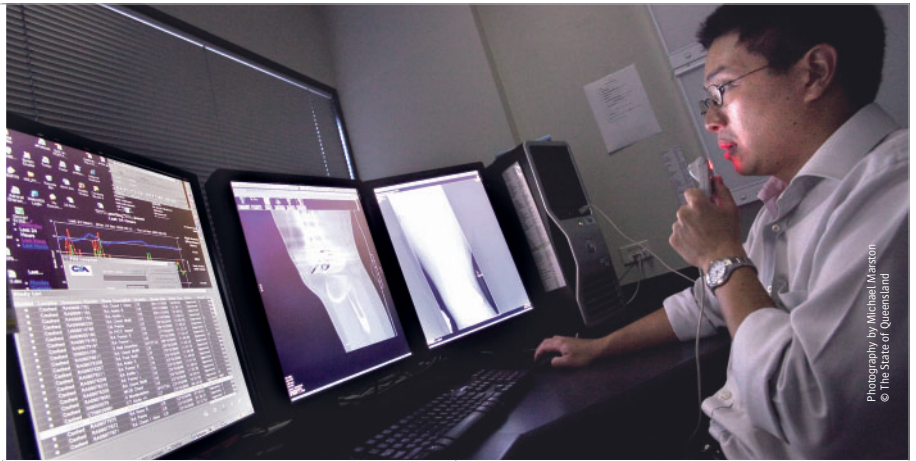
At the beginning of the project, there were 130 facilities across the state performing X-rays, for a combined total of about 1.3 million studies per year. Eighty-five of the sites had no online radiology reports, and 110 sites had no access to images online. Images needed to be printed or burned to CD, and then mailed or couriered to a radiologist for review.

“Sometimes they could wait 24 hours for a return, if they were reasonably close,” says Dr. Sim. “But some of these locations are 1,000 kilometers away from the nearest town, and they could wait days, or even weeks, for a return on the report.” For Queensland Health, it was clear that new technology was needed in order to close the reporting gap.

Agfa HealthCare has been involved with Queensland Health since 1997. That’s when the first IMPAX PACS was installed at the Royal Children’s Hospital in Herston. Two other hospitals installed IMPAX in 1999, and when Queensland Health issued a tender for a state-wide RIS in 2004, it was awarded to Agfa HealthCare. As the RIS project was being implemented, Queensland Health decided to launch PACS state-wide as

“The teleradiology system has enabled Queensland Health to provide improved healthcare services to people living in agrarian and remote locations.”

DR. LAWRENCE SIM, Director of the Radiology Informatics Support Unit



Photography by Michael Mason © The State of Queensland

well, and Agfa HealthCare won that contract in 2009.

### WITH IMPAX REPORT TURNAROUND TIMES AMOUNT TO HOURS, RATHER THAN DAYS

Today, the RIS/PACS implementation is for the most part complete. Queensland Health’s remote sites now have a system that delivers reports with turnaround times measured in hours, rather than days. This allows doctors in the remote communities to provide a level of clinical service that they simply could not provide before.

Because the images are digitized and sent to a central PACS, it’s also possible to refer to different specialists in large hospitals for clinical consults. This helps local doctors make more informed decisions on treatment, including whether to treat patients locally, or, if necessary, fly them to a major hospital for treatment.

### TELERADIOLOGY FACILITATES REMOTE ACCESS

For the larger urban hospitals, the implementation means they can now view images from up to 65 acquisition locations, manage workflow more effectively and even consult on images with specialists in other jurisdictions.

“The teleradiology system has enabled Queensland Health to provide improved healthcare services to people living in agrarian and remote locations. It has reduced the need for patients to travel to access services. It is also providing greater opportunities for peer education and clinical support to healthcare workers working in agrarian and remote locations,” says Dr. Sim.

For Dr. Sim and his team, now that the implementation is complete, work

continues on performance improvements, with a software upgrade to the latest version of IMPAX and evaluation of new viewing technologies. “Basically, with respect to RIS, and PACS, and beyond, it’s all about providing access to information,” concludes Dr. Sim. •



Photography by Michael Mason © The State of Queensland

#### DID YOU KNOW...

- » Every day the Queensland Government spends \$28.332 million AUD (approx. 21 million euros) on public health services.
- » Because of its large land area, Queensland has a low population density with about 2.6 people per square kilometer.
- » Less than 50% of Queensland’s population lives in its capital and largest city, Brisbane.
- » Queensland is the second-largest state, after Western Australia.

