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## DEAR READER,

'There' is a distinctive, new publication providing in-depth, contemporary information on trends and events impacting healthcare and society. I hope you enjoy reading this inaugural issue.

Why is 'There' different? In past years, we published a magazine featuring customer application stories. Although this was well received and highly read, we felt that, as a leading healthcare provider, we could do more. As a result, we have taken a number of active steps and included several interviews and articles in this publication to provide a broader view of healthcare as a whole.

I would like to thank all those who contributed to these articles and interviews for their time, but especially for their valuable insights into a process we are all experiencing: the transformation of healthcare. Agfa HealthCare has been a key advocate of transformation; not only in mind, but in the solutions we are delivering to drive it forward. To find out more, I kindly invite you to read the different articles and interviews.

We are keen to get your feedback on this magazine. To share your thoughts with us, either concerning the overall publication or its specific content, we can be reached at [healthcare.info@agfa.com](mailto:healthcare.info@agfa.com).

### HAPPY READING

**Eric Maurincomme**  
Chief Strategy and Marketing Officer  
Editor-in-Chief 'There'  
Agfa HealthCare



## CHICAGO, INSPIRING ACHIEVEMENTS IN A REMARKABLE CITY

For many years, Chicago has been a star attraction for visitors from near and far. Officially established in 1837, the city has undergone a number of major transformations in its nearly 200 years of history. Today the city, which started as a small trading post in the late 1770s, counts no less than 237 square miles of land, populated by around 2.9 million inhabitants.

Its current reputation, as a thriving metropolis at the center of international trade, is the result of the innovative nature of its inhabitants. Through its history, Chicago has been responsible for delivering new innovations to the global market, including the nation's first skyscraper, the refrigerated rail car, mail-order retailing and the TV remote control, to mention but a few.

As a recognition for its long history and as an interesting extra for our readers, we have inserted a number of 'Chicago Insights' into this publication, delivering quick and interesting facts about the city. We have selected a number of achievements that we feel also link closely to those delivered by our solutions and our company as a whole.

# INTERVIEW WITH CHRISTIAN REINAUDO,

President of Agfa HealthCare

## What do you, as head of one of the larger healthcare vendors, consider as the key challenges for your company and the healthcare sector at large?

I see a number of challenges that we, and the healthcare sector as a whole, will face in the coming years. These challenges come, primarily, from the increasingly tough balance many care providers need to make between cost and patient care. Care providers today are continuously aiming for higher quality, faster service, better outcomes, and increased patient satisfaction, but have come under increasing pressure to do this at a lower cost. As an economic crisis is upon us, the impact of – and even higher pressure on – cost should not be underestimated.

Over the past ten years statistics have shown that we can expect an exponential growth in our world's population, with the over 60's group – traditionally more costly in terms of healthcare – expected to represent over 25% of this total in the next 40 years. As we are faced with economic downturn, hospitals and healthcare facilities will also feel the pinch and again need to look at being more cost effective. This is, of course, not expected to end soon, and healthcare institutions will face the challenge of improving their overall patient service, at lower cost for many years to come. The challenge is to find the balance between cost effectiveness and improved and efficient patient care.

Healthcare would not be healthcare if we were not continuously attempting to better treat patients. Higher quality, faster service, better outcomes, and increased patient satisfaction may sound like buzzwords, but they do represent the challenges faced by any medical facility, anywhere in the world. Patients have become more informed and are increasingly demanding ever-improving levels of care. With medical science continuing to evolve very rapidly on top of this, care providers are coming under increasing pressure to deliver.

Where does the solution lie? It can be found on many different levels of course, but if I look at our area of expertise, I can but promote the increased use of IT solutions. Why? Because by taking away the physical



Christian Reinaudo (French nationality) joined Agfa HealthCare in January 2008 as President. Christian started his career at Alcatel in 1978. During this period, he managed multi-billion euro businesses and international sales and services organizations worldwide. He is a graduate from the 'Ecole de Physique et de Chimie Industrielles de Paris' and holds a doctorate from the University of Paris (France).

paper trail that many hospitals often find themselves drowning in, and automating some of the hospitals' most critical administrative and clinical processes, there is quite simply money to be saved.

## Do you think your customers see this in the same way?

I am sure we could have a hearty debate. As in any discipline, there are many visions and opinions, but I don't feel that I'm overstepping any

boundaries by saying a clear 'yes' to this. Just look at the many hospitals around the world taking steps to actively evolve from analog to digital to IT solutions. We could use Canada and the United Kingdom as primary examples. Both countries believe that a move towards a fully IT driven healthcare platform is essential, not only to drive overall efficiency improvements and reduce cost, but also to push them into the 21<sup>st</sup> century healthcare – a fully integrated healthcare network.

And they are not alone in this; many smaller countries have understood the importance of IT solutions. For example, we recently installed our PACS to cover over 85% of Estonia's imaging needs with over 800,000 exams per year. To what benefit? Improved efficiencies, better quality and faster service, which leads to reduced cost.

**“Higher quality, faster service, better outcomes, and increased patient satisfaction may sound like buzzwords, but they do represent the challenges faced by any medical facility, anywhere in the world.”**

#### **What differentiates Agfa HealthCare, what makes it unique?**

We are not an IT vendor. We are a healthcare company. If you look at who we compete with, it is often hard to find a direct match – a company that does exactly what we do. Our offering, from analog solutions, through digital to Imaging Informatics solutions and complete Hospital Information systems makes us unique. In a nutshell, we can deliver film and print solutions, Computed Radiography (CR) systems, archive and manage diagnostic images and information (PACS), run the necessary clinical applications, transfer data (from and to anywhere), and integrate it into an entire Hospital Information System (HIS).

