

Healthcare transformation, we'll take you...

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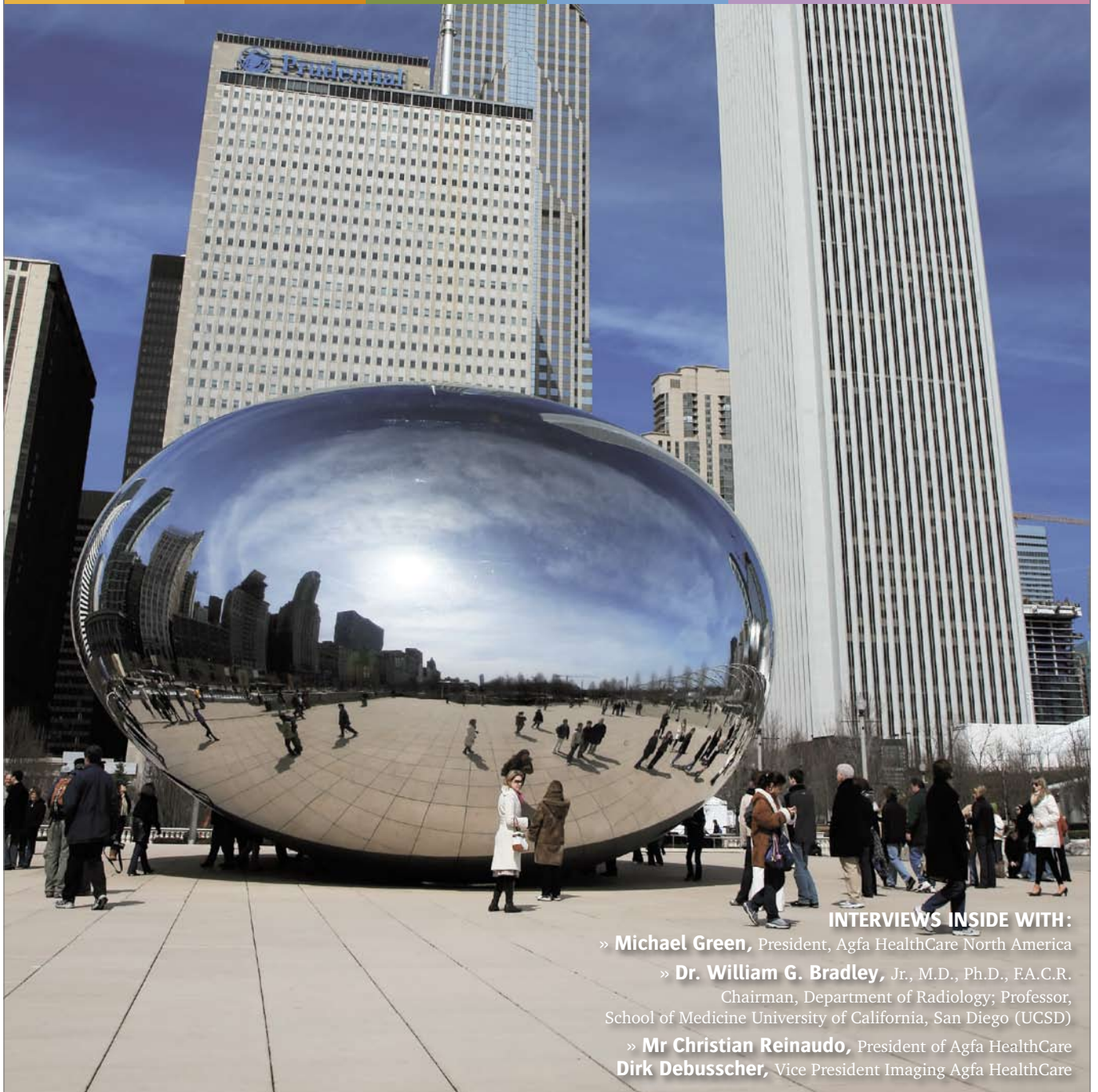
# THERE

RSNA 2009

**20 DORTMUND GERMANY**  
Faster throughput with  
40% dose reduction achieved

**28 SOUTH DAKOTA USA**  
Cardio PACS links sites to  
quickly address heart conditions

**26 HONG KONG PRC**  
Cluster PACS helps  
serve 1.1 million people



**INTERVIEWS INSIDE WITH:**

- » **Michael Green**, President, Agfa HealthCare North America
- » **Dr. William G. Bradley, Jr., M.D., Ph.D., F.A.C.R.**  
Chairman, Department of Radiology; Professor,  
School of Medicine University of California, San Diego (UCSD)
- » **Mr Christian Reinaldo**, President of Agfa HealthCare
- » **Dirk Debusscher**, Vice President Imaging Agfa HealthCare

# Image Enable the **EHR**

Image Capture  
Image Management  
Image Distribution

“As an established supplier of innovative healthcare solutions, Agfa HealthCare is ideally positioned to address today’s radiologists’ productivity challenges. Our Digital Radiography and Imaging Informatics solutions are designed to optimize information exchange in real-life, heterogeneous environments. We merge our clinical expertise with our commitment to interoperability and open IT standards – developing efficient diagnostic workflow and image management solutions that advance the longitudinal view of patient imaging records. By extending the concept of the electronic health record, or EHR, to include support for all medical images and related information, both an organization’s clinical and operational efficiencies are better addressed.”

[www.agfa.com/healthcare](http://www.agfa.com/healthcare)

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## Dear reader,

A warm welcome to the 5<sup>th</sup> edition of THERE magazine, our global customer publication. This latest edition of our customer magazine will be issued at RSNA 2009 in Chicago as well as being distributed to our subscribers and readers across the globe.

Physicians today depend on medical imaging as a tool to help diagnose disease rapidly and treat it in an effective manner. As digital technologies make images easier and faster to capture, to access, to distribute and to store, the importance of imaging to healthcare and disease management continues to increase. Medical imaging is a growing need, not only driven by radiologists, but also by a number of medical specializations. This is, in turn, drives a growing requirement for integrated, quickly and easily accessible standards-based solutions.

The early steps taken by radiology to drive integrated digital record keeping has taken on new dimensions and Electronic Health Records (EHRs) have become an integral part of a global healthcare transformation that we are witnessing and accompanying. As the demand for integrated care records continues to increase however, care must be taken that we are not blinded by the value of patient record keeping, and lose sight of the components which will make or break EHRs in the future. After all, a final product is only as good as its components. In diagnostic imaging, that means that we need to ensure we can continue to provide the highest quality and fastest outcomes to support the value which EHRs will bring. After all,



a health record without images will be of little benefit to treating physicians – and that means that this is as much about image capturing, as it is about image management.

Diagnostic images have always been an integral part of the health record story and “Image enable the EHR!” is therefore our call to arms for this year’s edition of RSNA in Chicago. We look forward to discussing this topic with you and the different aspects this involves, at the event, or in the near future.

HAPPY READING

**ERIC MAURINCOMME**  
Chief Strategy and Marketing Officer  
Editor-in-Chief THERE, Agfa HealthCare

## CHICAGO – inspiring art in a moving city

Throughout history, communities around the world have built monuments to recognize their achievements and leaders. Today, the purpose of art in public places has an extra dimension: to be an integral part of city beautification and enhancement. Bringing art closer to a city’s residents and visitors has also given it an increasingly functional purpose, with bridges, parks, boulevards and public structures created to meet artistic needs as much as practical ones.

Chicago is no exception. Since the 1960’s, the city has been a leader in proving how art can benefit the different communities within, and beyond its city limits. Chicago erected its first monuments in 1837, and introduced its first “non-commemorative” monument as early as 1967 (a sculpture commonly known as “The Picasso”), when Mayor Richard J. Daley ordered its installation. In 1978, the Chicago City Council passed a law mandating that a percentage of monies to build or

renovate public buildings be set aside for art.

Today, the city offers residents and visitors a wealth of art, from sculptures and murals to entire public spaces, developed by both young and established artists worldwide. THERE magazine, in co-operation with the Department of Cultural Affairs of the City of Chicago, has selected a handful of these public art works for this issue. For a more comprehensive overview, please visit: [www.cityofchicago.org/PublicArt](http://www.cityofchicago.org/PublicArt)

# Healthcare transformation in North America

Meeting the common need: improved efficiency of care, reduced costs, and the enhanced patient safety

Interview with Michael Green, President, Agfa HealthCare North America

**Talk of healthcare reforms in the United States and Canada has reached audiences around the world on an almost daily basis. The drive in those markets to deliver quality care through improved efficiencies, enhanced patient safety, and reduced cost has found both supporters and critics within those countries and beyond. THERE magazine caught up with Michael Green, President of Agfa HealthCare North America, to explore the challenges and opportunities both markets face in the near future.**

**We hear a lot of talk about “healthcare transformation.” What is your take on its significance and purpose in North America?**

The concept of “healthcare transformation” is very much on the public mind in North America. Like many other regions around the world, North America is facing significant pressures on its healthcare system. Among the major contributing factors to this are growing elderly population with growing needs for healthcare services, and the exponential growth of medical data that our diagnostic technologies provide. The United States has the highest cost per capita in the world and its economy cannot keep pace with the rising costs. On top of this, a significant proportion of the population is uninsured and has no access to healthcare other than the emergency room when health problems become critical. President Barack Obama made an election commitment to reform healthcare delivery the US and this is a highly publicized and controversial policy.

What is important is that both markets have clearly understood that they need to tackle their current approach to healthcare, and that a transformation of their systems is required to achieve this. In Canada, the government has resolutely chosen to use IT as a cornerstone of their solution. Healthcare is publicly

provided and the Government has an objective for all Canadians to have an electronic health record (EHR). This initiative has been led by an agency, Canada Health Infoway, and has been underway for several years. To date, nearly all hospitals have eliminated film and use PACS. Within the Provinces, data repositories for sharing patient information are underway and Agfa HealthCare is a major player across the country. The challenge now is to create a longitudinal health record that can be shared by all clinicians and Agfa HealthCare is working on solutions that enable the sharing and viewing of images and other information in a secure environment.

On February 17, 2009, President Barack Obama signed into law the American Recovery and Reinvestment Act of 2009 (ARRA). This act aims to stimulate the US economy through investments in infrastructure, unemployment benefits, transportation, education, and healthcare. Of the \$787 billion stimulus package, \$150 billion is earmarked for healthcare, with \$20 billion dedicated to healthcare IT.

ARRA, specifically the Health Information Technology for Economic and Clinical Health (HITECH) Act portion, may have more impact on the US healthcare community than any other single initiative. This direct funding will significantly shift focus to quality measures, clinical outcomes, and interoperability standards. Funds will be awarded to improve the quality of medical care, reduce medical errors, and slow the rising healthcare costs. One of the ways this will be achieved is through the goal of 90% EMR adoption rate for physicians and 70% for hospitals by 2014.

As it stands today, medical imaging is not formally an integral component to ARRA-HITECH. While there is a general recognition of the importance medical imaging has in a complete patient

**“US and Canada have clearly understood that they need to tackle their current approach to healthcare, and that a transformation of their systems is required to achieve this.”**

MICHAEL GREEN, President,  
Agfa HealthCare North America

record, it has not been identified in any of the ARRA-HITECH or “Meaningful Use” language. I believe, however, that the efforts of professional organizations and industry groups will result in technologies such as CR and PACS being included in the definition.

**What role do you see standards playing in healthcare transformation? Are there clinical and financial benefits?**

Absolutely, standards are a key driver toward improved quality of care delivery. Standards facilitate interoperability, making patient-centric communication possible throughout the enterprise and at all points of care. I believe that our interoperability and standards work is a critical focus. Standards such as DICOM, HL7, and the IHE technical framework initiative deliver the cost-effective strategic platform for managing the ever-expanding volume and diversity of medical imaging data.

Agfa HealthCare merges clinical know-how with our commitment to interoperability and open IT standards. Together, these capabilities have helped us develop a comprehensive portfolio focused on delivering vendor-neutral solutions to enable connectivity across healthcare stakeholders. Improved consensus across the industry will assist adoption of technology offerings and contribute further to reduced errors and enhanced efficiencies.



**You are launching both a Direct Radiography (DR) solution to the North American market and a new Computed Radiography (CR) system. Why move toward DR at this time?**

Agfa HealthCare is a major player in the CR market and also in PACS. We have a large customer base and our customers have told us clearly that they want to use DR for high volume applications and they want us to provide the solution. In many cases, both DR and CR will be used side-by-side for complementary purposes. The new DX-G, a CR system, offers multi-plate versatility with exceptionally high image quality. We are able to extend the benefits of our imaging processing software Musica<sup>2</sup> to a DR platform and also provide a common user interface and tools when the systems are used with our PACS. This combination of systems provides unparalleled efficiency, ease of use, and image quality that can be standardized across a large hospital system.

**The US and Canada are markets with a high saturation rate for RIS/PACS. How is Agfa HealthCare keeping this business fresh?**

We are growing existing business and adding new customers every day. Our strategy has three focus areas. Firstly, we are moving outside of radiology with our cardiology PACS and reporting solutions, IMPAX Cardiovascular. Secondly, we are continually working on

the breadth and depth of our radiology IT portfolio. Our goal is to further improve the efficiency and effectiveness of the radiologist, adding new tools and applications as IMPAX evolves. At RSNA 2009, for example, we are showcasing functionality and workflow enhancements that provide a rich toolkit of advanced clinical applications, display, reporting, and communication solutions. With this strategy we have been quite successful in winning new customers by replacing existing and legacy PACS. Thirdly, we are concentrating on images enabling the healthcare enterprise. Images are a vital and significant part of the EMR/EHR. With IMPAX Data Center and our portfolio of viewers, including zero-download and Web 2.0 technology viewers, we have a strong and expanding solution.

**Speaking of IMPAX Data Center, how does this Medical Imaging Repository and Enterprise Visualization solution contribute to improved healthcare delivery?**

Physicians depend on medical imaging as a tool to help diagnose rapidly and treat diseases effectively, which results in enhanced delivery of patient care and a more efficient and cost-effective healthcare system. As digital technologies make medical images easier and faster to obtain, access, read and store, the importance of imaging to healthcare and disease management continues to increase.