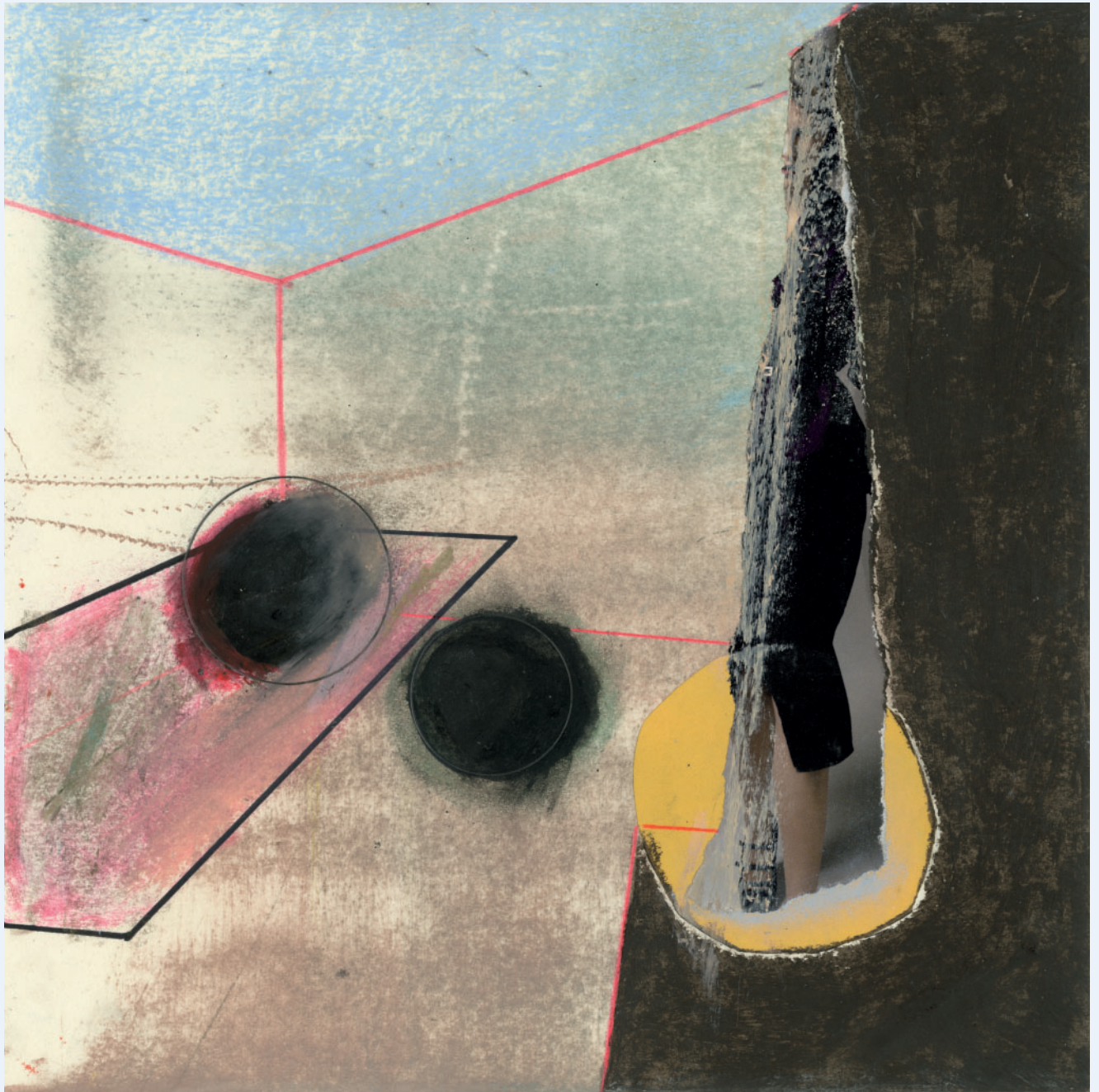
#### AGFA HEALTHCARE’S CONTRIBUTION

- » Ability to manage very large-scale implementations from inception to implementation, and beyond
- » Strong local team backed by global experts
- » Long history and experience in radiology world