The most exciting part is that we're a healthcare company. This means that our applications are developed not only by IT specialists, but also by clinicians – from cardiologists and radiologists to general practitioners and nurses. They form an integral part of the final solution; their knowledge and ability to interpret the actual needs of the hospital environment are core to our solutions and their understanding of our customers a basic expectation. And as if that was not

enough, we have over 20 partnerships with some of the world's leading university hospitals and research centers, to help us develop and evaluate our solutions before it even comes within reach of a customer. That's what makes us special. We only produce solutions for healthcare, no other priorities, no other focus.

#### **You offer a very broad portfolio of solutions. Why?**

Because we believe that the synergy of imaging, clinical knowledge and information technology will create a unique momentum for healthcare professionals to improve efficiency and safety of care delivered to patients. As a healthcare provider with an extensive portfolio, we can meet on this requirement, on all fronts. It not only enables clinicians to better and more efficiently treat their patients, but to do it with a broad portfolio of which we are convinced is better than anyone else's. The additional benefit of so much choice is also that it allows hospitals to efficiently choose the solutions they want to work with, either as full suites, or by choosing a modular solution that we can integrate into any existing legacy solution.

#### **The improvement of quality and efficiency has been mentioned several times. What does this mean for Agfa HealthCare?**

As a healthcare vendor, we have taken the time to extensively study the market, talk with our customers and carefully, over the past years, build up an image of these expectations. Of course the wording we use is generic, and can be applied in all cases, regardless of facility or geography. However, behind these generic terms lies a host of research and understanding, built over 100 years of experience in healthcare, which differentiates us from the rest. In fact, we believe in this so strongly that it is integrally mentioned in our mission. So besides our goals to build on our deep knowledge of our imaging technology and clinical needs to deliver affordable solutions to healthcare professionals, support their digital migration, and connect all healthcare stakeholders through seamless integration,

**“Our applications are developed not only by IT specialists, but also by clinicians – from cardiologists and radiologists to general practitioners and nurses.”**

Agfa HealthCare also aims to help them improve the quality and efficiency of patient care.

Why? Because we know that beyond all the technology talk and technical information, stands a clinician facing a patient. And our understanding that if all the technology in the world would deliver everything except quality and efficiency, we might as well quit. If you cannot guarantee these as a basis, you have no business in this sector.

#### **So what is healthcare transformation for you?**

It's about the continuous, ongoing change that healthcare providers will continue to face. As medical and technological sciences progress, healthcare will always have to be at the forefront of change. As we evolve, our abilities and expectations will also evolve. What is our role in this rather big picture? To help our customers move from analog to fully integrated IT solutions. Simply because this is the next level of transformation that healthcare has to undergo to enable it to move forward.