**“By extending the concept of the electronic health record, or EHR, both an organization’s clinical and IT infrastructure requirements are better addressed.”**

MICHAEL GREEN, President,  
Agfa HealthCare North America

The prevalence of medical imaging extends far beyond the radiology department. Patient images and associated data are generated in cardiology, surgery, dermatology, ophthalmology, gastroenterology, pathology, surgery, dentistry, nursing, and other clinical departments in various formats.

Agfa HealthCare understands that healthcare today is increasingly reliant upon access to a longitudinal view of patient records. By extending the concept of the electronic health record, or EHR, to include support for all medical images and related information, both an organization’s clinical and IT infrastructure requirements are better addressed. Our Imaging and Imaging Informatics solutions are designed to maximize information exchange in heterogeneous environments, delivering point-of-care access to consolidated imaging data. That is our core strength, and one we will be driving forward over the next years. •

# Medical university and teaching hospital **relies on PACS** to expedite care

Linking over a dozen on- and off-campus sites, a single PACS supports prompt patient care, permitting most radiologist reports to be completed within 24 hours

**INTERVIEWEES** Jon Hanada, PACS Administrator • Erwin Schwarz, Director, Diagnostic Imaging Services



## DID YOU KNOW...

- » OHSU operates an aerial tram linking its Marquam Hill campus with Portland's South Waterfront, home to future campus expansion. It's the only public transport of its kind in the world and Portland's most visible link.
- » With roots back to 1887, OHSU today has Schools of Medicine, Nursing, Dentistry, Science and Pharmacy.
- » In 2007, OHSU earned \$307 million (USD) in research funding and serves as a catalyst for the region's bioscience industry.

## INTEGRATE VS. INTERFACE

Part of Agfa HealthCare's success in PACS comes from its long-time focus on integration through vendor-neutral architecture. The company's solutions can receive image data from a wide range of modalities and sources. Specially engineered connections and interoperability between components eliminate compatibility issues and extensive integration chores typical of multi-vendor solutions.

"Most vendors can interface patient name, medical record number, study, etc., but with IMPAX integrated RIS/PACS, we can pull information such as image availability across to the RIS side, which has been updated from the PACS side," said Jon Hanada. "We chose IMPAX because of the tight integration between the RIS and PACS, and have seen significant workflow efficiencies as a result." → Cont. on page 9

"With IMPAX 6, radiologists have access to patient images on campus, off-site or even at home."

ERWIN SCHWARZ,  
Director, Diagnostic Imaging Services

As the state's only health and research facility, Oregon Health & Science University (OHSU) brings together education, research, patient care and community service to improve the well being of Oregonians. Performing approximately 250,000 radiology procedures annually using 12 terabytes of data, OHSU radiology is spread across 15 locations and eight separate buildings, with reading rooms in nine different areas.

## "SHRINKING" THE OHSU CAMPUS

With locations in and around downtown Portland, OHSU is a huge enterprise that requires the most advanced technologies to keep pace with its many activities in patient care, medical research and education. The university recently installed Agfa HealthCare's IMPAX 6 PACS to better accommodate increased demand for its services.

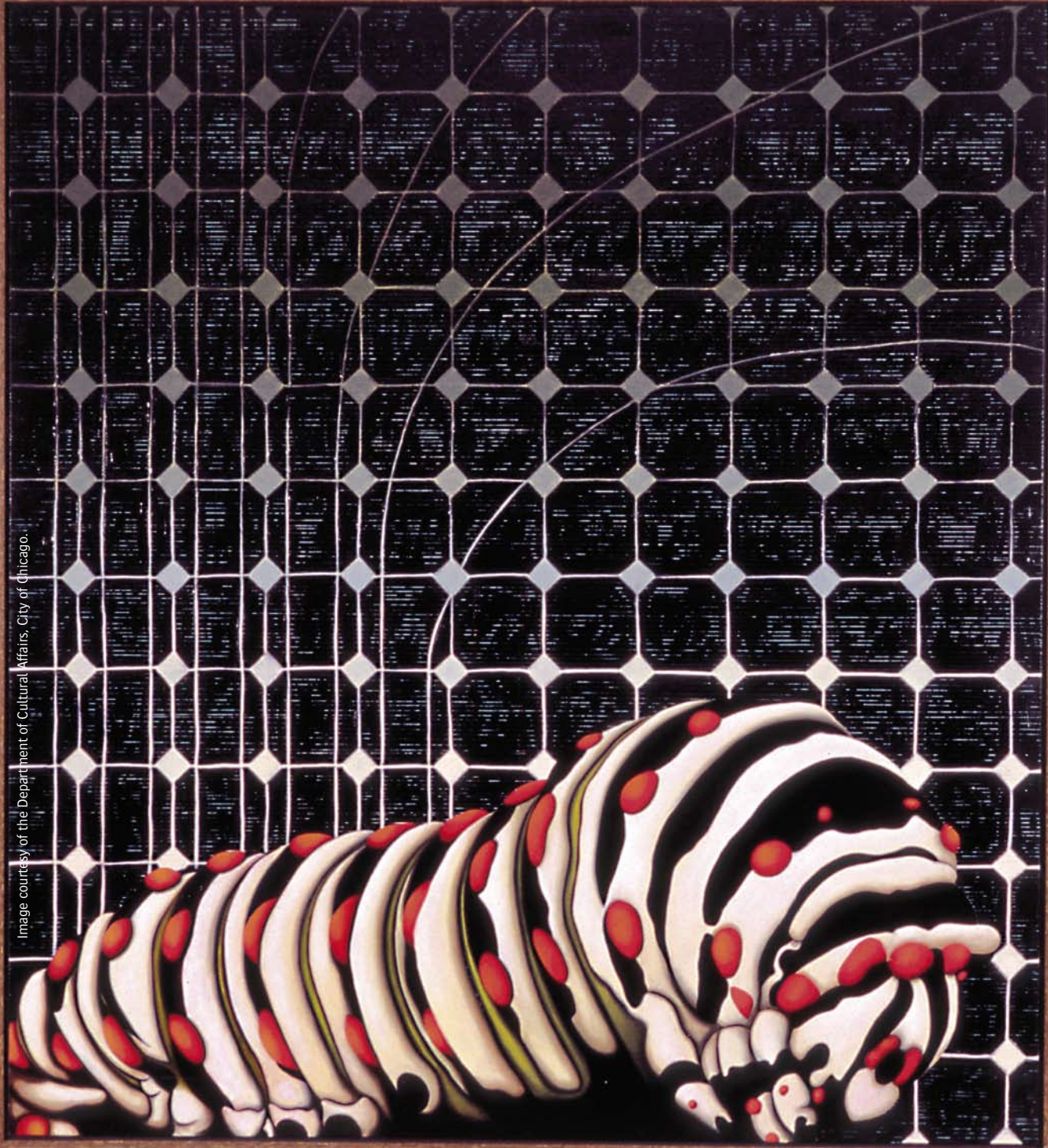
Says Jon Hanada, PACS Administrator at OHSU: "With this upgrade, we're able to distribute PACS applications throughout the hospital and beyond, allowing clinicians and radiologists to work from one database. Before IMPAX 6, we had

Agfa HealthCare's Web 1000 and two separate databases, but keeping them in sync was a challenge. Now everyone is on the same page with identical information from a single source. With radiology performed all over campus as well as off-site, IMPAX 6 essentially shrinks OHSU, letting users be productive from anywhere."

According to Erwin Schwarz, OHSU's Director of Diagnostic Imaging Services, that means more efficient workflow for everyone: "Not only does this help our radiologists, it has a huge impact on referring physicians' workflow. With IMPAX 6, they have access to patient images on campus, off-site or even at home. For trauma cases, it enables them to review the images and plan treatment before they even get to the hospital."

"We also have five facilities that are connected to IMPAX via a virtual private network, so we can import images from institutions around the state to our physicians. It greatly enhances communication and the delivery of patient care," he continued.

Image courtesy of the Department of Cultural Affairs, City of Chicago.



**ARTIST** ANN WIENS 2004

**ARTWORK** Photovoltaic Black Swallowtail Caterpillar

**LOCATION** Northwest Chicago Centre for Green Technology

Chicago artist Ann Wiens combines the practice of scientific illustration with the painterly style of Op Art. In five paintings commissioned for the Chicago Center for Green Technology, Wiens portrays various animals native to the Midwest against backdrops of patterns

influenced by the architecture of the building. For example, a Black Swallowtail caterpillar is superimposed against the grid of a photovoltaic (or solar) panel. The animals depicted in the smaller paintings represent wildlife indicative of the four seasons.

# Nice University Hospital enters the age of virtualization

The imaging service at Nice University Hospital needed to have real-time access to information relating to imaging exams

**INTERVIEWEES** Prof. Patrick Chevallier, Radiologist • Philippe Mayer, Information System Director

The radiologists and healthcare services at Nice University Hospital were keen to have tools more powerful than conventional media for reading, storing and distributing images from general radiology, CT and MRI. They wanted imaging results to be completely integrated into patient files. The IMPAX 6 PACS (Picture Archiving and Communications System) has fulfilled Nice University Hospital's expectations by improving its information flow.

Nice University Hospital is a public institution operating on five sites: the Archet, Pasteur, Saint Roch and Cimiez hospitals and the Tende convalescent center. It is located in the Provence-Alpes-Côte d'Azur region of France, which is at the heart of a basin with a population of 4.5 million. The hospital provides an important service for a region characterized by a high proportion of elderly and an influx of about a million tourists during the summer. The 6,000 professionals (of which 1,000 are physicians) who

work there must provide quality care along with training, education and research appropriate for a university center.

## TOTAL MAKE-OVER

Since 2002-2003, Nice University Hospital has been completely redesigning its information system. "We were way behind," explains Philippe Mayer, Information System Director. "Radiology concludes six years of important work."

Nice University Hospital wanted a tool that would allow staff to manage images from digital scanners, MRI and conventional imaging, then return them to the various healthcare services. "As an IT company, Agfa HealthCare was able to fulfill our initial requirement

because we took a very unique approach: we purchased an IMPAX 6 software solution and not a complete package," he continues. "Agfa HealthCare fully understood the need for rapid deployment from the moment we alerted them to the urgency of our requirements. This company has the capacity to understand the end user's requirements and respond accordingly."

## FAST INTEGRATION

The medical staff had been waiting for this solution and, once chosen, it was quickly installed (the first working meeting was held in late June 2008 and the system launched on 15 December). It has only taken eight months to complete the various phases, including software installation, interface implementation and training. IMPAX 6 now contains all image information; not only images from conventional radiology, MRI or digital scanners, but also those from nuclear medicine and ultrasonography. "The clinician calls up an exam from the patient file. The images and reports are displayed on the screen quickly via IMPAX," affirms Philippe Mayer. Integrating the image in the patient file also means it can be opened by physicians or clinicians working outside the hospital.

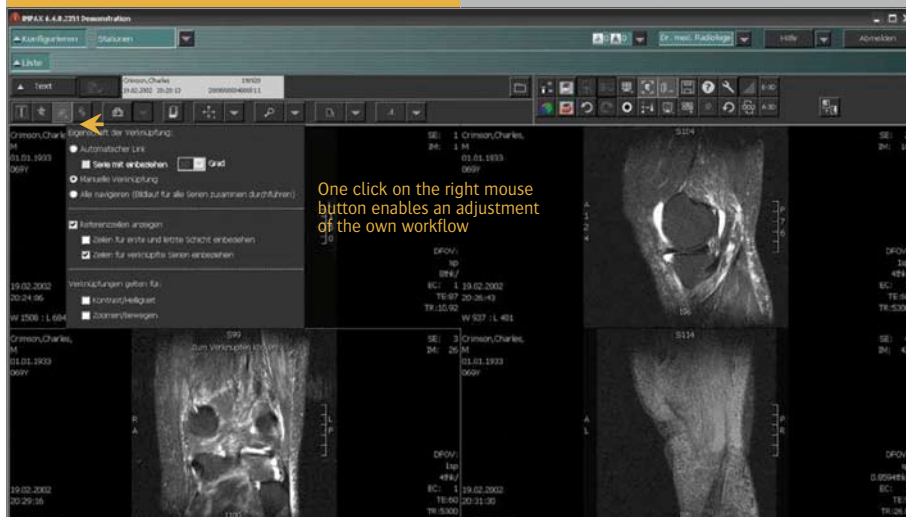
## PACS CHANGES LIVES

Having used the system for nearly a year, the healthcare services are happy with the changes, which have produced time savings and efficiency. "For our weekly consultation meetings, the PACS has

"Agfa HealthCare understands the end user's requirements and responds accordingly."

PHILIPPE MAYER, Information System Director

IMPAX 6.4 Advanced CT/MR Navigation



## IMPAX 6

- » The IMPAX 6 solution allows imaging results to be distributed within Nice University Hospital and at numerous off-campus sites.
- » After an image is acquired, it can be accessed from any workstation.



OHSU also relies on Agfa HealthCare’s TalkStation for reporting, which is integrated with IMPAX to enable radiologists to directly control the entire reporting process. TalkStation provides a complete interpretation and reporting solution, with speech recognition, macro templates, and context sharing. These and other features decrease report turnaround time, eliminate transcription costs, and enhance the delivery of patient care.

The software’s continuous speech recognition allows a radiologist to dictate, edit and sign a report at the same workstation where images are reviewed. Reports can be created faster, at the desktop workstation of choice, and duplicate efforts on multiple applications are a thing of the past.

“Users love it – the recognition is excellent and the workflow very good. We have over 90% of reports going through speech recognition, which has reduced turnaround times for preliminary to final reports. Before IMPAX, our average turnaround was over 100 hours. Today, total turnaround

AGFA HEALTHCARE’S CONTRIBUTION

- » IMPAX 6 PACS with integrated RIS.
- » IMPAX TalkStation, a PACS/RIS integrated reporting solution.

is less than 24 hours, with some available within minutes of completion,” says Jon Hanada.

**GOOD VISION MEANS GOOD PARTNERSHIP**

According to OHSU, Agfa HealthCare is committed to being a good business partner. “The people we work with have OHSU interests at heart, collaborating on the right vision for our technology roadmap and steering us in the right direction,” says Jon Hanada.