#### SOLUTIONS

##### IMPAX Enterprise

- » Comprehensive and fully integrated, web-enabled image and information management solution that includes IMPAX RIS, IMPAX 6, IMPAX Reporting and IMPAX Services



OBSCURE-MOI  
Anne-Mie Van Kerckhoven



# New Technologies

## SKINTELL OCT visualizes skin non-invasively

The Agfa HealthCare SKINTELL Optical Coherence Tomography (OCT) imaging solution represents a crucial step in understanding human skin and all its intricacies

SKINTELL OCT is to dermatologists what the stethoscope is to lung specialists. It's a non-invasive technique employing infrared light optics to examine the epidermal and the superficial dermis morphology that successfully overcomes some of the considerable limitations of classical biopsies.

Developed fifteen years ago, Agfa HealthCare has now improved the axial and lateral resolution of the images in a way that even individual cells can be detected. It is non-invasive, fast and allows for immediate diagnosis based on accurate and detailed epidermal images. Taking only five minutes to acquire, render an image and make a diagnosis, SKINTELL OCT eliminates the typical two-week wait for biopsy lab results as well as rescheduling the patient for a second consultation. Patients appreciate the speed and real-time image analysis resulting in greater confidence in their doctor.



Furthermore, the absence of iatrogenic trauma associated with classical biopsy means that measuring can happen at the very same place on the dermis every time, ideal and essential for observing skin trauma, treatment efficiency, and natural recovery over time. OCT also facilitates the safer use of classical biopsy by confining its use only when truly needed. Many dermatologists report that once they get used to reading OCT images, they perform fewer biopsies.

SKINTELL creates images of human skin and corresponding close-to-surface tissues without open wounds. It can also measure dimensions in skin layers with a penetration depth up to 1 mm, providing an extensive perspective. In addition to examining dermatological conditions, SKINTELL is useful in the pharmaceutical and cosmetics industries.

It is currently available only in select European countries.

# Mobile breast cancer screening shifts into high gear

Agfa HealthCare's DX-M solution for mobile mammography praised by screening specialists

**INTERVIEWEES** Associate Professor Dr. Edgar Rinast, Physician-in-Charge, Screening Unit Hessen 3  
Gunther Zengel, Planner and Consultant for Medical Technology



“The DX-M solution has made all our expectations turn into reality. Technologists as well as patients benefit from a smooth, accelerated workflow. Its high quality images allow for the precise identification of microcalcifications.”

Associate Professor DR. EDGAR RINAST,  
Physician-in-Charge, Screening Unit Hessen 3

Part of Germany's nationwide mammography screening program, the Screening Unit Hessen 3 has recently introduced a mammography trailer outfitted with Agfa HealthCare's DX-M computed radiography solution\* to provide women of the Wiesbaden region with primary breast cancer diagnoses. The DX-M CR system proved to be a mobile-proof solution, rugged enough to cope with road conditions.

Close to 100 screening units make up the country's nationwide mammography screening program. All women aged between 50 and 69 are given biannual screenings; services are coordinated by several so-called “central offices” and overseen by five reference centers. Several radiology associations have drafted guidelines on examination methodology and corresponding infrastructure. The healthcare authorities made a financing agreement with health insurers to ensure screening would be free to all patients.

## MOBILE SERVICE MAKES SCREENING WIDELY ACCEPTED

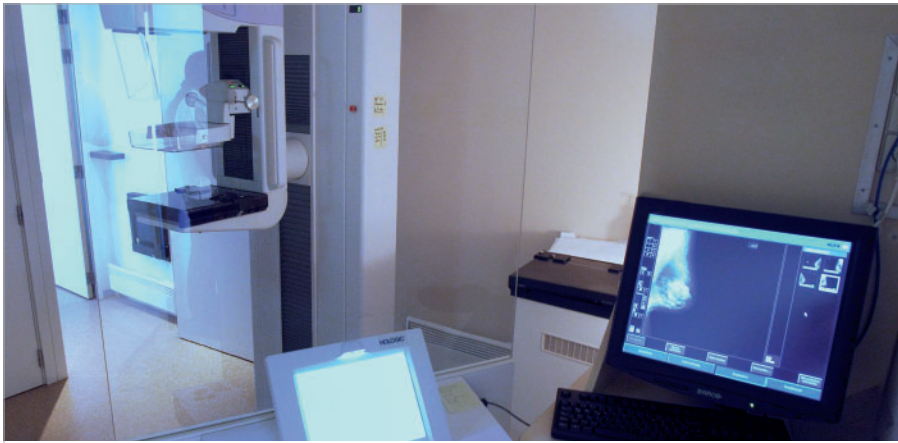
Screening Unit Hessen 3 was selected as a test project for mammography screening when the German government decided to launch its nationwide program. The unit operates at two fixed sites in