**“The challenge is to find the balance between cost effectiveness and improved and efficient patient care.”**

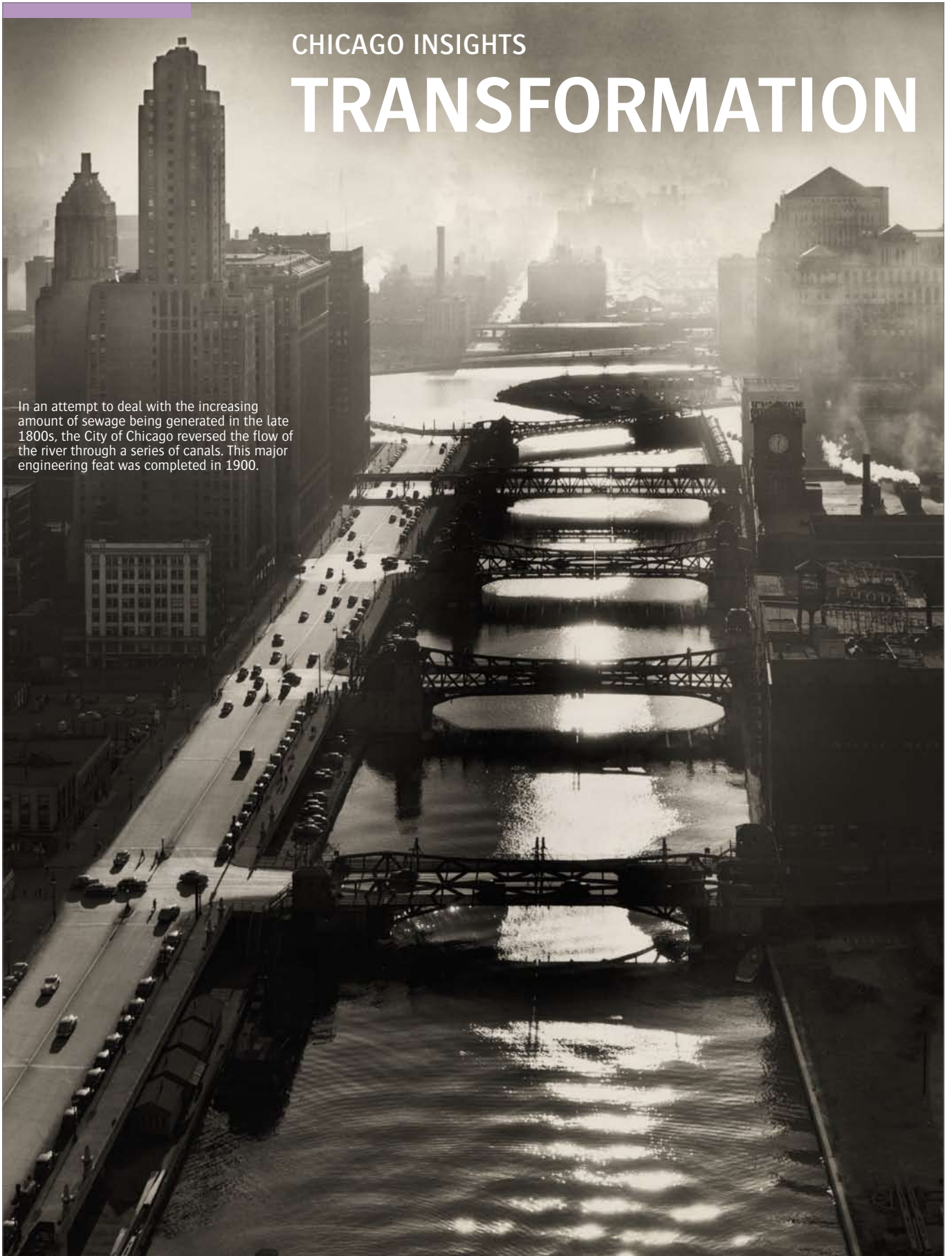
#### **So what does the future bring?**

I don't think we are even close to imagining the next level of healthcare and what this will bring. Technology and medical science, on a research level, are pushing the front on this and, based on some of the amazing technologies I have recently seen emerging, great leaps will be made. We too are investing in quite a number of impressive research projects today that could bring a significant contribution to medical science, either within our own R&D centers or in close co-operation with leading institutions (such as the European Union), where we are attempting to tackle everyday issues arising in many hospitals (see the article on DebugIT). We are not arrogant enough to think that we will make those leaps ourselves; medical science and research will take a first step, and it will be our job to interpret their findings into solutions that will, in turn, take hospitals and healthcare facilities to the next level. That is our job and that is what our customers expect. And that is why we stick to our promise: “We'll take you there”. •

CHICAGO INSIGHTS

# TRANSFORMATION

In an attempt to deal with the increasing amount of sewage being generated in the late 1800s, the City of Chicago reversed the flow of the river through a series of canals. This major engineering feat was completed in 1900.



# LATIN AMERICAN HOSPITAL IMPLEMENTS ENTERPRISE-WIDE RIS/PACS

Successful transformation from film to digital communications thanks to Agfa HealthCare's workflow expertise and hands-on approach

**INTERVIEWEE** Eduardo Eyheremendy, M.D. Chairman of the Radiology Department  
**HOSPITAL** Hospital Alemán, Buenos Aires, Argentina

For more than 140 years, the Buenos Aires Hospital Alemán has been one of Argentina's leading medical research and treatment facilities. The hospital prides itself in its leadership through rapid adoption of new medical techniques and technology. Its Radiology Department turned to Agfa HealthCare to help it transition from film to digital imaging. Agfa HealthCare's combined QDoc™ Radiology Information System (RIS) and IMPAX® Picture Archiving and Communications System (PACS) form the backbone of an integrated platform to acquire, flow and display radiology data and images throughout the institution.

## TO A FULLY ELECTRONIC WORKFLOW

In radiology, the Hospital Alemán has one of the region's few Single Proton Emission Computed Tomography (SPECT) systems, as well as two Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) units, along with Computed Radiography (CR) for general exams, digital mammography and specialized cardiovascular imaging. The hospital's Chairman of the Radiology Department, Eduardo Eyheremendy, M.D., sought the means to move his entire department to a fully electronic workflow. "While we possessed digital image acquisition, display and enhancement tools, all images were eventually printed onto film for sharing with referring physicians or hospital departments, as well archiving," Dr. Eyheremendy says. Therefore the department sought various suppliers to install a combined RIS/PACS solution capable of working with the existing Hospital Information System (HIS) database.

## PACS, RIS, HIS AS ONE

"We wanted a total workflow solution to electronically disseminate all medical images and patient data combined with HIS content, and make it more easily accessible throughout the hospital," Dr. Eyheremendy says. This means accurately interfacing PACS/RIS information with the hospital's existing HIS using

the globally accepted HL-7 protocol. Hospital Alemán found the integrated workflow solution and technology expertise from Agfa HealthCare the ideal approach. "Most suppliers focus on workstations, databases and image enhancement software, but cannot adequately address the big picture of a total, hospital-wide communication solution," Dr. Eyheremendy says. "The Agfa HealthCare specialists know the realities of hospital workflow. They understood the philosophy, integration, results distribution, and physical implementation of a total information technology system, from patient exam scheduling to clinical reports back to the patient's doctor."

## STRATEGICALLY DESIGNED WORKFLOW IMPROVES PRODUCTIVITY

Two firewall-protected links distribute QDoc RIS data and IMPAX PACS imaging from radiology throughout



Eduardo Eyheremendy, M.D., Chairman of the Radiology Department

"Agfa HealthCare specialists were knowledgeable from the start. They understand the realities of hospital workflow."

## HOSPITAL ALEMÁN, BUENOS AIRES:

Established in 1867. 240 beds. More than 190,000 imaging exams per year.

**CHALLENGES:** A completely electronic healthcare workflow. **SOLUTION:** RIS/PACS/HIS integration. **BENEFITS:** Increased productivity. Improved patient care. Enhanced cash flow.

the hospital via a secure-access interface deployed through the HIS. New RIS components include patient scheduling and management, speech recognition software, the QPlanner™ software that facilitates data and image transfer to physicians at multiple locations, and staff and procedure room worklist generation. The PACS network includes four, dual-screen diagnostic workstations within radiology, and various workstations in the hospital for image/data review. The department also has two Agfa HealthCare NX workstations for Computed Radiography (CR) and Direct Radiography (DR), an image identification and quality control (QC) system, a DRYSTAR® 5503 Direct Digital Dry Imager, and a CR 85-X Digitizer for general radiography, extremities and mammography\*. Also available on the internal network is access to radiology's speech recognition transcription package, as well as the department's new digital image archive.

"This strategically designed workflow improves our productivity, which positively impacts patient care by expediting image review and detailed reports to referring physicians and staff," Dr. Eyheremendy says. "Because we now communicate more efficiently, reimbursement to the institution for its services is accelerated, which helps improve cash flow to enhance the bottom line. Perhaps the most profound change from a radiologist's perspective is the total elimination of analog workflows in the hospital's daily operations. The immense staff time involved with acquiring, processing, QC checking, tracking and archiving film is now gone." •

\*CR Mammography is currently not available for sale in the US.