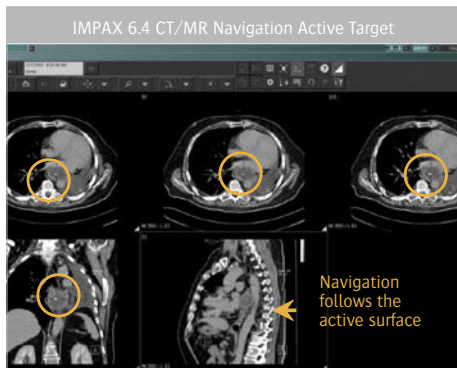
Erwin Schwarz agrees: “It’s a huge advantage to have a single strategic IT partner. It provides consistency, eliminates variability and avoids any finger pointing if there are issues. Whether it makes our back- or front-end workflow better, Agfa HealthCare continues to reassure us that we’re with a technology expert that will evolve its product in the years to come.” •

IMPAX 6

- » IMPAX 6 is a web-deployed image and information management solution, which helps streamline enterprise workflow and deliver increased efficiency and productivity.
- » When integrated with IMPAX RIS and Reporting Solutions, IMPAX 6 provides a consolidated view and centralized management of patient images and information.
- » IMPAX 6 scales from a single box solution to a multi-facility environment meeting the needs of any enterprise, radiology department or imaging center.
- » By enabling easy workflow digitization, streamlining study review, and improved reporting and results distribution, IMPAX 6 adapts by working the way you want to work.

“We chose IMPAX because of the tight integration between the RIS and PACS, and have seen significant workflow efficiencies as a result.”

JON HANADA, PACS Administrator



changed our lives because everything used to be so concentrated on a single support through our intranet: the images, reports, and biological tests. How we can discuss a patient’s record simply, concisely and quickly,” explains Professor Patrick Chevallier, radiologist. IMPAX has enabled significant progress in clinical research too. “We can archive imaging exams efficiently and limitlessly, which will let us build collections and make the job a lot easier.”

This technology is therefore beneficial to teaching: “To give lessons on healthcare services, we can draw

“For our weekly consultation meetings, the PACS has changed our lives because everything used to be so concentrated on a single support through our intranet: the images, reports and biological tests... Now we can discuss a patient’s record simply, concisely and quickly.”

Prof. PATRICK CHEVALLIER, Radiologist

directly from this extraordinary database without having to use old media.” Thanks to the simplicity and intuitive nature of this tool, healthcare services staff were quickly trained, and familiarized with it. “We created simple media to present the main functions and videos, accessible from the intranet, that the practitioners can watch at their workstation,” concludes Philippe Mayer. •

AGFA HEALTHCARE’S CONTRIBUTION

- » The IMPAX PACS solution contains all images from conventional radiology, MRI, scanners, PET scans, nuclear medicine and sonography – and soon, images and videos taken in the operating theater.
- » Agfa HealthCare understands the end user’s requirements and responds accordingly.
- » IMPAX 6 was an ideal solution to the specific requirements of Nice University Hospital.

DID YOU KNOW...

- » Nice is a leading resort city on the French Riviera and the fifth most populous area in France.
- » Artists including Toulouse Lautrec, Renoir, Picasso and Matisse were all artistically inspired by Nice.
- » For radiologists, there is a very practical side to having all the information on a single medium and being able to access it from any computer in the hospital.
- » Thanks to the simplicity and intuitive nature of this tool, the users quickly got used to it.

# Interview with Dr. William G. Bradley, Jr., M.D., Ph.D., F.A.C.R.

Chairman, Department of Radiology;  
Professor, School of Medicine University of California, San Diego (UCSD)

Dr. Bradley is a highly respected research and diagnostic radiologist. He is the author of more than 176 articles and 19 books on a wide range of radiology topics. An expert in both the basic science and clinical applications of MR imaging, Dr. Bradley has led many innovative research efforts in imaging and MRI capabilities. His personal research interest is in neuroradiology, focusing on MR of the brain and spine, MR of hemorrhage and MR of hydrocephalus. In 2003, Dr. Bradley received the highest honor bestowed by the Radiological Society of North America (RSNA) when he became the youngest physician to receive an RSNA Gold Medal.

**In the U.S., there is currently a push for universal adoption of the EMR/HER (electronic medical record/electronic health record). How will this affect radiology?**

One of our greatest medical challenges is access to the complete clinical history. When a patient is admitted to the hospital, often we only get the admitting diagnosis. There are so many different clinical systems that don't communicate with each other, even within a single institution. The result is unnecessary and expensive tests, treatment, and hospitalization. Patient care would be safer, faster, and more efficient if doctors had access to the complete medical history – including images and reports – regardless of where the patient received prior treatment. For example, UCSD gets many referrals from smaller regional hospitals. Patients don't always arrive with images, even if they've already been imaged at the referring hospital. In this case, our physicians order another exam, exposing the patient to unnecessary radiation.

**What role will radiologists play in the introduction/roll-out of the EMR/EHR?**

Well, radiologists are the most qualified personnel to make decisions about how to manage imaging data. A single study from a 64-slice CT scanner puts out a tremendous volume of data.



A new 320-slice scanner generates 10 gigabytes of data from an organ perfusion study! Does all of it need to be archived? Do you keep all the slices, the axial images, the oblique images? The professional who knows how to interpret images should be involved in deciding how to sort and archive or discard this data.

Because PACS (Picture Archiving and Communications System) and PACS data are such critical components of the EMR, another role for radiologists is to work closely with vendors and medical center PACS managers to figure out how to best use PACS to meet everyone's needs. For example, the medical center wants fast turnaround time, but radiologists need the right tools to accomplish that. In an academic setting, radiologists sit with junior residents and read studies together. Then the resident dictates the report, which might not be ready for hours. It would be most efficient if we were able to sign off at home. So radiologists need to communicate to other healthcare players the relationship that exists between having tools that enable us to work remotely and improve report turnaround time.

The radiologist also helps decide what aspects of the EMR should be optimized. You can optimize your systems for various parameters: the patient, technology, revenue, cost, etc. Each of these optimization algorithms results in a different product. For example, if we optimize for cost and decide not to have as many PACS reading stations, it's going to take longer to get reports out, which hampers patient care. Radiologists have an important contribution to make to those discussions.

### **What are the biggest technology implementation challenges faced by radiology departments?**

Many healthcare institutions are slow in adopting new technologies,

*"One of the radiologists' roles is to work closely with vendors and medical center PACS managers to figure out how to best use PACS to meet everyone's needs."*

DR. WILLIAM G. BRADLEY, JR., M.D., PH.D.,  
F.A.C.R., Chairman, Department of Radiology;  
Professor, School of Medicine University of  
California, San Diego (UCSD)

so their technologists are accustomed to operating the old equipment and are uncomfortable with new workflows. When a new technology comes along, eg, 3D post-processing, it may be challenging for some of the older technologists to master it. Some technologists understand how to operate the equipment for basic day-to-day tasks but don't understand all of its capabilities. In that scenario, the equipment is not used to its full potential. Vendors can help with these issues by providing adequate training for new systems and onsite service staff, and having regular in-service meetings to keep technology staff updated on the latest upgrades and features.

### **The PACS market in North America is relatively saturated. What future technology developments will take medical imaging to the next level?**

Three technologies that have potential are decision support, data mining, and CAD (computer-aided diagnosis).

Decision support for CPOE (computerized physician order entry) is critical because insurance companies are increasingly requiring prior approval from the insurer or an outside company for more costly imaging exams. Decision support software is based on ACR (American College of Radiology) Appropriateness Criteria and provides reference guidance to the ordering physician. It's integrated into a radiology department's CPOE. In the future, more and more insurers will accept a software-based decision support system "recommendation" instead of waiting the traditional 5 days for pre-authorization for outpatient procedures. Since hospitals get paid for inpatient imaging through the DRG or per-diem mechanism, they do not get paid more when an MRI or CT is performed – so the same decision support system can be used to only scan appropriate patients, potentially freeing up-time to scan more paying outpatients.

Data mining works in tandem with decision support. Hospitals can use their large databases of patient images and information together with decision support software to help determine appropriateness of an exam order by comparison with previous data. Data mining can also be used for physician performance assessment, quality improvement, research, and teaching.

CAD is another technology that can help us address revenue challenges.

*"As computers get smarter and processing speed increases, CAD will give radiologists the opportunity to increase revenue by reading more studies."*

DR. WILLIAM G. BRADLEY, JR., M.D., PH.D.,  
F.A.C.R., Chairman, Department of Radiology;  
Professor, School of Medicine University of  
California, San Diego (UCSD)

As reimbursement continues to drop, radiologists won't be able to rely on making more revenue per case. If we want to pay our bills, we'll have to read faster! CAD will be able to help us achieve this. As computers get smarter and processing speed increases, CAD will give radiologists the opportunity to increase revenue by reading more studies.

### **What insight can the radiology department offer to other hospital departments about implementing imaging technology?**

Radiology should work with other departments to ensure that all images are accessible to all clinical users, regardless of what department generated them. All radiology images are archived in the radiology PACS, but there's usually a different PACS in other departments, eg, cardiology. I'd like to see all imaging studies digitized and integrated in a single archive. This is a crucial first step in developing an EMR and would have huge benefits in terms of improving patient safety and efficiency. It would also provide tremendous productivity benefits for referring physicians. A busy primary care physician may only get between eight and ten minutes with each patient. The radiology PACS provides referring physicians a tremendous benefit: the ability to pull up the images and reports in any clinic room. We could improve this even more by working with other departments to provide accessibility to all images and reports.

**That's a timely comment! You might be interested in our PACS vendor-neutral medical imaging repository, IMPAX Data Center. While at RSNA, I hope you'll stop by the Agfa HealthCare booth and take a look at our Enterprise Visualization solutions that image-enable the EHR.**

RSNA is the place to see the newest technology in the imaging field – I wouldn't miss it. I'll see you in Chicago! •

# DX-S CR solution cuts x-ray dose up to 20 percent at busy pediatric centers

Groundbreaking system fills gap between current DR solutions with a level of speed, flexibility and image quality

**INTERVIEWEE** Al Rego, Regional Director, Ambulatory Services

Founded in 1950, 289-bed Miami Children's Hospital (MCH) is South Florida's only specialty hospital just for children, renowned nationally for excellence in all aspects of pediatric medicine. Its staff numbers 650 doctors supported by 2,000 clinical/management employees. It's an American Nurses Credentialing Center (ANCC) 'Magnet Facility', the profession's most prestigious institutional honor.

## AMBULATORY SITES OPEN DAYS AND WEEKENDS

Ambulatory medicine plays a big part in MCH operations, handling a wide range of urgent or elective cases not requiring hospitalization. Services are so much in demand that MCH maintains four separate ambulatory centers in densely populated Dade and Broward Counties, with planned expansion to Palm Beach County. Weekends are busiest, with 12-hour daily availability at all locations.

"Our primary goal is to provide excellent care and to be where the children are," says Al Rego, MBA, RT (R), (CT), (MR), ARRT (the American Registry of Radiologic Technologists), the hospital's Regional Director of Ambulatory Services, in explaining the long hours and future growth in Miami's huge metro area. Another goal is to provide service and caring excellence, which in pediatric radiology, means obtaining excellent image quality at a low dose in a short amount of time.

## AGFA HEALTHCARE'S CONTRIBUTION

» DX-S system with needle-based CR and MUSICA<sup>2</sup> process enhancement software providing optimal, consistent image quality that's exam independent. Delivery of patient care is enhanced through more expedient workflows.

Two of the newest MCH ambulatory centers providing urgent care services, Dan Marino and West Kendall, are 20 miles apart and perform primarily chest, extremity and skull studies using older CR units. Pediatric cases at the main hospital use multiple DR systems. "By staying informed, we realized new CR technologies and software were available that could help us strive for the holy grail of pediatric imaging – that fine balance of low x-ray dose with high image quality across a wide range of studies," says Al Rego.

He then attended a demonstration of Agfa HealthCare's DX-S CR solution at a nearby general hospital. "I liked the system's speed, flexibility and images it produced and asked for a demo unit for one of our centers," he added. To conduct a thorough, unbiased evaluation, another company's CR system was also made available.

"We evaluated the other system for a few weeks," Al Rego says. "But when the DX-S unit was set up, it could only be kept a few days. Yet despite that comparatively short evaluation, our chief of radiology, technologists, department managers and QA professionals were so impressed with its performance, easy operability, and image quality that the decision was quickly made to acquire two with plans for another two in 2010."

## SUPERIOR TECHNOLOGY MAKES FOR BETTER CR

Two unique attributes separate DX-S from all other CR systems: its proprietary Directrix needle-based detector and scanhead line-to-line CR stimulation and light collection technologies. These components significantly increase image quality and consistency using minimal x-ray doses. They also provide rapid access to digital images and

"Dose levels in all techniques have been lowered between 10 and 30 percent versus the original CR system."

AL REGO, Regional Director,  
Ambulatory Services



## DX-S

- » Increased image quality with reduced x-ray dose thanks to DirectriX needle detector.
- » High speed imaging through Scanhead line-to-line CR stimulation.
- » Excellent portability, designed for decentralized use in general, emergency and pediatric procedure rooms.
- » Meant for near-patient use, creating more patient comfort and quick image QC and processing that speeds exam time.

reduced waiting times for reusable cassettes, thereby speeding workflows.

“Its throughput is impressive for a single plate reader,” says Al Rego. “Patient data is imaged onto the cassette very quickly. Then, insert the exposed cassette in the DX-S, and the image is transferred in seconds, freeing it for the next exam.”

The unit’s compact design and footprint makes it ideal for decentralized use such as pediatric facilities or outpatient centers. Al Rego adds the system’s MUSICA<sup>2</sup> image processing and enhancement software is an extremely important benefit that technologists and physicians like.