Wiesbaden and Bad Homburg, along with a mammography trailer, which ensures ready access for women living in rural areas. Interestingly, the mobile service in these rural areas has higher participant rates than in cities. At the screening unit, four mammography devices are used in a digital environment – two at Wiesbaden, one at Bad Homburg, and one in the trailer.

The screening program completed its trials using conventional imaging methods. Recently, the managers of the screening unit decided to modernize the service by converting to digital imaging. “We realized the time had come to tap the potential which digitization has to offer,” explains Associate Professor Dr. Edgar Rinast, one of two Physicians-in-Charge at the screening unit.

## DID YOU KNOW...

- » Around 100 screening units make up Germany's nationwide mammography screening program. All women aged 50-69 are entitled to biannual screenings.
- » The word ‘Bad’ in Bad Homburg refers to ‘bath’, as in medicinal mineral springs. A booming spa industry developed there in the mid-19<sup>th</sup> Century.



### DX-M SOLUTION'S RUGGEDNESS BEST SUITED FOR ON-THE-ROAD TRAILER CONDITIONS

“Through digitization, we expected to accelerate workflows, achieve cost benefits and make images accessible anywhere anytime,” underlines Associate Professor Dr. Rinast. “When we analyzed solutions on the market, our top criteria were low X-ray dosage, exam speed and simplified handling, obviously within the framework of the screening guidelines.”

Different methodologies investigated during the screening program included full-field digital mammography (FFDM) and phosphor plates. However, one solution offered both full-field digital mammography and novel, needle-based detectors for image acquisition – the Agfa HealthCare DX-M digitizer. It's the only CR-based solution on the market that unites excellent image quality necessary for mammography with high throughput, delivered by a ‘drop-and-go’ buffer-based workflow. The DX-M digitizer stands out thanks to its high image quality with potential dose reduction on the one hand, and reduced upfront investment and cost of ownership on the other.

Moreover, it allows for refitting existing equipment, where FFDM requires installing completely new hardware infrastructure. “Also, the DX-M proved to

**“The cassette-based DX-M proved to be the most mobile-proof solution, with no need for constant cooling and rugged enough to cope with bounces incurred by the moving trailer.”**

GUNTHER ZENGEL, Planner and Consultant for Medical Technology

be the most mobile-proof solution, with no need for constant cooling and rugged enough to cope with bounces incurred by the moving trailer,” explains Gunther Zengel, planning and consultancy partner on the project. “Compared to phosphor plates, dose requirements of this needle crystal system are significantly lower, which provides a key advantage to patients,” he adds.

### MINIMUM DISRUPTION; RAPID RESUMPTION OF OPERATION

The trailer's existing imaging infrastructure was refitted by Agfa HealthCare in less than two weeks, including the special mobile image acquisition device. This was an important aspect because two-year intervals for screening women are very exact, which discourages longer interruptions of operation.

“We are highly satisfied with the DX-M-based workflow,” adds Associate Professor Dr. Edgar Rinast. “At the end of the day, all images are sent on a hard disk to Wiesbaden where they are uploaded into the PACS. Radiologists then read the images and write reports.” Screening Unit Hessen 3 carries out approximately 700 screening studies per week which translates into about 2,800 images, or a total of 5,600 images with previous studies for comparison.

Digital archiving will eventually improve this aspect as well. Displaying a large number of previous images on multiple film alternators often creates confusion and potential errors, resulting in more chaotic work. However, this risk will soon be largely eliminated with the digital system because previous studies will be managed and displayed electronically with numerous safeguards. The transition period to a fully digital archive for the screening unit will be two years.

Until then, previous studies will need to be displayed on film alternators next to the digital images. According to Associate Professor Dr. Edgar Rinast, technologists appreciate the quick, simplified image control immediately after capture, which leaves them more time to spend with patients.