# BARCELONA'S QUIRÓN HOSPITAL OFFERS ITS PATIENTS THE VERY BEST IN DIAGNOSTIC IMAGING

With complementary CR and DR systems, the Radiology Department provides its patients fast, safe and reliable diagnostic imaging services whatever their particular needs may be

**INTERVIEWEE** Dr. Xavier Lucaya, Radiology Department CRC/Quirón Hospital  
**HOSPITAL** Quirón Hospital, Barcelona, Spain

The new Quirón Hospital sits on a hill above the bustling city of Barcelona in a relatively quiet, but highly accessible, residential area. Designed by the renowned Catalan architect, Albert de Pineda, the hospital caters to privately insured patients, many of them VIPs such as players from FC Barcelona, and also accepts publicly insured patients. The 56,250-m<sup>2</sup> hospital is part of the Quirón Group, which includes several other private healthcare facilities throughout the country and is the premier private healthcare provider in Spain. In fact, the new Quirón Hospital is located only about 400 yards from the small original clinic built in 1943. In the 1970s, a large number of Catalan doctors had the opportunity to train in the US, and on their return to Spain, many of them joined the Quirón Group, thereby further enhancing its reputation for excellence in healthcare.

The Quirón Hospital today can boast of highly trained and professional staff, pleasant and efficient facilities, and the very best in technical equipment and laboratory facilities. The Barcelona hospital includes its own commercial center and cafeteria, 160 consultation offices, 11 physiotherapy cabinets, 252 beds, including 39 suites and 4 private VIP suites, in addition to a modern and highly efficient radiology department, which is centrally located on the ground floor in proximity to all other critical services.

## CARE, COMFORT AND PRIVACY

Dr. Xavier Lucaya, Radiology Department CRC/Quirón Hospital, has worked at the Quirón Hospital for over 35 years specializing in pediatric radiology. He is understandably proud of the new, state-of-the-art radiology department and of the role Agfa HealthCare has played in its development and realization.

"I have always had a fantastic relationship with Agfa HealthCare. In addition to having very good solutions, the people at Agfa HealthCare are friendly, helpful and very professional," says Dr. Lucaya.

"When we were designing this radiology department, I talked with many technicians and they all advised me to have an Agfa HealthCare CR system along with a DR flat-panel system. The combination of Agfa HealthCare's DX-Si next to a DR system has been perfect for us."

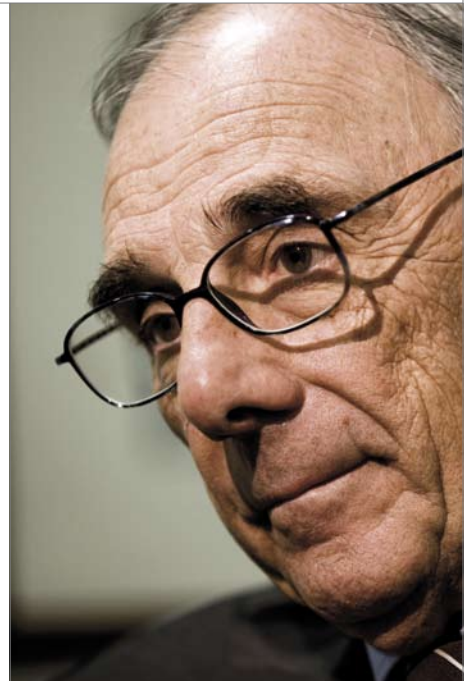
## AT QUIRÓN HOSPITAL, CR AND DR WORK HAND-IN-HAND TO MEET EVERY DEMAND

"You have to understand that this hospital is also for VIP persons – such as politicians, movie stars, sports personalities, and so on – and they do not like to be kept waiting, nor do they even like to be seen in a hospital environment," says Dr. Lucaya. "That is why, when we had the opportunity to contribute to the design of the new radiology department, we made sure that both privacy and efficiency were given priority. I knew what I wanted, having visited several hospitals in the US and copied them a bit. I wanted 2 CTs, 2 MRIs, digital mammography, digital fluoroscopy, flat panel DR, a CR system and private waiting rooms."

At the Quirón Hospital, where all critical services are centralized, CR and DR really do complement one another.

## AGFA HEALTHCARE'S CONTRIBUTION

DX-Si, a groundbreaking compact solution, designed for decentralized or in-room use for general radiography, pediatric and emergency environments.



"The throughput of our equipment is incredible and the reliability is impeccable – we have no down time. Every modern radiology department should work with digital radiology."

Dr. Xavier Lucaya,  
Radiology Department CRC/Quirón Hospital

"They work together beautifully. The DX-Si system is both flexible in its use and it can be taken directly to the point-of-care. With a DR flat panel it is sometimes difficult to obtain a particular projection, but with Agfa HealthCare's system you can get projections that would otherwise be very complicated to obtain." This is particularly valuable in difficult situations such as ICU, OR, trauma and pediatric exams, where patient positioning is often complicated.



## DID YOU KNOW...

- » With the DX-Si system, technologists can stay with the patient during the entire examination, which is of particular benefit to children, older or anxious patients.
- » Thanks to the DX-Si system technologists take measurably fewer steps throughout the day.

### DOSE REDUCTION, FEWER REPEATS AND BETTER THROUGHPUT

“We are absolutely satisfied with the image quality too,” says Dr. Lucaya. “What is more, the throughput of our equipment is incredible. We used to have four units in the former conventional radiology unit at the old clinic, with around 30,000 exams a year. Here we have two units, with about 75,000 exams a year. The reliability is impeccable – we have no down time because we have six cassettes, so there is always a back-up cassette. Every modern radiology department should work with digital radiology.”