“It’s very user friendly, and technologists in particular love it,” he says. “MUSICA<sup>2</sup> was one of the key deciding points in the system’s favor during our short, on-site evaluation.” The software optimizes image quality by automatically and consistently adjusting density and contrast of anatomic detail, reducing the need for windowing and leveling. Al Rego adds: “Dose levels in all techniques have been lowered between

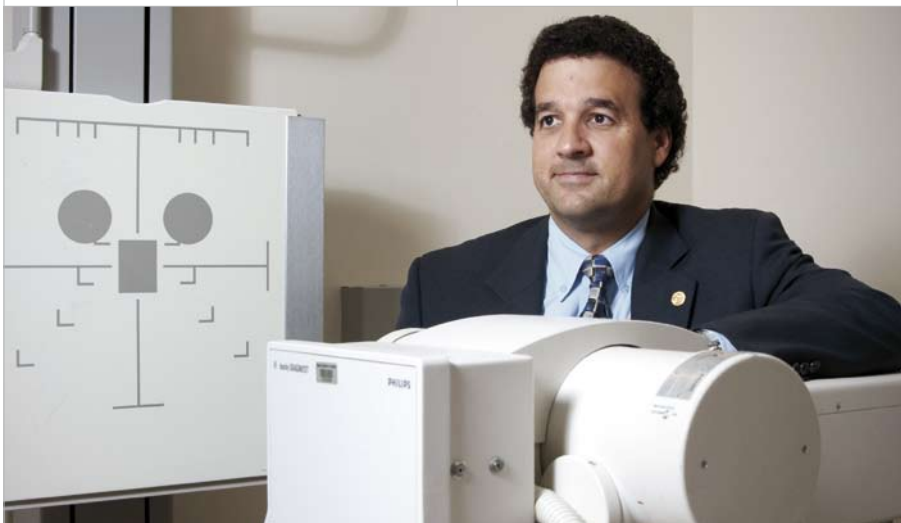


10 and 30 percent versus the original CR system.”

He says delivery and installation coordination as well as technical support from Agfa HealthCare made the transition at both sites go very smoothly. “As a registered Radiology Technologist, I appreciate the many Agfa HealthCare specialists and key account executives who are also registered and previously worked in

the field. It’s highly professional, and shows the company truly understands the customer.”

Perhaps the new system’s finest compliment came in a concise e-mail from MCH’s Chief of Radiology. Says Al Rego: “I had sent him eight recent studies in an attachment just on an informational basis. The reply I received read, ‘Congratulations – they look great.’” •



## DID YOU KNOW...

- » MCH’s Dan Marino Center is named for a Miami Dolphins football player, considered one of the greatest quarterbacks in US football history.
- » Miami is America’s fourth largest urban area after New York, Los Angeles and Chicago.

“DX-S throughput is impressive for a single plate reader. Patient data is imaged onto the cassette very quickly.”

AL REGO, Regional Director,  
Ambulatory Services

# Digital radiography solutions enhance critical care efficiency

## Restructuring the Accident & Emergency (A&E) Department at Austria's St. Pölten Regional Hospital results in unique changes

**INTERVIEWEE** Prof. Erich Salomonowitz, Director, Institute for Medical Radiology, Diagnostics & Intervention

**With 1,115 beds and 23 departments, St. Pölten Regional Hospital serves approximately 1.5 million people in Niederösterreich (Austria). About 200,000 x-rays are taken annually in the Institute for Medical Radiology, Diagnostics and Intervention, which also serves the A&E Department.**

The Institute focuses strongly on an efficient workflow with all processes aimed at delivering the highest quality patient care. It was certified by the International Organization for Standardization (ISO) in 2000 and approved under European Foundation for Quality Management (EFQM) guidelines. Such quality standards certification is unusual for radiology units.

### **SPECIAL PATIENT BED PERMITS X-RAY PASSAGE FOR FASTER THROUGHPUT**

When the A&E Department recently studied and precisely timed its patient flow, the results showed that about 80% of waiting time was associated with obtaining x-rays, which are crucial in

planning further patient care. For this reason, the Institute's Director, Prof. Erich Salomonowitz, driven by a desire to optimize workflows, implemented Agfa HealthCare's integrated DX-Si Digital Radiography solution in A&E at the start of 2009.

"To assure smooth processes and workflows, the new system had to be easy to operate and reliable as well as deliver high-quality images," affirms Prof. Salomonowitz. After the entire radiology team had tested numerous systems from various suppliers in daily use, the decision to install the DX-Si was unanimous.

As the service provider, Agfa HealthCare was also involved with the reorganization of A&E. Together with the hospital, it came up with the novel idea of placing trauma patients on special x-ray permeable beds upon admission. The beds, which contain a customized Bucky filtering grid that houses the DX-Si needle detector, are then moved into the x-ray procedure room.

### **DX-Si DIGITAL RADIOGRAPHY SOLUTION**

- » Provides cost-effective, digital radiographic alternative for general x-ray studies.
- » Offers significant image quality and workflow improvements.
- » Ideally suited for high-throughput general radiography rooms and ER environments.



This means emergency patients do not have to transfer from the bed for an x-ray exposure, which is better for the patient and saves considerable time. For full-body x-rays, the bed is simply pushed into position.

In the recovery room, the images are ready immediately after exposure and displayed on one of many ceiling-mounted 40" video screens. "This lets the radiologist and surgeon get an idea of the patient's condition immediately and start the next step straight away," explains Prof. Salomonowitz. The other DX-S systems are integrated in the other rooms so that images can be examined and assessed on the spot almost immediately after exposure. They are then forwarded directly for analysis via a PACS interface.





#### AGFA HEALTHCARE'S CONTRIBUTION

- » DX-Si Digital Radiography Solution
- » MUSICA<sup>2</sup> image processing software that automatically optimizes anatomic detail for excellent visualization.
- » Professional consultation on a range of services to optimize radiology department productivity.

Today, there are four integrated DX-Si systems in the A&E Department, which is now fully process-oriented and divided into four areas: recovery room for trauma patients, emergency area for responsive patients, an area specifically for follow-up examinations, and the plaster cast room. "Dividing the workflow into acute and follow-up cases allows emergency patients to be seen faster because there is no overlap with less urgent, non-emergency studies. Waiting times are virtually eliminated," explains the Institute's Director.

The integrated DX-Si configuration combines Agfa HealthCare's DX-S system and NX central workstation.

#### **WAITING TIMES HAVE BEEN CUT MORE THAN 50 PERCENT, RESULTING IN LESS STRESS FOR THE TECHNOLOGISTS**

Experiences with new systems have been consistently good, not only in radiology, but throughout the hospital. "In my 40-year career, I have seen a lot," says Prof. Salomonowitz.

"When new products are introduced, sometimes suppliers promise more than they can actually deliver. But not in this case. Agfa HealthCare has consistently proven to be a reliable partner and the solution is very stable."

The chief radiologist has also noted a significant increase in overall patient care. "We were able to reduce x-ray waiting times for emergency patients by more than 50 percent. Because the images are available almost immediately after exposure, treatment can begin sooner."

However, the system does not just benefit patients – it offers advantages to the staff as well. "Thanks to its fast and simple operation, the DX-Si significantly lightens our technologists' workload. Now that efficient workflows have been established, there is no need for staff to unnecessarily hurry back and forth. This all leads to a noticeable reduction in stress," says Prof. Salomonowitz.

**"We have reduced x-ray waiting times for emergency patients by more than 50 percent."**

Prof. ERICH SALOMONOWITZ,  
Director, Institute for Medical Radiology,  
Diagnostics & Intervention

**"The DX-Si gives the radiologist and surgeon an idea of the patient's condition almost immediately so the next step can start straight away."**

Prof. ERICH SALOMONOWITZ,  
Director, Institute for Medical Radiology,  
Diagnostics & Intervention

Finally, the radiologists themselves benefit from the new digital system thanks to its MUSICA<sup>2</sup> image processing software that automatically adjusts density and contrast to optimize the anatomic detail being studied, providing excellent visualization. Physicians and staff spend less time manipulating images by hand, which streamlines workflows while increasing diagnostic confidence. Increased productivity results in faster patient turn-around. And thanks to the software's new processing algorithms, the balanced presentation of bones and soft tissue within an image allows different studies to be completed using one image. •

#### DID YOU KNOW...

- » St. Pölten is the largest city in Lower Austria. The Regional Hospital serves its 51,000 residents in addition to surrounding locales.

# Mammography report turnaround time improved by 120 percent

New PACS enhances the delivery of patient care by quickening report turnaround

**INTERVIEWEE** Larry Leopold, Radiology Manager

Founded by physicians, Wichita Clinic is the area's largest outpatient health service employing 160 physicians covering 40 specialties in more than 12 locations. It annually handles over a half million patient visits. It's also one of the first North American sites to use IMPAX 6.4 from Agfa HealthCare, which offers a single integrated IT solution so radiologists can manage their complete workflow, from protocol sorting to final reading.

"There is an immediate 'wow' factor with IMPAX 6.4."

LARRY LEOPOLD, Radiology Manager



## AUTO LINK, A HUGE TIME SAVER WITH MR AND CT STUDIES

The Clinic has used previous IMPAX PACS versions and other Agfa HealthCare products for a long time, yet Larry Leopold, the Clinic's Radiology Manager, says there was an immediate "wow" factor with the new 6.4 software. "Our staff really benefit from its advancements such as the new navigation models and image management tools."

IMPAX 6.4 represents the on-going, 20-year evolution of Agfa HealthCare's PACS which is currently installed at over 1,700 sites worldwide. IMPAX 6.4's advanced design focuses on the seamless integration of RIS/PACS/Reporting Information and image management into one workflow from start to finish.

Larry Leopold applauds its new features: a redesigned clinical information page that provides fast access to clinical data during image review; embedded reporting tools for more productive voice enabled communication with electronic dictation solutions; IMPAX SmartSeek, a context-driven URL-based query model to support information searches, and; new visualization and navigation tools for large volume studies (CT/MR), with complex multi-series review.

One feature having a significant impact is 'Auto Link', which automatically links 'like series' within one study to make navigation through numerous series more efficient.

## IMPAX 6.4

- » Includes a redesigned clinical information page providing fast access to clinical data during image review.
- » New, embedded reporting tools make voice enabled communication/dictation more productive.
- » Features IMPAX SmartSeek™, a context driven URL-based query model to support information searches.

"When you're comparing new studies with priors using Auto Link, there's no need to roll back and forth to get to the same exact spot in the image – it's automatically lined up and you can start reading right away," said Larry Leopold. "This is a huge time-saver, especially with MR and CT studies."

"With Auto Link, there's no wasted effort and it's one less distraction to deal with, which means our team can more easily concentrate on what they're reading. Additionally, it's driving a significant time savings of 20-30 percent – our radiologists now read 2-3 more CT studies per day."

## FASTER REPORTING HELPS FIGHT BREAST CANCER

Wichita's mammography center is one area where IMPAX 6.4, integrated with Agfa HealthCare's RIS and Data Center systems, has had a dramatic impact. In fact, the Clinic has improved mammography result turnaround times by an outstanding 120 percent.

"IMPAX 6.4 provides a highly converged approach that helps us deliver patient care efficiently."

LARRY LEOPOLD, Radiology Manager





#### AGFA HEALTHCARE'S CONTRIBUTION

» IMPAX 6.4, an integrated RIS/PACS/Reporting solution connecting all image and information systems within a hospital, hospital group or between remote sites. Version 6.4 brings disparate information to the radiologists' desktop, regardless of the source.

#### DID YOU KNOW...

- » Wichita Clinic has served the healthcare needs of Kansas for 61 years.
- » The Clinic is known for its 'mammogram parties', a women's only event where groups of 10 or more meet for annual screening amidst free food, beauty consultations, paraffin hand treatments and friendship.

A key contributor to this reduction is the comparative review workflow that synchronizes display of current and prior images. By integrating the images, radiologists can move or magnify them at the same time, which act as a single image. This helps them better identify what they are seeing, leading to a confident, fast diagnosis and delivery of care.

"Today, if the physician sees something suspicious in a screening mammogram,

**"Auto Link is driving significant time savings of 20-30 percent. Our radiologists now read 2-3 more CT studies per day."**

LARRY LEOPOLD, Radiology Manager

he can tell the technologist in 10 minutes to bring the patient back in, decide whether or not to do a diagnostic test or biopsy, and have results back within two days. Previously, it would take up to two weeks for a woman to find out if she had cancer," says Larry Leopold.

#### **DIGITAL IMAGE/DATA MOVES ALMOST INSTANTLY FOR QUICKER EMERGENCY TREATMENT**

Within the IMPAX RIS/PACS Data Center (IDC) environment, Larry Leopold believes its biggest value is having all information from all sites in one place. Not only does this give radiology department caregivers quicker access to more information, but also enables Wichita to extend to other modalities in other locations, such as the emergency center.

Today, x-ray image acquisition, display, dispatch to a radiologist and dictation is almost instant, says Larry Leopold. The digital x-ray is quickly dictated, signed and automatically loaded into the IDC and routed to the emergency center – without manual intervention. Emergency center doctors simply click on the patient's name on the central monitor, look at the relevant data and begin treatment as quickly as necessary.

"Whether it's surgical imaging, digital mammography or gynecological ultrasound, we can now pull images taken five years ago at one location and images taken today at another, and read them side by side. It's a highly converged approach that helps us deliver patient care efficiently," says Larry Leopold. •



# Healthcare transformation: the combined benefits of CR and DR

Agfa HealthCare delivers on next level needs for digital radiography solutions

Interview with Christian Reinaldo, President Agfa HealthCare and Dirk Debusscher, Vice President Imaging Agfa HealthCare

Following up on several recent announcements made on new introductions in the field of Direct Radiography (DR) and Computed Radiography (CR), *THERE* magazine caught up with two business leaders at Agfa HealthCare who were part of the original drive behind their development. Our aim: to understand the reasoning behind their launch, the market needs the new solutions cater to, and their expectations for future developments in this field.

**Agfa HealthCare is launching two new DR solutions to the market, the DX-D 500\* and the DX-D 300\*\* and a new CR solution called DX-G. What is the strategy behind these launches?**

*Christian Reinaldo:* The introduction of DR to our portfolio and the expansion and evolution of our CR technologies is a clear strategic step. As a healthcare company, we have learned that the transformation of our customers needs is a process which takes time and requires a number of dedicated steps. That means that we strongly believe in the introduction of both DR and CR solutions, in a hybrid environment, which will dominate digital radiography for the next years. Having understood this, we have resolutely chosen to introduce both the DX-D family and the DX-G, the first in our next generation CR systems which complements DR through its flexibility.

*Dirk Debusscher:* If you look at our extensive history in the healthcare market, Agfa HealthCare has always been recognized as a leading provider of some of the most advanced solutions in analog and digital radiology to date. Today, we are able to offer our customers a full portfolio of CR systems, from low volume solutions to high end systems which meet the demand of multiple X-ray rooms, and even CR solutions providing DR image quality.

The move to DR solutions was, as a result, a natural evolution in our technological transition, as much as it was an evolution to meet our customers' increasing demands for more productivity in their workflow. The recent introduction of our DX-D 500 Direct Radiography System was very much driven by this demand.

These solutions are typically used in environments where the customer is looking for high productivity without compromising on image quality.