“The DX-M solution has turned all our expectations into reality,” summarizes Associate Professor Dr. Rinast. “Technologists as well as patients benefit from a smooth, accelerated workflow. Furthermore, high quality images acquired support the precise identification of microcalcifications”. The DX-M solution is currently used in the radiologist's imaging center for general radiography, and more specifically for thorax and bone imaging. •

### AGFA HEALTHCARE'S CONTRIBUTION

#### DX-M with mobile kit

- » DX-M images can be displayed, evaluated, and validated immediately.
- » Digital workflow moves quickly, and images can be sent rapidly to workstations at a fixed site via, e.g., UMTS.
- » Potential for radiation dose reduction.
- » The system helps digitize mobile mammography services at comparatively low cost.

### SOLUTIONS

- » The DX-M is based on innovative needle crystal technology and provides top image quality with the potential for lower radiation dose.
- » The mobile kit for DX-M allows for quick and easy conversion of existing analog mammography equipment, turning it into a modern digital imaging device.

# Joint IMPAX PACS solution brings more consistent, unified and productive patient data displays to merged hospitals

Palmetto Health's high quality care combined with free or reduced-cost health services are made possible by an enterprise-wide IT network supported by Agfa HealthCare's IMPAX 6.5 PACS

**INTERVIEWEES** Michelle Edwards, Senior Vice-President & CIO · Pat Stevenson, PACS Administrator



"We have a full EMR for each patient that instantly follows them as they traverse the organization."

MICHELLE EDWARDS,  
Senior Vice-President & CIO

## COMMUNICATIONS BETWEEN ALL LOCATIONS KEY IN COST-EFFECTIVELY PROVIDING QUALITY CARE

Hospitals and Health Networks magazine recently rated Palmetto Health as one of 99 "Most Wired" organizations in America. This puts tremendous challenges on its IT and PACS networks to keep pace with ever-increasing change, both in technologies and workflow processes that benefit patients through enhanced support of all clinical staff.

"Patients move between physicians, consulting doctors, clinicians and facilities with incredible regularity," says Michelle Edwards, Senior Vice-President and CIO at Palmetto Health. "We today have a full EMR for each patient that includes a single sign-in access portal to PACS images encompassing those from cardiology, which instantly follows them as they traverse the organization. And we're always deploying new systems to pass information across entire clinical teams wherever they're located to better manage patient conditions and outcomes."

As an example, she cites growing staff use of wireless tablet PCs throughout Palmetto facilities to record and transfer data, maintain contact with primary caregivers, as well as go paperless.

To cultivate their decades of community service, two major providers in the State of South Carolina's capital, Columbia, combined more than a decade ago to form Palmetto Health, today a five-hospital group. Both were long-time users of separate IMPAX PACS solutions. A smooth and highly successful fusion of both into a single IMPAX 4.5 solution in 2005 and upgrade to IMPAX 6.5 this year brings one of the most extensive desktop menus in the industry to the radiologists, with advanced image processing for most modalities, which contribute to a consistent and productive EMR from a single portal.

The initial creation of Palmetto Health has today resulted in five separate hospitals, including individual heart

and children's facilities, and one more under construction. All Palmetto Health resources combined have 1,138 beds and employ 8,400 people. The system treats nearly half a million patients annually.

Charity care, where no payment for services is expected, provided by Palmetto Health in 2009 was almost five times greater than 2001, increasing from \$33.5 million to more than \$157 million. In addition, there are many reduced-cost services including an on-campus Dental Health Clinic and a partnership with another with special offerings to HIV/AIDS patients. There's also a unique clinic treating sickle cell anemia as well as outreach programs to those aged 55 and over, teens, and cancer patients, among others.

Photo courtesy Palmetto Health



“The new IMPAX version came up and ran well. It was a non-event for the radiologists.”

PAT STEVENSON, PACS Administrator



“IT provides the infrastructure and solutions to report, access and store data for more streamlined workflows,” Michelle Edwards adds. “Nearly all clinical patient data is kept on the EMR with the goal of bringing remaining Palmetto Health departments online by next year.” Furthermore, interfaces allow data exchanges from clinical to billing systems that minimize manual data entry, costly typing errors and wasted time.

**ENTERPRISE IMPAX PACS ENHANCES EMR’S ABILITY TO DISPLAY MORE PATIENT DATA FOR BETTER WORKFLOWS**

Palmetto Health’s system-wide radiology service performs more than 380,000 general, specialty and cardiovascular imaging procedures annually using the latest CT, MRI, PET, NM and DR, CR and FFDM. A separate data center houses its PACS servers, securely accessed either wirelessly or through hardware links between sites. Desktop line speeds of 1 Gb are available at most Palmetto locations.