Another important factor is dose reduction, which can be significantly lowered. “Dose reduction is of paramount importance in pediatrics. It is now becoming an important issue in adult radiology too,” says Dr. Lucaya. “It is my firm conviction that doses must be brought down, and Agfa HealthCare is helping us do just that.” In addition, the repeat rates have decreased significantly since the new system has been in place at Quirón Hospital. “We take an exposure,” says Dr. Lucaya, “and we know it will be good technically. In the past, we had to repeat many exposures. However, if the patient holds still, we never have to repeat now. We are down from a repeat rate of 7 or 8% to around 1 to 2%.”

The level of patient satisfaction has also increased. “This is due not only to patient comfort in certain situations, but also because the DX-Si system is very fast, and the technician remains in the room with the patient.”

### RADIOLOGY FOR TODAY AND TOMORROW

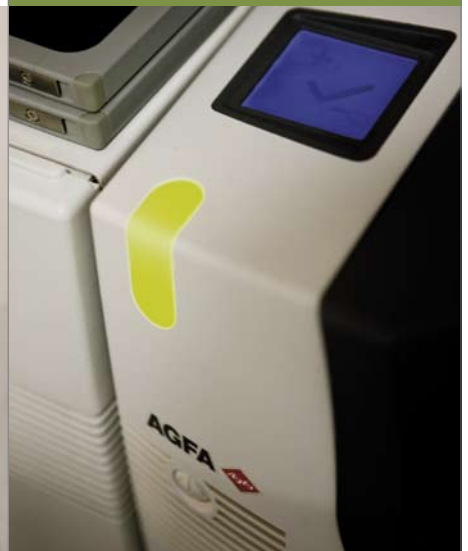
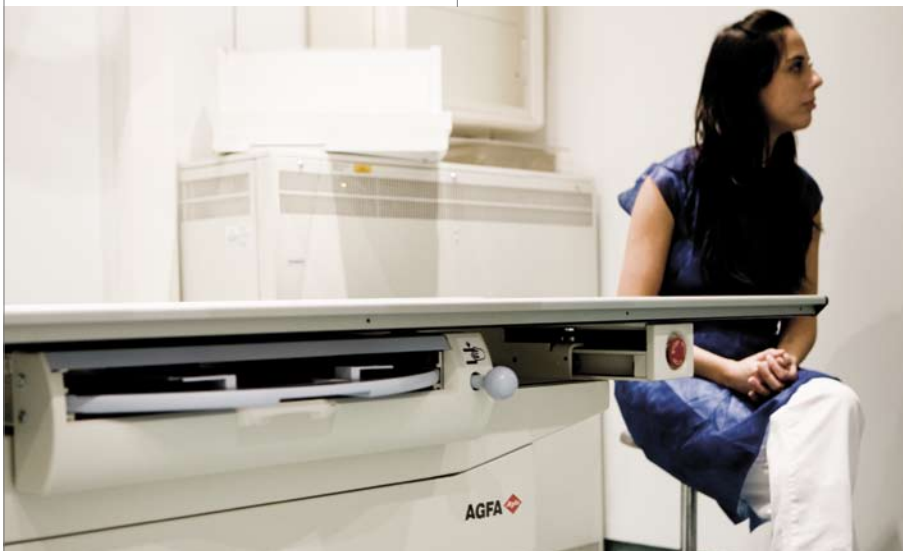
“Radiology has become a very complicated specialty today: people are very demanding, and the number of exams are going to increase in the future, augmenting the demand for radiology skills and techniques. In the past, if you had knee pain, the doctor would prescribe aspirin and tell you to come back in two weeks. Now you have an MRI (Magnetic Resonance Imaging) immediately, and you can see what is wrong. In retrospect, I realize how difficult it must have been for physicians to recognize diseases of internal structures only 25 years ago. Advances in diagnostic imaging have

really changed the practice of Medicine,” says Dr. Lucaya.

He is more than pleased with the Agfa HealthCare solution and with the considerable help and cooperation of the people at Agfa HealthCare as well. “For me, Agfa HealthCare is the past, the present and the future,” concludes Dr. Lucaya. •

### DX-Si SYSTEM/MUSICA®/NX WORKSTATION

- » Compact DX-Si system designed to be placed near the patient, enhancing workflow flexibility while offering outstanding image quality.
- » MUSICA processing software provides reliable, outstanding image visualization with automatically optimized image processing.
- » NX intuitive CR workstation allows easy access to most common tasks with minimal mouse clicks, which enhances efficient workflow.



CHICAGO INSIGHTS

# CENTRALIZATION

The largest building in the world when it was opened in the 1930s, the Merchandise Mart centralizes Chicago's wholesale goods business.



# AP-HP PARIS TO CENTRALIZE 37 HOSPITALS IN ONE OF EUROPE'S LARGEST HIS PROJECTS

The Assistance Publique-Hôpitaux de Paris (AP-HP) group has recently selected Agfa HealthCare to install its ORBIS™ solution at 37 hospitals in France. The project, worth 95 million EUR, is considered as one of the most ambitious deployments of a healthcare IT solution in Europe. To date, AP-HP admits more than one million patients per year along with five million outpatients, and has a capacity of around 23,000 beds in Paris and

an additional three facilities outside that region. To bring this project to a successful conclusion, Agfa HealthCare will manage a consortium of three other companies: Cap Gemini, HP and Oracle. The project is expected to take seven years.