The introduction of our DX-G (G for General Radiography) solution also works along this principle. As our customers evolved, their demands for CR solutions that can handle more and deliver better image quality, either in partnership with DR or as stand-alone solutions, were clear. The DX-G is different, even unique, as it manages to read both standard phosphor plates and high-end needle detector plates for the total range of General Radiography applications, making dose reduction possible which is, for example, crucial in neonatal and pediatric exams. So briefly summarized, it offers the flexibility of CR and supports the demand for higher image quality in one solution.

**Can you tell us more about the benefits of these new introductions? What makes them unique?**

*Dirk Debusscher:* From a technological standpoint we have ensured that our DX-D solutions are able to meet the highest quality standards. We decided to aim high from the first solution onward as it is our ambition to ensure we meet and exceed the image quality and dose reduction demands of our customers.

Our recently introduced DX-G CR system aims to fill a gap in General Radiography and is the first of a series of solutions which seeks to improve the flexibility of radiology needs. It is able to process both standard phosphor plates and needle-based plates and offers a unique 5 cassette drop-and-go buffer system to improve overall workflow. With the DX-G's needle technology,

*"We want to introduce and be part of the digital transformation through DR, but ensure we maintain a clear focus on our customers' needs, with CR as the transitioning technology."*

CHRISTIAN REINALDO,  
President Agfa HealthCare

we are again offering the potential for dose reduction without affecting the image quality

What makes both our CR and DR solutions unique is that they are all offered with our gold standard MUSICA<sup>2</sup> image enhancement software and our leading NX workstation, Agfa HealthCare's image identification and quality control tool. That means that when technologists work with both our CR and DR solutions, they use the same workstation interface and get images with the same look and feel.

**So a clear statement, CR is here to stay as part of the overall and ongoing transformation of healthcare?**

*Christian Reinaldo:* We clearly see that CR has a role to play in the overall transformation of healthcare. It is part of the ongoing transformation in digital technologies and until DR can offer the flexibility of CR solutions in the fullest sense, it will continue to play a key role as a technology. We have also long understood that any change in healthcare technologies must be achieved at the pace of our customers. As we see CR and DR evolve in many US and European markets, we also note that traditional CR solutions are playing a key role in developing



CHRISTIAN REINAUDO

DIRK DEBUSSCHER

markets, which are moving away from analog based systems to digital.

The second part of this story has to do with affordability. In the US and Europe, jumping ahead to systems which skip a number of technological steps would mean that we would be forced to do this at a significantly higher financial cost to our customers.

With healthcare finances already under pressure, this would not be an effective move and we would not be responding to our customers' realistic needs. So the strategy is clear – introduce and be part of the digital transformation through DR, but ensure we maintain a clear focus on our customers' needs, with CR as the transitioning technology. The proof here is in the figures as 90% of our DR installations have been hybrid solutions, combining the versatility of CR with the productivity of DR.

So in brief, jumping ahead will only mean that we lose sight of the customers' needs. Our role is to prepare and support the market's growth by working at the pace of the market and not forcing it.

**You talked about different geographic regions and their needs – what are your ambitions with CR and DR on the global market?**

**Dirk Debusscher:** Our strategy is clearly a global one. We aim to meet the needs of both strongly developed healthcare markets as well as those that are transitioning toward digital solutions. Our extensive portfolio of solutions is geared towards meeting this demand and we aim to ensure we can deliver to the needs of any facility, of any size, anywhere in the world with our CR and DR systems.

**What will the future bring – more DR and CR from Agfa HealthCare?**

**Dirk Debusscher:** You can count on us in both cases. We are already taking steps in the expansion of our DR portfolio with the launch of our DX-D 300 U-arm solution. On the level of CR, the launch of our DX-G is only a first step in a series of next generation CR systems and more will be revealed in due time.

**Christian Reinaudo:** Our path forward is clear. Yes, Agfa HealthCare is investing to expand its IT solutions, such as PACS, Clinical Applications and Data Centers to meet the increasing demand for integrated and efficient care, across departments, hospitals and regions. But we have also understood that, while regional and national care systems are the ambition, the road towards

**“DX-D 500 Direct Radiography System is typically used in environments where the customer is looking for high productivity without compromising on image quality.”**

DIRK DEBUSSCHER,  
Vice President Imaging

achieving those requires a number of concrete transitional steps. Fully functional digital systems is the eventual ambition, but while the technology continues to evolve, we need to ensure our customers can continue to deliver the best care to their patients today. It is therefore up to the existing technologies to complement the new and while DR delivers on the productivity needs, CR still has the advantage of versatility. Where both are needed, and this is in a majority of cases, Agfa HealthCare will provide. Healthcare transformation is about a gradual change, which will in turn, deliver stability, cost efficiency and solutions which support today's patients, and transition us into tomorrow's healthcare. •

# New DR solution improves productivity while cutting radiation dose by 40%

Faster throughput and better image quality achieved using a completely digitized x-ray room

**INTERVIEWEE** Jens Rodenwaldt, MD, Head Physician, Radiology Department • Heike Stephan, MD, Senior Radiologist



This 451-bed hospital in Dortmund, northwest Germany, recently installed Agfa HealthCare's new direct radiography (DR) solution, the DX-D 500\*, integrated with a DX-S computed radiography (CR) system. This has led to the creation of a fully digitized x-ray room. Special exams like bedside exposures are now being performed with the integrated, offline DX-S CR solution.

## HIGH IMAGE QUALITY AND USER-FRIENDLINESS IN DEMAND

The radiology department at Knappschaftskrankenhaus Hospital is now highly digitized. Its RIS organizes patient data, order requisitions and invoicing while an IMPAX PACS manages all images including those from existing x-ray tables digitized by the DX-S system.

"In this digital environment, we sought a direct radiography solution because we wanted faster workflows and better image quality," says Jens Rodenwaldt, MD and head physician in the radiology department. "With DR technology,

"The image quality is simply outstanding. We see more detail, and the contrast ratio is better."

JENS RODENWALDT, MD, Head Physician, Radiology Department

images are available immediately after the examination and technologists do not have to waste time walking back and forth between various devices. We've increased patient throughput as a result."

"In Agfa HealthCare's favor was our good experience with their CR systems and their proven, excellent services," says Senior Radiologist Heike Stephan, MD.

## SMOOTH WORKFLOWS THROUGH SYSTEM INTEGRATION

The new DR system is fully integrated into the existing IT infrastructure. The order requisition is sent as a DICOM worklist directly from the RIS to the NX workstation of the

DX-D 500 located near the procedure room. The technologist can then select his patient from that list right at the workstation. "Exam parameters are already stored in the system so there is no need for manual entry," says Senior Radiologist Heike Stephan, MD.

Special x-ray exams, such as at bedside or on post-operative patients who can't easily be moved, are performed using the cassette-based detector technology of the integrated DX-S, a CR based imaging solution. "The innovative Needle Image Plate (NIP) delivers excellent image quality," says Dr. Rodenwaldt. "Since we have both CR and DR solutions from Agfa HealthCare, we can work with the same imaging data as for DR. This ensures all x-rays are consistently presented, which makes diagnosis easier for us."

"Thanks to MUSICA<sup>2</sup> processing software, the images we receive are of excellent quality," claims the senior radiologist. The software runs a



#### DX-D 500

- » Designed to match the entire spectrum of radiology exams, delivering near real-time image previews and fast cycle times.
- » Improves overall radiology department productivity and staff efficiency.
- » Streamlines workflow through NX Workstation and MUSICA<sup>2</sup> image processing.

“Since we have both CR and DR solutions from Agfa HealthCare, we can work with the same imaging data as for DR. This ensures all x-rays are consistently presented, which makes diagnosis easier for us.”

JENS RODENWALDT, MD, Head Physician,  
Radiology Department

two-dimensional analysis of the raw x-ray data based on frequencies and grayscale. The processing parameters are automatically adjusted to any study.

#### OUTSTANDING IMAGE QUALITY WITH DOSE REDUCED BY 40 PERCENT

Acceptance by the radiologists was high from day one. “The image quality is simply outstanding. We see more detail, the contrast ratio is better, and x-rays are better presented which in turn makes

diagnosis easier,” says Dr. Rodenwaldt. “Furthermore, we have also been able to reduce the radiation dose by about 40 percent.”

Drs. Rodenwaldt and Stephan both gave positive assessments of the DX-D 500: “Our expectations were met in full. We now easily and quickly perform a full range of exams to a very high standard, which allows us to work at a fast pace.” •

#### AGFA HEALTHCARE'S CONTRIBUTION

- » DX-D 500 DR system with needle detector technology, and MUSICA<sup>2</sup> image processing enhancement software that provides optimal, consistent image quality that's exam independent.
- » DX-S CR solution with DirectriX needle-based detector and Scanhead line-to-line CR stimulation and light collection technologies.



“In Agfa HealthCare's favor was our good experience with their CR systems and their proven, excellent services.”

HEIKE STEPHAN, MD, Senior Radiologist



#### DID YOU KNOW...

- » With a population of nearly 584,000, Dortmund is Germany's 7<sup>th</sup> largest city.
- » Agfa HealthCare is the only imaging company today to offer needle quality in a CR and DR solution.

# Tuberculosis hospital embraces digital workflow in fight against TB and HIV/AIDS

CR 30-X tabletop system, RIS and IMPAX 6.3: outstanding cost/value ratio along with exceptional performance

**INTERVIEWEE** Daniel Theron, M.D., Medical Superintendent

Significant improvements in radiology department efficiency, the delivery of patient care, exam management and results turnaround have been noted in just six months after the deployment of Agfa HealthCare's Computed Radiography (CR) solutions along with its Radiology Information System (RIS) and IMPAX Picture Archiving and Communications System (PACS). These systems provide rapid access to high-quality images that can be distributed hospital-wide to affiliated clinics and to physicians' offices using secure Internet links.

## IMPAX TO HELP CLINICAL STAFF MORE EFFECTIVELY TREAT TB AND ASSOCIATED HUMAN IMMUNODEFICIENCY VIRUS (HIV)

While tuberculosis (TB) and the need for dedicated TB hospitals have diminished in many parts of the world, TB rates in South Africa's Western Cape region are among the highest on the continent, at epidemic levels. Overall, nearly half a million new cases occur in the country every year. It is in this environment that you will find 206-bed Brewelskloof Hospital, a specialized TB treatment center roughly 110 km west of Cape Town. The first IMPAX PACS in South Africa – and among the first in the sub-Saharan region – went online in January 2009 to help physicians and clinical staff more effectively treat TB and associated Human Immunodeficiency Virus (HIV) conditions that often accompany it.

Five physicians supported by 166 staff members handle 700 admissions annually to the 60-year old state-funded hospital. About 1,500 inpatient x-ray studies are performed annually, with an additional 3,000 done on an outpatient basis. The biggest challenges are infection control, patient compliance

with TB treatment, daily care of extremely ill HIV patients, and staff recruitment and retention. In addition to IMPAX 6.3 PACS, Agfa HealthCare's RIS and CR 30-X systems used primarily for chest and extremity studies round out the hospital's new digital solution.

## DIGITAL WORKFLOW ELIMINATES LOST OR MISSING HARD COPY IMAGES AND DATA

"We were constantly frustrated by x-rays and paper-based data going missing in the hospital, as well as material sent to regional health clinics getting lost," says Daniel Theron, M.D., Medical Superintendent at the facility.

"Like medical professionals everywhere, we're well informed of new digital systems and techniques, and realized our workflows could no longer meet the speed and productivity expectations of 21<sup>st</sup> century healthcare."

"Agfa HealthCare's solution offered the best cost/ratio value, along with exceptional performance and a very supportive team."

DANIEL THERON, M.D.,  
Medical Superintendent





#### CR/RIS/PACS

- » Allows images and data to be quickly sent within a hospital, throughout a region or around the world. Ability to digitally manipulate images for greater detail and clarity.
- » Produces multiple original images that can be immediately shared on a secure digital network. Eliminates searching for lost hard copies.
- » Improves departmental productivity and expedites patient treatment. Medical staff feels they are at forefront of their profession.

A formal tender was issued by the Western Cape Health Department for a standalone CR system and a combined RIS/PACS to digitize and manage all radiology exams at the facility. “Agfa HealthCare’s CR 30-X tabletop system, RIS and IMPAX PACS were selected because they offered the best cost/value ratio along with exceptional performance and a very supportive team,” Dr. Theron says.

All equipment was installed in late December 2008, taking about two weeks because the radiology department had to be specially cabled for digital infrastructure. Agfa HealthCare managed and implemented this process as part of the contract. Included was a network of four diagnostic workstations, four review monitors, a server and CD writer, and a DRYSTAR 5302 tabletop direct digital imager. “This allows us to give discharged patients a CD or print to share with their own doctor,” Dr. Theron says.

“Having images quickly available at the touch of a button expedites patient treatment. A single, high-quality digital exam can be quickly distributed to multiple workstations, reading monitors or secure personal laptops. Images, clinical notes and patient demographics now flow rapidly throughout the department, to wards or the surgical theater. Data can also be sent via a secure Internet link to outside clinics or physician offices. Best of all, hard copy images and reports do not go missing anymore,” Dr. Theron states. He adds that the depth of information rapidly available in a digital workflow also provides excellent patient tracking and treatment efficiency.

#### AGFA HEALTHCARE’S CONTRIBUTION

- » CR 30-X Digitizer, IMPAX RIS/PACS, DRYSTAR 5302 tabletop laser imager.



“Having images quickly available at the touch of a button expedites patient treatment.”

DANIEL THERON, M.D.,  
Medical Superintendent

Digital image manipulation is also a key benefit. “If an image is too dark, we can digitally correct it without having to retake it, zoom in on specific areas and share images with colleagues in consultation,” Dr. Theron says. “Side-by-side, on-screen comparison with previous images is also possible, which often includes older exams made in our previous workflow that have since been scanned into the PACS.”

#### AGFA HEALTHCARE PROVIDES NOT JUST EQUIPMENT, BUT A WHOLE NEW WAY OF WORKING

In addition to the equipment’s overall performance and technical superiority, the doctor adds that a vital benefit was Agfa HealthCare’s formal analysis and consultation in switching from analog to digital workflows. “Their technical team and project leader invested many days studying our old processes, learning our desired improvements, and optimizing their products to achieve our goals in a new workflow,” Dr. Theron says. “As a

result, our entire working environment has been improved. We’ve received more than just a digital solution, but rather a whole new working mindset that fits our needs, which is highly productive and far less frustrating. It helps focus our efforts on expedient patient treatment versus the drudgery of lost file searches or copying piles of paperwork.”