PACS Administrator Pat Stevenson says the relationship with Agfa HealthCare predates the 1998 consolidation as both of the then separate hospitals used earlier versions of IMPAX PACS. “We stayed with IMPAX for the next decade, upgrading software for the system as new features proved beneficial in supporting our growing operations.”

**DID YOU KNOW...**

» Palmetto Health is the only hospital group in the state to be named for four consecutive years by Modern Healthcare magazine as one of the ‘Top 100 Best Places to Work’ in healthcare nationwide.

But with overall IT services flourishing, the need for a single, enterprise-wide PACS capable of supporting an integrated EMR as well as combined clinical reports from other medical departments was most apparent, she adds. Competitive bidding for this centralized platform linking all locations resulted in 10 contenders, which the group’s selection committee narrowed to five, and finally, the selection of Agfa HealthCare. A deciding factor was inclusion of Palmetto Health in clinical field trials for the then newest edition of IMPAX in 2006, version 6.0.

**NEW IMPAX 6.5 FACILITATES FAST, HIGH-QUALITY SERVICE FOR IMPROVED PATIENT OUTCOMES**

“We knew this solution was already proven in the enterprise environment, and the ability to easily migrate data from previous IMPAX platforms greatly guided our selection,” Pat Stevenson says. “The newest release also helps us better manage our caseloads by quickly identifying critical tasks for higher quality patient care.”

She adds not only does IMPAX 6.5 provide high-quality images, it offers a single sign-in portal to the EMR as well as full-featured desktop menus with advanced image processing for most modalities. It includes teaching file management and a fully integrated Nuclear Medicine processing function.

Agfa HealthCare IT specialists ensured the upgrade was well-planned and executed smoothly. “It was a non-event for the radiologists. The new version came up and ran well, and any minor concerns were addressed on the spot. New features including advanced

multi-slice CT and MRI navigation, the enhanced worklist manager, and specialized applications for displaying digital mammography are highly valued by radiologists and referring physicians because they simplify data compilation for quicker reporting. Its management of FFDM imaging is also important in making our highly visible Women’s Care services more efficient.”

She concludes, “Even software features from earlier IMPAX versions that our team had voiced liking at user group meetings were actually retained in the new solution. Agfa HealthCare really listens to its customers, a quality we appreciate.” •

**SOLUTIONS**

**IMPAX PACS**

- » Workflow optimized for different users in an enterprise – medical; clinical; administrative
- » Web-deployable for access from any location – local or remote
- » Enhanced worklist manager and advanced CT/MR navigation facilitate faster service to improve the delivery of care to patients
- » Seamless, efficient upgrades
- » Integrates disparate information systems at the desktop