Agfa HealthCare's leading HIS/CIS solution ORBIS has already been successfully installed in more than 800 institutions across continental

Europe, serving more than 500,000 users daily. Thanks to its patient-centered workflow, ORBIS facilitates the administrative tasks of medical teams and nursing staff. With ORBIS, Agfa HealthCare offers users the possibility of having an integrated Electronic Patient Record that covers all the needs of the institutions for clinical information management, management of prescriptions, scheduling and medical documentation. •

# EUROPEAN UNION'S BACTERIAL DETECTION AND ELIMINATION PROJECT, DebugIT, CO-ORDINATED BY AGFA HEALTHCARE

Agfa HealthCare will co-ordinate one of the European Union's latest healthcare IT projects, called DebugIT, which is a large-scale integrating project funded within the 7<sup>th</sup> EU Framework Program (FP7). The main objectives of the initiative are to build IT tools that should have significant impact for the monitoring and control of infectious diseases and antimicrobial resistances in Europe. The project, run with ten partners, including some of Europe's leading University hospitals, will be realized by building a technical and semantic infrastructure able to achieve three concrete goals. Firstly to build a solution which will allow the sharing of heterogeneous clinical data sets from different hospitals in different countries, with different languages and legislations. Secondly to enable the analysis of large amounts of this clinical data with advanced

multimedia data mining, and thirdly, to apply the obtained knowledge for clinical decisions and outcome monitoring. The project will demonstrate that the (continuous, real-time) secondary use of large amounts of clinical data can become a key base to improve direct patient care in hospital as well as in ambulatory settings, and indirectly also improve the quality of healthcare systems through better monitoring of diseases and also of the quality of care provided.

DebugIT will work complementary to approaches such as applied in life sciences, molecular biology or health policy to reinforce and support the war against infectious pathogens. This includes the detection and prevention of resistances, as well as improved management strategies and healthcare workflow. •

**The project is being co-ordinated by Agfa HealthCare, working in close partnership with:**

- » Empirica (research and consulting, Germany),
- » Gama Sofia (healthcare software products and services, Bulgaria),
- » the Institut National de la Santé de France,
- » the Internetový Prístup Ke Zdravotním Informacím Pacienta (Czech republic),
- » Linköping University (Sweden),
- » Technological Educational Institute of Lamia (Greece),
- » the University College London (United Kingdom),
- » the University Hospital of Geneva (Switzerland),
- » the University Medical Center Freiburg (Germany), and
- » the University of Geneva (Switzerland).

For more information, please consult the DebugIT website: [www.debugit.eu](http://www.debugit.eu).

# INTERVIEW WITH JOHN SOMERS,

Consultant Radiologist and Clinical Lead at  
Nottingham University Hospitals NHS Trust, UK

Dr. John Somers has been a Consultant Radiologist at Nottingham University Hospitals NHS Trust for 17 years, specializing in pediatric radiology. He graduated from Liverpool Medical School in 1981 and trained in radiology in Cambridge, Great Ormond Street Hospital and Seattle (US). From 1996 to 2006, he was Clinical Director for Radiology and Divisional Clinical Director for Diagnostics at Nottingham University Hospitals NHS Trust. He has been involved in medical IT since 1998, first locally with the information for health initiative and subsequently with the Eastern Cluster under NPfIT (National Programme for IT). Since 2005 he has been a National Clinical Lead with the PACS program in England.



## **For how long have you been a radiologist, and how would you say your job has evolved over the past ten years?**

I have been a radiologist since 1985, and my role has changed considerably over the last few years because of one thing – PACS (Picture Archiving and Communications System)! The moment I saw it, some ten years ago, I knew that acquiring and storing digital images and then making them available wherever they were needed on computer screens, had the scope to transform the way I worked and the influence I could have on the management of our patients. Unfortunately, I had to wait until June 2006 for it to ‘Go Live’ within my own hospitals, but it was well worth the wait.

## **In what ways has the introduction of PACS transformed your daily work?**

It has ended the ‘paper chase’ and made me, and my colleagues, far more productive. I used to have to get in my car and drive five miles round the ring road if I had to provide an urgent report on an image acquired on our sister site. Once I got there, I had to dictate the report to a medical secretary and wait until it was typed before I could authorise it. Now I can just call the image up on my screen, dictate the report into my voice recognition system and authorize it in a matter of minutes.

A further benefit of PACS is that we can now report in real time. As a result, I am now able to use my specialist knowledge to influence the management of these patients.

## **You mention ‘reporting in real time’. Can you provide an example of this?**

Yes, and I’ll cite my own speciality – pediatrics. Now that I have electronic requesting and reporting, in addition to PACS and VR (Voice Recognition), I can report and authorize an urgent exam before the child has got back to the ward. This is a real benefit for clinicians, since we can now make a diagnosis with our expert interpretation presented on screen at the same time as the image. This certainly translates into better patient care.

## **So, is real time reporting now considered to be the standard?**

Inevitably, yes. As soon as the clinical staff realized we can deliver this kind of service, they started to expect

it every time, which places a heavy burden of expectation on our staff. However, with good teamwork, we can meet this expectation in the majority of cases. Fortunately, everyone's job in the X-ray department has been made simpler by the arrival of CR (Computed Radiography) and PACS – right from the radiographers, who no longer have to load and wait around for cassettes to be processed, through to the radiologists, who can dictate their reports straight into the system – and no longer need to drive round the ring road to deal with urgent cases! Personally, I would say I am at least 50% more productive now than I was three years ago.

### **What else would clinicians like to be able to do – now, and in the future?**

Unquestionably, clinicians from other hospitals would like us to be able to log straight in and see images stored within their own PACS. In theory, this should be a simple task, but in reality, it is remarkably difficult – due to a combination of technical and bandwidth challenges, but also governance issues. No hospital would be happy to have another site logging straight into its own patients' records, since there are stringent patient consent issues to consider. There is also the question of ensuring the correct record is accessed. At present, the only unique identifier in the UK is the NHS number, but this is not yet the primary patient identifier within PACS.

However, we are already receiving specific requests to provide remote teleradiology services to other hospitals that are keen to access the expertise of our specialists for the benefit of their own patients. This would mean them giving us access to their PACS, building an interface between each RIS and putting the necessary network capability in place to deal with the traffic. We would also have to consider the practicalities of how to charge for such a service.