Finally, Brewelkskloof Hospital sees a somewhat unconventional benefit from its new RIS/PACS system: a way to recruit new physicians. “Let’s face it. Doctors don’t stand in queues to work at TB hospitals, especially in rural areas like ours,” Dr. Theron says. “So having this up-to-date technology is critical for raising staff morale, along with acquiring and retaining valuable medical professionals who almost always prefer working at the forefront of their profession versus some place that’s behind.” •

#### DID YOU KNOW...

- » Brewelkskloof Hospital also provides TB outreach services through 21 District Clinics as well as area correctional facilities.
- » The proportion of people becoming sick with TB each year is stable or falling worldwide but, because of population growth, the absolute number of new cases is increasing.



Image courtesy of the Department of Cultural Affairs, City of Chicago.

**ARTIST** DAN PETERMAN 1999

**ARTWORK** Running Table

**LOCATION** Rainbow Beach,  
Lake Shore Dr. at 71st St.

Dan Peterman's 100-foot-long picnic table invites visitors to join together in a communal banquet. Made entirely from recycled plastic (the equivalent of two million plastic milk bottles) the sculpture is an ironic comment on the futility of recycling. The recycled plastic is the result of new techniques to deal with the ever increasing glut of consumer pollution.

With the process itself creating new sources of waste as it recycles existing ones, the millions of milk bottles will never disappear. Running Table is a part of Peterman's ongoing examination of the intricate economic systems of recycling projects and how they reflect society's contemporary relationship with the environment.



# Improved ergonomics, dose reduction and excellent image quality

Thonon and Evian radiology facilities implement the DX-S solution, reaping the benefits

**INTERVIEWEE** Dr. Stéphane Carré, Imagerie Médicale des Sources

As part of their expansion, the Thonon and Evian facilities wanted to improve efficiency in order to meet the increasing demand for quality care. They turned to their long-term supplier, Agfa HealthCare, to implement a digital imaging solution – the DX-S. It was an ambitious project aiming for excellent performance in terms of ergonomics, dose reduction and image quality – all to improve patient comfort.

## IMPROVING THE TEAMS' PRODUCTIVITY

Located in a small community, the Thonon and Evian facilities must be able to provide high-quality patient care while responding quickly to the requirements of their associates: hospital physicians, private specialists, city-based GPs, GPs in the mountainous areas. In order to achieve these objectives and support their unique medical offerings, innovative imaging systems were required including CT, ultrasound and general radiology.

Agfa HealthCare is a long-term supplier to both facilities and is known for the quality and performance of its solutions. Therefore, it was natural to acquire three of the company's DX-S computed radiography (CR) systems – two in the Thonon facilities, and one for Evian. The decision was also prompted by the fact that the DX-S systems can be used in-room, enabling technologists to remain in the examination room for the entire study without having to transport cassettes to another room for processing, as was done previously.

## DID YOU KNOW...

- » With the DX-S solution, technologists remain close to their patients for the entire procedure and can therefore reassure anxious patients and children.
- » Thanks to the versatility and flexibility of the DX-S solution, technologists benefit from more efficient workflows, fewer unnecessary trips, and the ability to treat up to six patients more per system, per day.



**“The fast image preview function, which is efficient and practical to use, makes the DX-S solution a valuable, indispensable tool for the technologists, who have seen their daily routine revolutionized.”**

Dr. STÉPHANE CARRÉ,  
Imagerie Médicale des Sources

As a consequence, the teams save precious time and improve the general organization of the rooms enabling eight technologists working in both sites to treat up to 12 additional patients per examination room per day.

## OPTIMIZED IMAGE QUALITY AND X-RAY DOSE REDUCTION

As well as time savings, the DX-S solution also comprises unique and innovative technologies, providing a much higher image resolution than the Thonon and Evian facilities could achieve with their previous systems. In fact, the DX-S system uses line-to-line scanning technology as well as high-performance needle-based detectors, which increase the absorption and reduces the scattering of x-rays.

## DX-S

- » Exceptional image quality.
- » Reduced x-ray dose.
- » Versatility.
- » Increased productivity.
- » Proximity to the patient.

The technologists can lower the radiation dose to the patient while at the same time benefit from a good quality, high-resolution image. “The fast image preview function, which is efficient and practical to use, makes the DX-S solution a valuable, indispensable tool for the technologists, who have seen their daily routine revolutionized,” comments Dr. Stéphane Carré who works in the Imagerie Médicale des Sources facilities.

## IMAGING AT THE HEART OF PATIENT CARE

Patient comfort is a central concern of the five physicians practicing at the Thonon and Evian facilities. Moreover, by having a flexible system capable of performing a full range of imaging procedures right in the examination room, technologists can remain close to their patients during exposure, image processing and quality control. This allows them to stay with their patients to reassure them, which is particularly useful when the patient is a child.

“Agfa HealthCare has enabled us to fully achieve our objectives and meet our growth challenges by providing high image quality, optimized workflows, and improved care through reduced x-ray doses,” concludes Dr. Carré. •

## AGFA HEALTHCARE'S CONTRIBUTION

- » The DX-S digital radiography solution helps streamline the activities of the Imagerie des Sources medical centre by providing unrivalled performance in terms of image quality and efficiency. The system's versatility also contributes to greater patient comfort and lower x-ray doses.

# Cluster PACS helps serve 1.1M people

Fast, efficient medical imaging shared between two major Hong Kong hospitals improves healthcare delivery in a hospital cluster

**INTERVIEWEES** Derek Kwan, Sr. Technologist, Department of Radiology • Anthony Chan, Manager, Department of Radiology & Nuclear Medicine

The New Territories West Cluster (NTWC) refers to one of the seven public hospital clusters under the administration of the Hong Kong Hospital Authority (HA). NTWC is one of the world's most densely populated areas – about 1.1 million people, or one-seventh of Hong Kong's population lives here. The HA was established in 1990 and currently manages 41 public hospitals/institutions. It delivers comprehensive secondary and tertiary care and medical rehabilitation through its hospitals and clinics.

## HIGHLY ADVANCED MEDICAL SERVICES AID LIFE EXPECTANCY

Hong Kong is one of the world's healthiest places thanks to its sophisticated medical services and highly developed early health education and medication programs. Average life expectancy is 84 for women and 78 for men, the second highest in the world.

Yet despite its huge population, NTWC is served by four hospitals – Tuen Mun Hospital (TMH), Pok Oi Hospital (POH), Castle Peak Hospital (CPH) and Siu Lam Hospital (SLH). TMH and POH are just eleven kilometers apart.

TMH is a 1,822 bed, 11 story facility covering 212,634 square meters. A separate four story rehabilitation facility, ten story ambulatory care structure, oncology center and pathology building round out the campus.

POH has a 622-bed capacity and a variety of health services in a new, 13 story building that houses a specialized outpatient department, 24-hour emergency center, family medicine, psychology, a diabetes center and podiatry clinic. It also plans to develop an ambulatory surgery center.

## AGFA HEALTHCARE'S CONTRIBUTION

» IMPAX 6.3 is an integrated RIS/PACS/Reporting solution connecting all image and information systems within a hospital, hospital group or geographic cluster so data can flow seamlessly and securely to all clinical areas.

## STAFF SHORTAGE, HUGE WORKLOAD CHALLENGE HEALTHCARE PROVIDERS

"Because both hospitals (TMH & POH) serve an area of over a million people, and together perform more than a half million imaging exams annually that typically require multiple views, our volume is tremendous," says Anthony Chan, Department Manager at TMH's Department of Radiology and Nuclear Medicine.

"IMPAX has been extremely reliable and highly available, offering fast access to images."

DEREK KWAN, Sr. Technologist,  
Department of Radiology

All this occurs amidst a shortage of qualified technologists and radiologists in both hospitals that, according to Anthony Chan, results from a huge demand that local medical and allied health training institutions currently can't meet.

This challenge, combined with the sheer volume of work, contributes to long wait times for elective x-ray exams in the public hospital system. Screening mammograms are sometimes scheduled a year in advance. Waits for elective MRI or CT studies are measured in weeks or months. Volume delays also negatively impact inpatient length-of-stay. In 2006, the NTWC sought to improve staff efficiency and cut wait times by installing

## IMPAX 6.3

- » Provides a complete digital workflow that is faster and more efficient than traditional processes.
- » Supports one hospital or multiple facilities in an enterprise-wide solution, across town or throughout a region.
- » Full DICOM/HL-7 compatibility links IMPAX to a range of modalities and devices from other sources. Also provides easy data migration from current or original databases.





a single-platform PACS linking TMH and POH. The unified system, called a cluster or enterprise PACS because it integrates images and data within the cluster, replaces the mini-PACS used in TMH's radiology department for over 8 years that was unable to communicate with the POH PACS installed in 2007.

Digitally linking both facilities also promotes other efficiencies. TMH and POH work under the same management structure and routinely transfer patients between each hospital. Also, patients at either hospital are managed by the same clinical teams, and clinical staff at both work for the same department heads. And radiological images taken at either hospital or in surgical, emergency or cardiovascular suites needed to be available to physicians across each facility.

A tender was announced, and of two finalists, an IMPAX 6.3 PACS from Agfa HealthCare was selected because it met all requirements to help accelerate image and data transfer within the cluster, help eliminate lost or missing hardcopy images, and create a seamless healthcare

service between the two institutions. The efficiency that resulted has since helped decrease x-ray wait times. POH went online in early 2007. TMH tied into the PACS the following year making their digital x-ray exams easily and quickly available at POH.

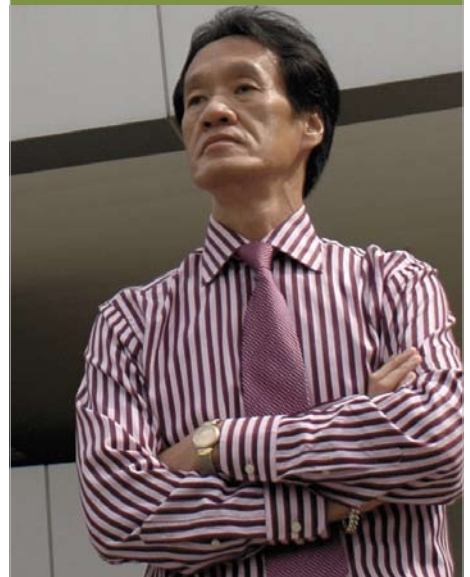
**VENDOR NEUTRALITY A KEY ADVANTAGE IN INTEGRATION AND DATA MIGRATION**

Derek Kwan, Senior Technologist at POH, says: "The main IMPAX server located here has been extremely reliable and highly available, offering fast access to images, including pre- and ad-hoc fetch of historical data." It also provides long-term storage for digital images for each hospital, as well as a workflow manager program, redundant database, connectivity manager and other valuable software including vendor-neutral integration with some 90 digital workstations enterprise-wide (53 IMPAX client stations together with 36 Web client ones). Also included are units in the Casualty Department and others designed for orthopedics at TMH's Ambulatory Care Center. Finally, there are custom displays associated with digital mammography, MRI and CT scanners.

Derek Kwan says the standards-compliant IMPAX PACS is fully compatible with various devices, making data migration from older systems easy to perform. It also supports the HA's territory-wide ePR (electronic patient record) database started 10 years ago. Physicians and clinicians regularly access ePRs through web-based tools

**"Department and clinical staffs have quickly adapted to IMPAX and the efficient workflow it offers."**

ANTHONY CHAN, Manager, Department of Radiology & Nuclear Medicine



that now include images/data from the cluster PACS.

Anthony Chan says: "Radiology Department and TMH clinical staffs have quickly adapted to IMPAX and the efficient workflow it offers. It's always up and available." Adds Derek Kwan: "IMPAX has provided a good solution to our many challenges. I'd recommend it to other hospitals facing similar ones." •

**DID YOU KNOW...**

- » Hong Kong pioneered liver transplantation, being the world's first to perform an adult to adult, live donor transplant in 1993.
- » There are an average 6,300 people per square kilometer in Hong Kong NTWC.
- » TMH also uses Agfa HealthCare's Cardiovascular Information System (CVIS) in its cardiology suite.

# Cardiovascular PACS links three sites to quickly diagnose heart conditions

A reliable digital solution providing expedient heart imaging and patient data helps to speed report turnaround and treatment

**INTERVIEWEE** Nick Liesinger, Management Information Systems

Heart disease is the leading cause of death in America. The American Heart Association says it killed almost a half million people in 2008. That's why cardiologists must act quickly based on what they know and see in a patient at any particular moment. With this in mind, the Avera Heart Hospital of South Dakota recently turned to Agfa HealthCare for a faster, more efficient way to digitally share patient images and information.

## A SOLUTION BEST SUITED TO ENTERPRISE CHALLENGES

In 2007, Avera wanted to move to a fully digital image and data-sharing platform. At the time, it used conventional imaging practices and VHS tapes of patient cardiovascular procedures for study and archive. To change this, it sought to create a central digital repository that would display and store all images as well as those from two affiliated, offsite Sioux Falls locations – The North Central Heart Institute (NCHI), and Avera McKennan Hospital/University Health Center.

First, Avera Heart needed to take a significant step towards creating a digital environment and engaged Agfa HealthCare for help.

According to Nick Liesinger in Management Information Systems at Avera Heart, after reviewing a number of industry offerings, it selected Agfa HealthCare's IMPAX Cardiovascular (CV) solution as it better met the needs of

## AGFA HEALTHCARE'S CONTRIBUTION

» IMPAX CV, a PACS solution specifically designed for cardiovascular environments combining patient images with supporting data in an easily accessible format. It helps speed report turnaround times facilitating confident diagnoses and treatment.



"Physicians can now view studies almost anywhere, even online, which means efficiencies gained as well as improved delivery of care."

NICK LIESINGER,  
Management Information Systems

an enterprise organization over three dispersed sites.

"Trying to get three completely separate institutions to agree on the same system is not easy. The IMPAX solution was the right tool for the job, and they helped guide us throughout the project," said Nick Liesinger.