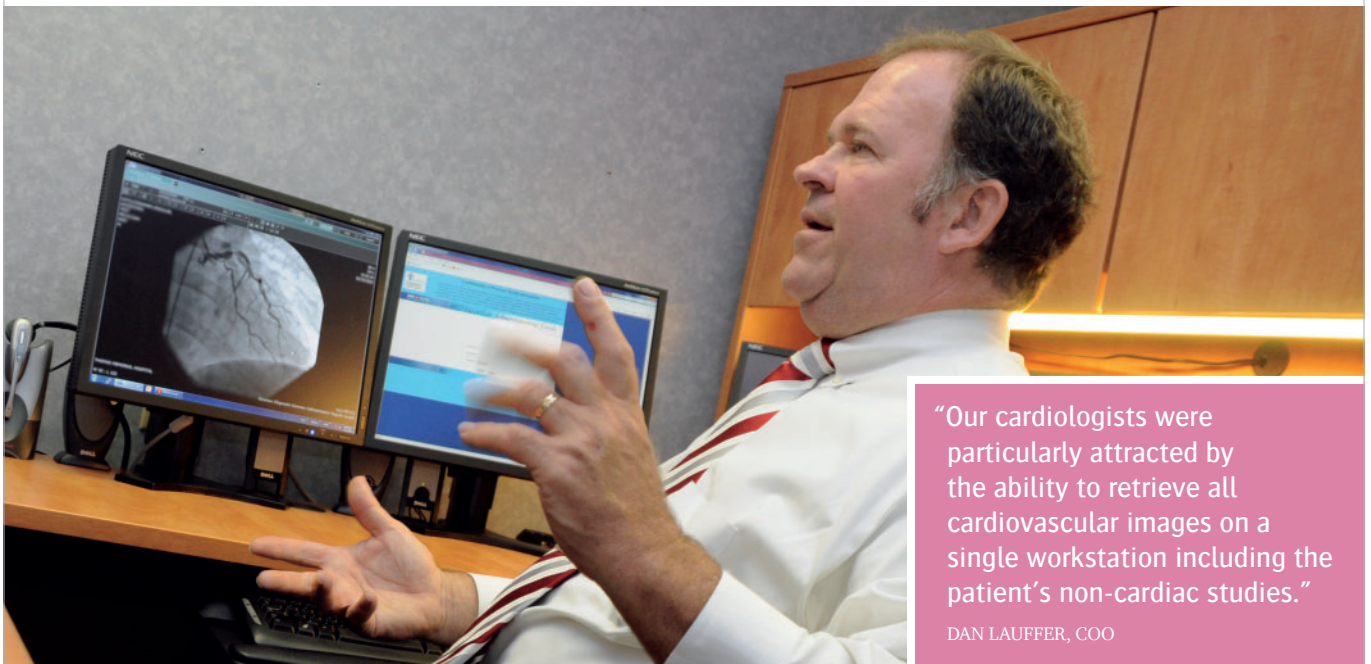
**AGFA HEALTHCARE’S CONTRIBUTION**

- » IMPAX PACS – a single workflow-based system to meet medical/clinical needs within, or outside, of a multi-site healthcare groups’ walls. It streamlines study reviews with persona-based operating parameters, enabling improved reporting and results distribution.

# Integrated Cardiovascular Solution helps Charleston hospital group enlarge its service area

As a healthcare provider known regionally for many firsts, Thomas Health System deploys a new Integrated Cardiovascular Solution to better support area heart specialists and their patients

**INTERVIEWEE** Dan Lauffer, COO



“Our cardiologists were particularly attracted by the ability to retrieve all cardiovascular images on a single workstation including the patient’s non-cardiac studies.”

DAN LAUFFER, COO

Following the merger of Thomas Memorial Hospital with nearby St. Francis Hospital, Thomas Health System is strengthening its foothold in the Charleston area. A more efficient heart lab with Agfa HealthCare’s Integrated Cardiovascular Solution (ICS) has improved the workflow of its cardiology department and increased its regional prestige. New cardiology referrals from distant locations are a result.

Thomas Health System, Inc. is a partnership built on the strengths of 280-bed Thomas Memorial Hospital and 200-bed Saint Francis Hospital acquired in 2007. The partnership strives to provide the highest quality of service through caring performed by highly-skilled employees and physicians using the most innovative and advanced technology available.

## **ECONOMY OF SCALE LEADS TO MORE APPROPRIATE PURCHASING DECISION-MAKING IN INFORMATION TECHNOLOGY AND IMAGING DEPARTMENTS**

“As partners, we have been able to considerably broaden our range of services offered to the community,” explains Dan Lauffer, COO of Thomas Health System. “The merger also allowed us to strategically enlarge our service area to more distant Charleston communities. Capital expenses are made more efficient, particularly in IT and imaging departments, where we can make better, more appropriate and responsible decisions using economy of scale.”

The investment in a brand new Clinical Pavilion at Thomas Memorial Hospital, with its clean lines, modern style

Since opening in 1946, the hospital has offered many regional firsts to residents and the local medical community: a nursery for premature babies, fathers in the delivery room, a linear accelerator for pinpoint accuracy during radiation therapy, and Positron Emission Tomography with a CT scan to effectively pinpoint cancer, heart and neurological disease.

## **SOLUTIONS**

### **Integrated Cardiovascular Solution**

- » Consolidate information from multiple cardiology subspecialties
- » Enhance communication across the sites
- » Connect multiple modalities including non-cardiac studies
- » Leverage existing IMPAX PACS infrastructure



“The Integrated Cardiovascular Solution has proven to be of key importance to get referrals from physicians in secondary service areas.”

DAN LAUFFER, COO



and all-private rooms, has not gone unnoticed. It earned a place in Soliant Health’s third annual list of the 20 Most Beautiful Hospitals in America. “Patients love it,” says Dan Lauffer. “It enhances privacy and allows family members to stay overnight. Clinically, the private rooms considerably reduce the risk of spreading infection.”