### **Can you give an example of how teleradiology could work for the benefit of the patient?**

Yes, dealing with stroke is an excellent example of what could be achieved. The NHS in England has a Stroke Strategy in place that aims to get thrombolytic drugs administered within four hours of the episode occurring. The implication of this is that patients need to be assessed using CT (Computed Tomography), as quickly as

possible, to check that this class of drugs are appropriate. There are two kinds of strokes – one of which would be exacerbated by this type of treatment.

This means we need networks of radiologists, who are on hand 24/7, 365 days a year, to interpret the scans and send the report back automatically, to wherever the patient will be treated.

### **You mention stroke care, but is the treatment of other conditions benefiting as a result of the arrival of PACS?**

I am hard-pressed to think of any speciality that has not benefited from the implementation of PACS, since imaging now plays such a vital role in both the initial diagnosis and long-term follow-up of patients. PACS makes it much simpler to compare current and previous images, and removes the perennial problem of lost film.

### **Looking again to the future, how do you see digital technologies shaping the NHS?**

If we can solve the inherent interoperability issues associated with trying to link up PACS and RIS (Radiology Information System) systems from different providers, and we can put the necessary bandwidth in place, I personally would like to see radiologists sharing their expertise at the primary level – at the point where patients enter the healthcare system. This would cut back on the need for so many referrals and speed up subsequent treatment.

### **What is the key step that will facilitate developments of this kind?**

As someone who has always had a keen interest in healthcare IT, I have been keeping a close eye on the latest streaming technologies. These would appear to have the capability to markedly reduce bandwidth requirements, yet make images available at the same fidelity as they would be seen in the host site. I do not understand all the technicalities of how this works, but in essence, instructions are sent to the receiving screens instructing it how to recreate the image, whilst avoiding the need to physically send it, thus reducing the required bandwidth. As the image is not physically transmitted, this also removes the need for encryption.

### **If these streaming technologies fulfil their promise, what will be the impact of the way you and your colleagues work in the future?**

It will give rise to the opportunity to create 'virtual' centers of excellence from which expert opinions can be accessed in near real time. For example, neuroradiologists tend to work in specialized centers, but with the right networks in place, their expertise could be called upon to interpret head scans taken anywhere in the UK.

### **I believe you are a great champion for putting images from as many sources as possible into PACS, can you tell us a bit more about this?**

Yes. I am a supporter of CHIMERA, which promotes the development of PACS to utilize images generated in Cardiology, Histopathology, Mammography, Endoscopy, and Radiotherapy can be stored with PACS.

I see cardiology as the lowest hanging fruit, as many PACS vendors already offer proven cardiology modules. Symptomatic mammography is no different to radiology, provided the images are acquired digitally in the first place. Screening mammography in England requires development of the screening RIS and role of our full field digital mobile CR, which is currently underway. For endoscopy, we will need to convert the images into DICOM and either create an information system that mimics RIS or adapt a RIS to reflect endoscopy workflows. Reflecting the appropriate workflow is also a major stumbling block with radiotherapy as treatment usually takes place over such an extended time period, but there is also a need to establish suitable standards.

As for histopathology, although the concept of virtual slides, scanned in a very high resolution, is already being promoted, the sheer size of the data files makes them a real challenge to deal with in PACS. So, I expect this to be the last of these disciplines to be incorporated into PACS.

### **Finally, if you would like to pass on a key message for your peers, what would it be?**

You haven't seen anything yet! Your world is about to change as a result of PACS and the explosion of digital and web-based technologies. The key will be to embrace this change and reassess the way you currently work, because in the future geography (i.e. where you are based) will become largely irrelevant. If you fail to embrace these new possibilities, you will not be a driver of change and may well have unwelcome change enforced upon you. •

# CEDIMED GROWS SIGNIFICANTLY BY OFFERING CR MAMMOGRAPHY

Patient volume increased by nearly 15% through introduction of CR Mammography

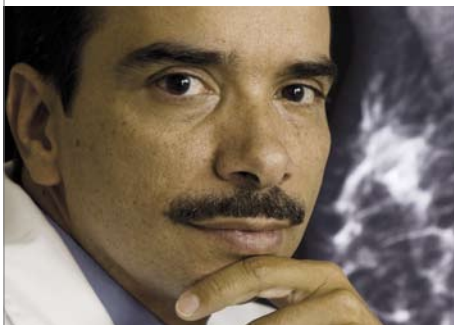
**INTERVIEWEE** Aurelio Gonzalez, M.D., Director of Women's Imaging

**INSTITUTION** CediMed, Medellín, Colombia

This Colombian imaging center has successfully grown its mammography department by transitioning from analog to computed radiography (CR) thanks to Agfa HealthCare's knowledge and solutions. Additionally, the center sent breast images to referring doctors to show CR as a high quality option for mammography. Key CR advantages include excellent imaging at lower cost, along with constantly evolving image enhancement software that improves CR's return on investment.

## CR MEETS DEMAND FOR DIGITAL MAMMOGRAPHY

Medellín is home to the Centro avanzado de Diagnóstico Médico, or Center for Advanced Medical Diagnostics (CediMed). The practice consists of three sites, offering not only diagnostic imaging, but laboratory and other analytical services. CediMed provides general radiology, ultrasound (US), and bone density studies, and more advanced exams using a spectrographic Computed Tomography (CT) unit and two CT scanners with 64/4 detectors. It also has two, 1.5 Tesla Magnetic Resonance (MR) scanners. The mammography procedures performed are primarily diagnostic, averaging 800 exams per month or roughly 40 each weekday. A large number



"CR's biggest advantage is its unique and constantly evolving image enhancement software, MUSICA, which will allow its high quality output to strengthen."