IMPAX CV is an enterprise platform supporting both departmental and enterprise workflow by offering image acquisition, display, reporting, storage and distribution management

## IMPAX CV

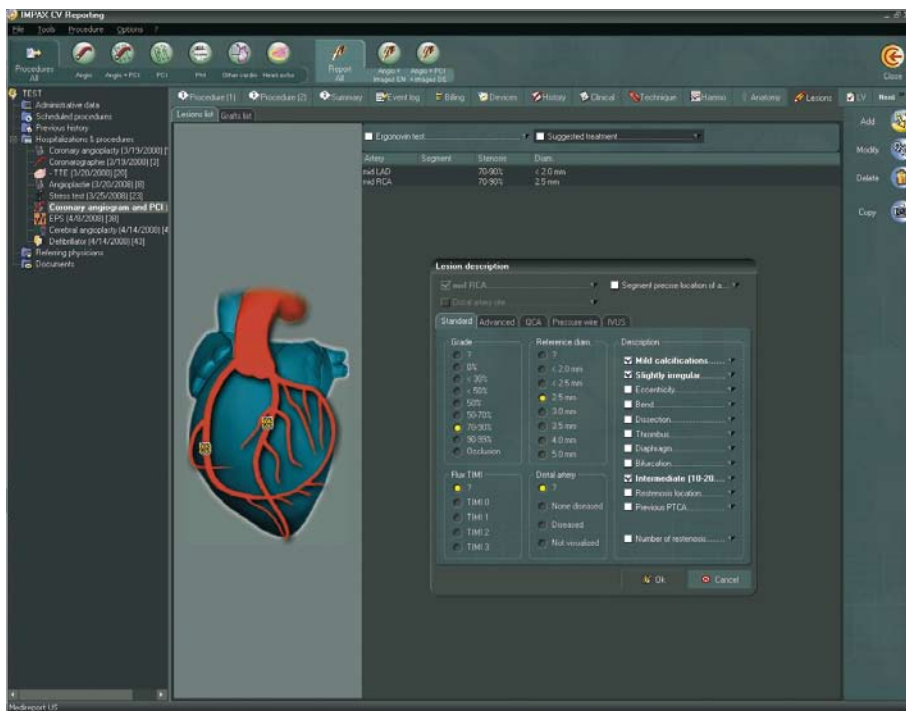
- » Streamlines workflow by consolidating information/images from all cardiology sub-specialties and modalities.
- » Supports evolving standards for integrated imaging/reporting for Echo, CT, NM and ECG.
- » Works with all cardiology modalities, hemodynamic systems, ECG carts, etc.
- » Leverages standards-based interfaces between other hospital systems. Aids accuracy of patient records.
- » Delivers patient-centric view of entire imaging record. Offers single sign-on to multi-vendor, multimodality images/information.
- » Lets clinicians easily extract relevant patient information/clinical data into consistent structured reports.
- » Offers advanced image management, structured reporting and secure enterprise-wide access to diagnostic data.

from multiple cardiovascular imaging modalities.

Prior to implementation, Liesinger's team installed digital connectivity between the locations, improving the network infrastructure to accommodate larger bandwidths and tighter security. Laying this groundwork was key to the project's success.

Agfa HealthCare and Avera met at the project's outset to discuss overall objectives, nuances and variables of the installation. Agfa HealthCare engineers completed a thorough assessment to put the solution in place, and the professional services team made sure everything from domains to switches were ready ahead of time.

"When you understand the scope of this project and its complexity, it's impressive to see how smoothly it went," said Nick Liesinger. "IMPAX CV is an excellent imaging system and the reporting features are great. It does everything we want it to."



## Agfa HealthCare Wins Award for Exceptional Service Quality

Agfa HealthCare was honored with a five-year award for exceptional service quality at SERVICE 800's recent Customer Satisfaction Executive Conference. This annual forum is a gathering of technology executives from around the world who have a common interest in measuring and benchmarking service performance delivery.

SERVICE 800, with offices in the US, Europe and Asia, designs and administers real-time customer satisfaction measurement programs, helping service organizations follow up with customers within hours or days of service events. The award presented to Agfa HealthCare marked five or more years of performing at, or above industry-wide benchmark levels and for proving its commitment to service excellence.

Agfa HealthCare's worldwide support capabilities help its customers maximize their investments, optimize their performance and costs, and enhance the delivery of their patient care. The company's service organization employees are guided by the principles of customer accountability, organization teamwork, employee ownership of the customer experience, and the highest levels of professionalism. Agfa HealthCare works with SERVICE 800 to benchmark customer satisfaction and ensure ongoing service delivery improvements. •

Once installed, all the staff and physicians attended training sessions to learn how the new solution would improve their workflow. According to Nick Liesinger, the feedback was positive, as they recognized the impact of being able to access current and archived patient images without having to dig through tapes.

### REAL-TIME CONSULTATION AT DISPERSED SITES SPEEDS TREATMENT

With IMPAX CV in place, the three hospitals now have a tool to help cardiologists do their jobs more efficiently. From server core, workstations to archival solutions, the PACS enables caregivers to work the way they want. The 80-plus users at all three sites enjoy on-demand, multiple modality access to images, data, analysis, and reports from any workstation, and even compare and contrast cardiac information with CT, MR, and CR studies.

Nick Liesinger says this ultimately improves healthcare delivery. "The solution makes it easier for cardiologists to quickly find and access patient images both on- and offsite, driving faster report turnaround times and confident diagnosis and treatments."

Tom Isaacson, M.D., a cardiologist at NCHI, loves the new system. "Cath lab, angiograms and stent procedures can now be viewed using a digital medium,

which can be easily stored and used securely," he said.

One of IMPAX CV's main advantages is uniform access to images and reports, so physicians can quickly display the data they need. For example, a physician at Avera McKennan who just conducted an angiogram needs to consult with another physician at NCHI. Both caregivers can now securely view the exam together at the same time, from two different locations. "With these tools, I don't have to tell a patient I'll get back to them because I need to locate a tape or send it for review. I can do it all instantly from wherever I am at that moment," said Dr. Isaacson.

Additionally, because Avera Heart and Avera McKennan Hospitals have wireless environments, surgeons can now display a patient's exam on their laptop, walk into the waiting room and show the family what just happened in surgery. "Physicians can now view studies almost anywhere, even online, which means efficiencies gained as well as improved delivery of care," said Nick Liesinger. •

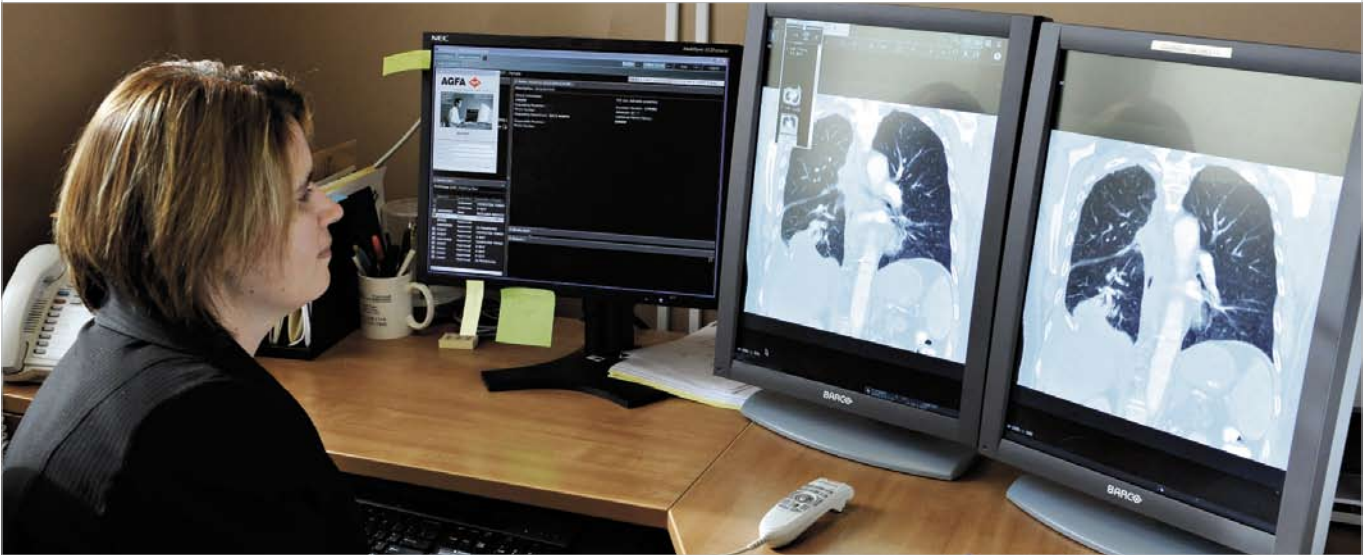
### DID YOU KNOW...

- » Avera Heart Hospital is a spacious new facility, treating its first patient in 2001.
- » It's part of Avera Health, a regional health care family of 235 facilities in both North and South Dakota, Minnesota, Iowa and Nebraska.

# Long waits for x-ray results dramatically cut

A combined IMPAX PACS, RIS and Reporting solution helps this hospital dramatically reduce radiology report turnaround from weeks to hours.

**INTERVIEWEES** Dr. Boubalos, Radiologist • George Gref, PACS Administrator • Julie Lampron, Director Diagnostic Services



Cornwall Community Hospital (CCH) is a 170-bed acute care facility located at two sites in this Eastern Ontario city. It provides in-patient, ambulatory and community based services, and needed a way to improve its radiology department report turnaround to support better delivery of patient care.

## ALL-DIGITAL DEPARTMENT SPEEDS WORKFLOWS

Waiting in line can be annoying, but imagine having to wait weeks or even months for final results of a medical exam. Yet, many Canadian healthcare facilities face such a challenge and are increasingly turning to new technologies to cost-effectively optimize workflows.

CCH approached Agfa HealthCare to develop a more efficient, yet secure, means of managing and storing patient exams. Additionally, it needed to optimize clinical workflow in the radiology department to shorten times between scheduling and performing an exam, as well as disseminating and reporting findings and delivering the

final results to the patient. As a dual-site facility, CCH also wanted to decrease wait times associated with sharing patient files and images between the two hospitals.

“It could sometimes take weeks or even months before the final report was delivered back to the patient,” said Julie Lampron, CCH’s Director Diagnostic Services. “To ensure we were providing the best possible care, we decided to make the radiology department all-digital so physicians could access

“The ability to quickly turnaround high quality digital images and share securely between sites helps us work more efficiently and speeds critical results to our patients.”

Dr. BOUBALOS, Radiologist

## IMPAX PACS, RIS, SPEECH

- » Offers a complete electronic workflow that is fast, efficient and of high quality.
- » Instant access to patient information, increased productivity and more informed decisions.
- » Faster report turnaround time for decreased treatment cycles.

patient images quickly, while at the same time, significantly condense the interval between patient assessment and diagnosis.”

## ABILITY TO FIND AND COMPARE CURRENT AND ARCHIVAL IMAGES

CCH went through a three-month overhaul of its radiology department to become the first healthcare facility in North America to deploy the IMPAX Speech Recognition System integrated as a single solution with an IMPAX PACS and RIS.

CCH has since increased productivity by giving physicians the ability to

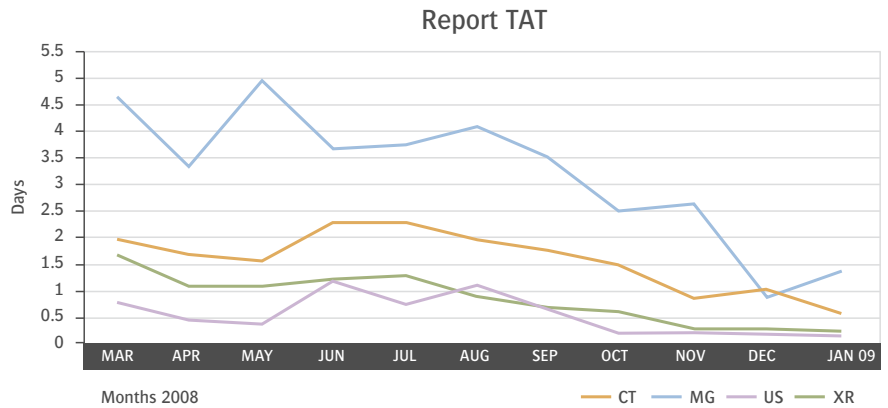
“Not only does IMPAX provide a more complete view of a patient’s radiology history, it also helps decrease wait times sending and processing a patient’s exam.”

GEORGE GREF, PACS Administrator

quickly share images and reports electronically, as well as easily order and manage diagnostic imaging exams and promptly generate patient reports using the speech recognition technology. This allows authorized users at either CCH location to aggregate and view current and prior exams and associated radiology information to make more informed decisions, regardless of the site where the exams originated.

IMPAX PACS now enables CCH radiologists to produce combined patient results – images, and information – within seconds of completing the exam. Data is entered once and shared throughout the system, saving significant time for patients and physicians, and decreasing lost or misplaced patient information.

“The benefits of an integrated PACS, RIS, and speech solution extend beyond the radiology department. The ability to quickly turnaround high quality digital images and share securely between sites helps us work more efficiently and



#### AGFA HEALTHCARE’S CONTRIBUTION

» IMPAX PACS/RIS/Speech offering an integrated solution to help improve workflow through the entire imaging chain.

speeds critical results to our patients,” said Dr. Boubalos, Radiologist at CCH.

“Not only does this system provide a more complete view of a patient’s radiology history, it also helps decrease wait times sending and processing a patient’s exam; we can create a copy of patient images on a CD within an hour of the exam,” said George Gref, PACS Administrator, CCH.

#### REPORT TURNAROUND DROPS FROM WEEKS TO HOURS

In only one year following implementation, CCH’s turnaround time for a validated report has improved significantly, with a majority

of reports ready in about 12 hours. This dramatically reduces patient wait times for receiving final results.

The integrated PACS/RIS/Speech solution has also helped physicians efficiently deliver results and helped to lower the number of redundancies involving misplaced or inconclusive images. Through the IMPAX centralized information system, physicians can instantly view and contrast past and current exams to provide accurate, comprehensive diagnosis. •

#### DID YOU KNOW...

- » A huge construction and renovation project is now underway at CCH that will include new operating rooms, emergency, and radiology facilities.
- » Cornwall is located equidistant from two of Canada’s major cities. It’s 96.5 kilometers southeast of Ottawa, Canada’s capital, and 96.5 kilometers southwest of Montreal.