Prior to merging, Thomas Memorial and Saint Francis competed with one another in cardiology. Today, cardiovascular medicine is one of Thomas Health System’s growing services despite strong competition from other hospitals, performing 120 cath lab interventions per month. Dan Lauffer noted, “While we currently provide interventional cath lab services at both sites, we want to focus cardiology at Thomas Memorial as we have new cardiac operating rooms adjacent to the private rooms.”

Before the merger, neither hospital had a PACS solution. “So we took this opportunity to invest in a strong integrated digital system, installing various Agfa HealthCare CR digitizers in radiology and an IMPAX PACS and RIS solution.” The challenge was complicated by a river separating both hospital sites.

Dan Lauffer said it prevented patients from easily going to the hospital on the other side. “We had cardiologists shuttling from one site to the other to see patients and perform exams. It was difficult to obtain studies in the city center hospital when the examination was performed in the other hospital and vice versa.”

With Agfa HealthCare’s Integrated Cardiovascular Solution, Thomas Health System has been able to improve the delivery of patient care as cardiologists can now access study results and images from multiple locations within each hospital or securely at outside locations like offices or home. A dynamic workflow like cardiology needs fast access to up-to-date patient data. “Our cardiologists were particularly attracted by the ability to retrieve all cardiovascular images on a single workstation, including non-cardiac studies that are relevant to the patient’s case,” says Dan Lauffer.

#### INTEGRATED CARDIOVASCULAR SOLUTION STRENGTHENS PHYSICIAN’S SATISFACTION AND LOYALTY TO THE HOSPITAL

The ICS is currently based at the Thomas Memorial heart lab providing full integration between data interpretation and reporting with structured information gathering and retrieval. “This solution brought all our heart related studies into one system to streamline the cardiologist’s workflow,” adds Dan Lauffer. “Prior to that, cardiologists had to move from one room to another to read the various studies in the echo and nuclear medicine departments. The future addition of the cath lab to the system will further enhance their image access. By implementing the

Integrated Cardiovascular Solution with IMPAX PACS in radiology, other relevant imaging studies are also available on the cardiologist workstation for correlation of findings.”

Dan Lauffer adds this ultimately gives cardiologists highly efficient access to patient exams, which allows them to focus their attention on treatment. The remote access offered by the solution also allows for faster review of emergent echo exams which ultimately leads to better delivery of patient care.

Finally, physician satisfaction is of crucial importance. “Establishing a patient base is a long and tenacious job, but losing it can be just a moment’s oversight. We want all our services to be patient-centered and want our physicians to share our passion, an attitude that helps us be one of the key market players in cardiology. This results in referrals from outlying regions, allowing us to be present in secondary service areas thereby enlarging our catchment area. The Integrated Cardiovascular Solution has proven to be of key importance to get referrals from physicians in outlying areas.”•

#### DID YOU KNOW...

» Thomas Memorial Hospital is named in memory of Charleston resident Herbert J. Thomas, West Virginia’s first Congressional Medal of Honor recipient of World War II. In the spirit of saving lives, he sacrificed his own during battle in the Pacific by hurling himself atop a live hand grenade so it wouldn’t harm his fellow U.S. Marines.

#### AGFA HEALTHCARE’S CONTRIBUTION

» In addition to ICS, Thomas Health System has five DX-S CR digitizers at Thomas Memorial Hospital, three DX-S CR units at St. Francis, IMPAX PACS with RIS linking both sites, and orthopaedic and digital mammography display software for IMPAX. Solutions are installed and serviced by Charleston-based Radon Medical Imaging, Agfa HealthCare’s regional dealer.

We offer a full range of DR solutions,  
but only one level of image quality.



# High.

Do we obsess over image quality? Yes. That's why all of our Direct Digital systems have Cesium Iodide detectors and MUSICA<sup>2</sup>. Together, they provide exceptional images and the lowest dose potential. But it's just the start. Our systems integrate with your RIS/PACS/HIS and our NX workstations enable fast acquisition and smooth workflows. We also offer mobile solutions. And, innovations like the DX-D 30, a wireless detector plate that allows image acquisition almost anywhere, even with your existing X-ray equipment. Whether you want a fully automated, high-performance room or an affordable DR system, our true obsession is your success.



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