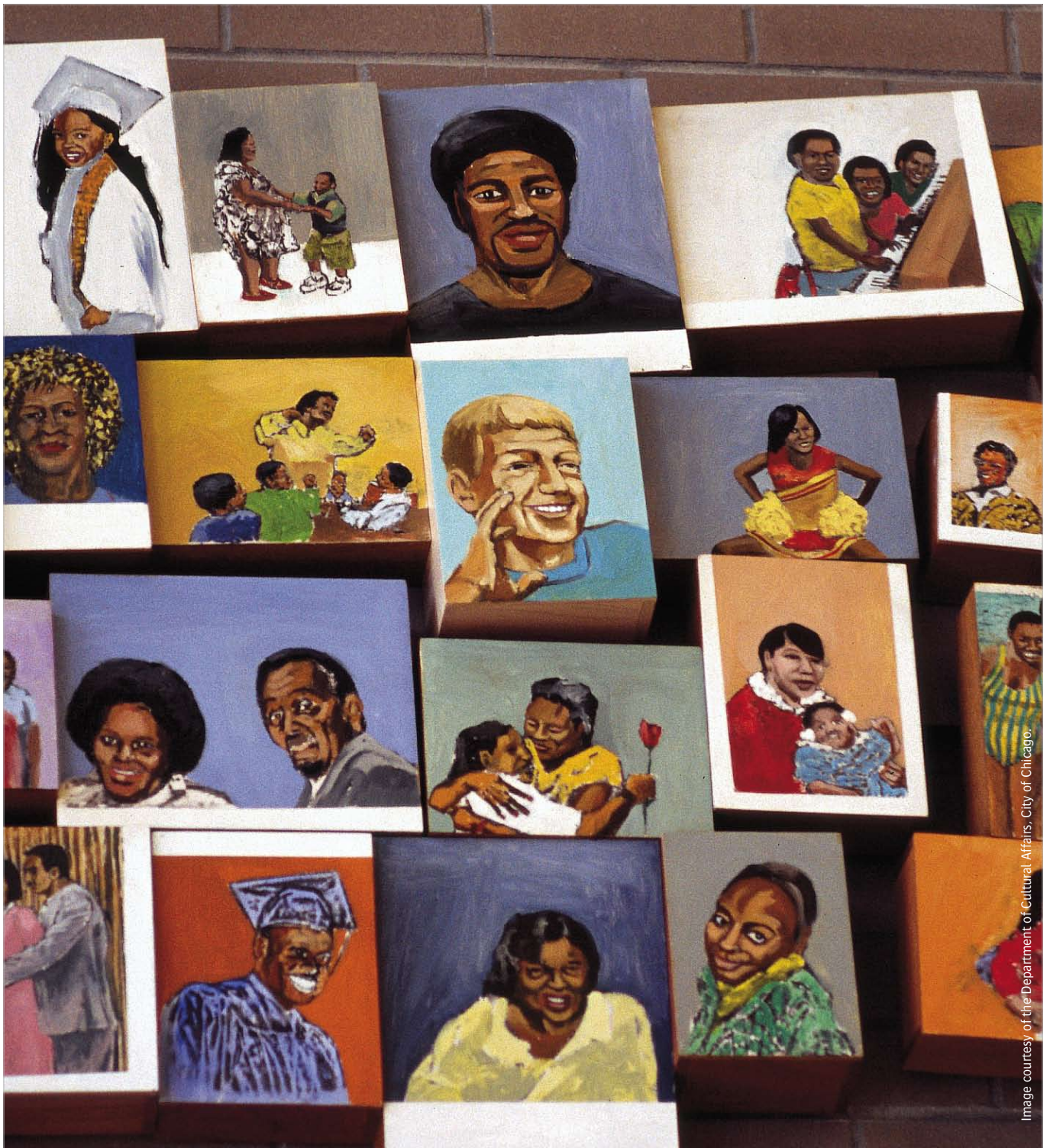


Image courtesy of the Department of Cultural Affairs, City of Chicago.

**ARTIST** JOHN BAKKER 2002-04  
**ARTWORK** Making Contact  
**LOCATION** 6<sup>th</sup> District Police Station  
7808 S. Halsted St.

John Bakker's work is a celebration of community. It is composed of painted laser print transfers of photographs of police personnel, their families and other members of the community served by the 6<sup>th</sup> District. This collection of personal images honors the community and the

hardworking officers of the 6<sup>th</sup> District station. Bakker's intent for the artwork was to remind citizens and officers that the tense situations in which they may find themselves are a small subset of the much broader, positive interactions that flow through the neighborhood.



# News from Agfa HealthCare

## U.S. Air Force Selects Agfa HealthCare's IMPAX Data Center to support worldwide Patient Medical Record needs

The U.S. Air Force (USAF) has selected Agfa HealthCare's IMPAX Data Center to manage and share clinical information and images across all of its medical facilities in the United States, supporting its integrated global healthcare delivery system. IMPAX Data Center, a PACS vendor-neutral repository for clinical imaging data, will be installed at David Grant Medical Center at Travis Air Force Base (AFB), California and at the 375<sup>th</sup> Medical Group at Scott AFB, Illinois.

IMPAX Data Center integrates with existing Picture Archiving and Communications Systems (PACS) in multiple clinical departments and facilities, allowing the USAF to visualize, or image-enable, its electronic health

record (EHR) and consolidate clinical patient data into a single archive, accessible from the point of care. Compliant with the DICOM 3.0 and HL7 standards and the IHE Technical Framework standards for storage, IMPAX Data Center can integrate with any DICOM 3.0 standards-based PACS. In addition to enhanced delivery of patient care, IMPAX Data Center will enable cost savings associated with operating and maintaining multiple PACS. It can reduce the cost of maintaining multiple departmental image archives and the expensive and time-consuming data migrations associated with periodic PACS and infrastructure replacements. The IMPAX Data Center archiving solution is part of the USAF's strategy to create a truly integrated global healthcare delivery system. The USAF plans to ultimately connect all of its medical treatment facilities to a global IMPAX Data Center model. Today Agfa HealthCare's technology has been installed in more than 160 military and VA facilities, including 14 sites in Europe, five of the VA's multi-facility Veterans Integrated Service Networks (VISNs), and more than 30 Navy ships. •



## Agfa HealthCare's DX-S System Recognized for Advances in Neonatal Imaging by Premier Healthcare Alliance

Agfa HealthCare was recently selected to participate in the Premier Healthcare Alliance's first Innovation Celebration. The company's DX-S computed radiography (CR) system was recognized for significantly improving image quality while reducing radiation dose in neonatal radiography, one of the most demanding areas of medical imaging.

The small size of the neonatal patient causes low radiographic contrast and makes details more difficult to visualize. Because the infants may often receive 30 to 40 exposures over the course of their treatment, using the lowest possible radiation dose is extremely important. Currently available systems are limited in their ability to reduce dose and improve

image quality because of the technology used. However, DX-S technology allows for lower radiation dose and still provides high image quality as well as faster patient throughput. The improved sensitivity of the DX-S can decrease the number of exposures due to repeats caused by inadequate exposure technique. "The Innovation Celebration is a unique opportunity to unveil revolutionary concepts and developments in the healthcare industry," said Premier Purchasing Partners President Mike Alkire. "Similar to the Premier alliance, these suppliers are committed to innovation that leads to improved quality and reduced costs, and we're happy to showcase their efforts to our alliance members." •

## Agfa HealthCare's Peissenberg facility wins "Factory of the Year" award in the category "Outstanding Assembly"



Agfa HealthCare has been awarded the "Factory of the Year" prize in a competition organized by the German magazine "Production" and management consulting firm AT Kearney. The factory at Peissenberg, Germany won in the category "Outstanding Assembly".

Agfa HealthCare's Peissenberg facility employs approximately 270 staff members and produces around 11,000 units in the field of medical technology, including the company's full line of Computed Radiography (CR) solutions and diagnostic imaging printers. Production processes established in the early 1990's have ensured the plant is able to produce the high quality equipment, on schedule, and at a very competitive price-performance ratio.

The most modern production methods, such as group work, Balanced Scorecard, Kanban, Kaizen, and TQM are used at the facility. High-precision, automated manufacturing equipment and highly qualified staff are the foundation of the production process and enable the facility to optimally serve its global customers, in a flexible manner, even in economically challenging times.

"This is a great achievement for us," states Dirk Debusscher, Vice President Imaging at Agfa HealthCare. "The award is a key motivator for us all and specifically for the team in South Germany and is proof of our continuous drive to achieve even higher quality and efficiency levels." •

# Radiology group Maine Image Santé implements technologically advanced DR imaging solution

New system offers excellent image quality and optimized processes to improve patient care and increase productivity

**INTERVIEWEES** Dr. Olivier Allain, Radiologist and Director • Laurence Touchard, Technologist

By introducing the DX-D 500\* DR solution at the CMCM, Maine Image Santé (MIS) is one step closer to being all-digital, thus meeting the need for improving the delivery of care to its patients. In doing so, it's actively complying with a new French government health plan called 'Hospital, Patient, Health and Territory'.

## PROVIDING EXCELLENT PATIENT CARE

A combination of three clinics, the Le Mans Medical and Surgical Center (CMCM) was established in 2006 and has strived to maintain three core values ever since: provide modern healthcare, respect the patient, and deliver a high level of patient care. With 450 beds, the center is the largest private medical, surgical and obstetric organization in France and makes every effort to maintain its technological innovation.

Today, MIS is providing a workable, proactive response to the government's recently introduced healthcare plan, thanks in part to its long-standing relationship with Agfa HealthCare and the company's new DR solution, the DX-D 500\*.

"Over the years, Agfa HealthCare has become a trusted partner," explains Dr. Olivier Allain, radiologist and director of the organization. "The wide scope of our offerings allows us to gradually build a modern infrastructure not only to improve access to images and information, but also developing a paperless medical information system in order to meet the government's requirements."

In fact, MIS uses an IMPAX PACS network which allows all medical imaging data for the 12 sites to be shared. It chose to be the first French site to adopt the DX-D 500 x-ray room,



consisting of an x-ray table, wall stand, digital processing unit and workstation. This room is linked to a DX-S CR system, allowing radiologists to benefit from the DX-D 500's DR image quality for all examinations conducted in the room. The DX-D 500 and DX-S are controlled by the Agfa HealthCare NX workstation for optimized workflow, allowing the technologist to spend more time with patients. "In certain cases, however, with patients who cannot be moved, the CR system's flexibility is very beneficial in obtaining the needed images with minimal patient discomfort. Yet regardless of which platform we use, CR or DR, we will always be able to obtain the same high level of image quality," affirms Dr. Allain. "That's a key benefit of the Agfa HealthCare approach."

## PRODUCTIVITY AND MEDICAL VISION IN THE LONG TERM

"All of our efforts focus on the patient," continues Dr. Allain. "The accuracy of the image produced by the DX-D 500 gives us better confidence

"Agfa HealthCare solutions help the most successful medical practices comply with increasingly stringent standards."

Dr. OLIVIER ALLAIN, Radiologist and Director

in our diagnostic ability. It also reduces exam time for the patient, which is a huge advantage in pediatric and emergency cases."

## AGFA HEALTHCARE'S CONTRIBUTION

» The collaboration and trust between Maine Image Santé and Agfa HealthCare spans 14 years. By offering a suitable, competitive product for the imaging room at CMCM, the MIS team has not only improved the center's productivity, but also the further integration of imaging systems at departmental level.



#### SOLUTIONS

- » DX-D 500, dual-detector x-ray room.\*
- » DX-S, CR solution with NIP detector.
- » CR85-X/CR35-X, CR systems.
- » NX, workstation.
- » DRYSTAR 5503 and DRYSTAR 5302, imagers.
- » IMPAX, shared PACS solution.

#### DID YOU KNOW...

- » With the DX-D 500, digital images are displayed within one second of exposure.
- » The DX-D 500 delivers almost real-time previews of images and very fast cycle times.

“We value the great flexibility the workstation offers and the speed at which we can access images.”

LAURENCE TOUCHARD, Technologist

Technologists also benefit because they receive rapid results. Displayed within one second, the image can be used immediately and any follow-up treatment can be organized quickly.

“We value the great flexibility the workstation offers and the speed at which we can access images,” says technologist Laurence Touchard. “The confidence it provides in making decisions is greatly enhanced by the quality and speed of processing,” explains Dr. Allain. “It is a challenging job, and each improvement enhances

workforce cohesion and staff satisfaction.”

The potential for dose reduction from the DX-D 500 solution also fulfilled one of the selection criteria of the MIS. “This technology is helping us achieve our objective, which is to utilize the most successful medical practices that comply with stringent standards. By reducing the number of exposures using a system that applies optimized doses, we are significantly contributing to reducing patient x-ray exposure,” concludes Dr. Olivier Allain. •



\* Available as DX-D 500<sup>n</sup> in North America.

# Who is offering needle-based image quality in both CR and DR?

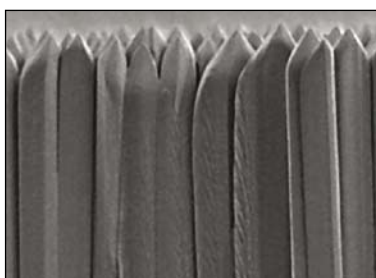
# We R

## Enjoy the highest possible image quality in both CR and DR

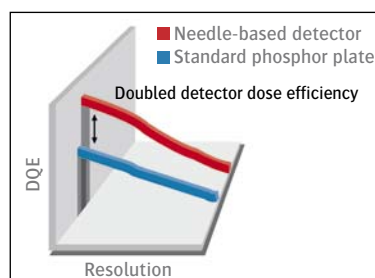
Radiography has many applications. But one constant remains: the demand for superb image quality. Agfa HealthCare offers needle-based technology in both CR and DR. This ensures the highest quality images with outstanding consistency and lower dose potential. It is part of a commitment to provide the world's best digital imaging across broad needs, from desktop systems to integrated radiography rooms. Only Agfa HealthCare includes the NX user station for an intuitive experience across CR and DR. And MUSICA<sup>2</sup>, body part independent software that optimizes processing parameters for exceptional images across general radiography, neonatal or pediatrics. Transforming to digital radiography? We'll take you there.



■ Standard CR



■ Needle-based detector



Performance comparison

[www.agfahealthcare.com](http://www.agfahealthcare.com)