Aurelio Gonzalez, M.D.,  
Director of Women's Imaging

of needle biopsies, 150 per month, are conducted including US-guided breast and stereotactic procedures, ductography and needle localizations. Says Aurelio Gonzalez, M.D., CediMed's Director of Women's Imaging, "Because Medellín is an educational and cultural center, many women here are well informed and diligent about their health. They generally know about full field digital mammography (FFDM), and increasingly asked their doctors about this newest tool in the fight against breast cancer. We decided to capitalize on this interest with an alternative digital solution, CR, because we felt it provided many more significant advantages."

## IMPROVED BREAST IMAGE VISUALIZATION

Dr. Gonzalez and CediMed's leadership selected CR technology to replace analog mammography. "CR uses the same equipment as screen/film to produce an image, which means you don't have to remove your current exposure system," he says. "This provides cost savings over a complete FFDM system. A primary benefit is the unique CR cassette that replaces the conventional screen/film one, as well as the digitizer that reads high quality digital imaging and displays it on a workstation." Agfa HealthCare was selected to provide a sophisticated CR system. "While CR technology is less expensive to implement than FFDM, its real strength is in constantly evolving image enhancement software," he says. "This will allow CR's high quality output to strengthen." Dr. Gonzalez adds that Agfa Healthcare's CR solutions were chosen because of its technical support and confidence in the product. "They are the right partner to work with," he says.

Agfa HealthCare's CR 85-X multi-application digitizer is used at the main site. Once the technologist inserts a CR cassette into the compact, freestanding digitizer, the unit automatically records patient demographic data, scans the imaging plate to memory, digitizes the image and returns the cassette to

**CEDIMED, MEDELLÍN:** More than 10,000 patients receive radiology procedures each month. **CHALLENGE:** Need for a digital mammography solution. **SOLUTIONS:** CR 85-X, NX workstation, MUSICA Software. **BENEFITS:** Patient volume for CR mammography increased between 10 and 15%. Cost-effectiveness. Image quality.

its output buffer for new exposures. This allows the technologist to return to the procedure room and stay with the patient, as well as contributes to faster patient throughput. Mammography detail is recorded at a high 20 pixels/mm for 18x24 and 24x30 cm sizes. In the important arena of image enhancement, CediMed thinks highly of Agfa HealthCare's MUSICA® (Multi-Scale Image Contrast Amplification) image processing software that runs standard on the company's NX intuitive workstation to enhance, manipulate, and improve breast image visualization, especially in the soft tissue regions.

## EXCELLENT CR IMAGE QUALITY

To support its use of CR Mammography\*, CediMed recently provided breast images to pre-selected referring physicians. Various views were printed on dry media produced by Agfa HealthCare's DRYSTAR® 5500 imager and sent to each physician. A follow-up telephone interview was then scheduled with a CediMed radiologist to discuss the images. They concluded that the CR images met the expected standards and all important information was available. "Overall, our referral physicians have accepted CR very well," Dr. Gonzalez says. "And we are working very hard to share our experiences with others." Two other important results have occurred over the past year. CediMed's patient volume for CR Mammography has steadily increased between 10 and 15%. Eight other imaging facilities, primarily hospitals, have installed a CR solution for mammography while only one has installed FFDM since. "We are proud and happy to have been the first in Medellín to use CR Mammography," Dr. Gonzalez concludes. •

# PUTTING HEALTHCARE AND NEW HEALTHCARE PROFESSIONALS ON THE RIGHT TRACK

## Successful RIS/PACS integration allows OHSU to give residents and patients a look at the future of diagnostic management

**INTERVIEWEE** Jon Hanada, Systems Manager for the Radiology Department

**INSTITUTION** Oregon Health & Science University, Portland, Oregon, US

In 2008, Oregon Health & Science University (OHSU) entered its second decade of training new physicians and specialists directly on PACS (Picture Archiving and Communications System). OHSU is considered to be one of the most innovative clinical care and diagnostic facilities in the country because of its dedication to providing its medical professionals access to (and its patients the benefits of) the most advanced technologies.

### A DECADE OF PACS

As Oregon's only health and research university, OHSU is comprised of several campuses and facilities. In addition to educating healthcare professionals, it strives to improve access to quality care and health education for Oregon's populations. With 30 radiologists and a quarter of a million radiology procedures performed each year, OHSU must be as advanced in diagnostic imaging and documentation management as possible. "It is a totally different world for the residents who come through today than it was for me. Today, for the most part, they're not touching film anymore," says Erwin Schwarz, Director of Diagnostic Imaging Services. "In 1998 we decided to go high-tech with PACS in our children's hospital. In 2000 we moved it into the main hospital," adds Jon Hanada, Systems Manager for the Radiology Department. Today, OHSU has one of the most advanced PACS departments in Oregon, with more than 3,000 PCs throughout the institution. "In the early days of PACS, saving on the cost of film was the major justification for going with the technology," Hanada says. "Now, the saving is in the efficiency gains for technologists, radiologists and clinicians, which leads to better patient care."

### ENHANCED PATIENT SAFETY

In February 2008 OHSU took another step forward by integrating Agfa HealthCare's RIS (Radiology Information



Agfa HealthCare is a large, highly proficient company both in research and development and in system integration. The individuals we worked with are excellent. They know the products well and not only manage the process effectively, but also came up with innovative solutions to some of our more recent issues."

Jon Hanada,  
Systems Manager for the Radiology Department

System) and Reporting with its PACS, and adding Agfa HealthCare's Scheduling component. The integrated RIS/PACS/Reporting solution helps the hospital boost efficiency, improve workflow and increase productivity by digitally managing all radiology functions.

"With an integrated RIS/PACS/Reporting solution, authorized medical staff can log onto Agfa HealthCare's IMPAX® RIS/PACS, have a work list of their unsigned reports, go through the reports and look at the images. That's why I see RIS/PACS as a response to patient safety concerns," Hanada says. Christine Shipley, Systems and Application Analyst, agrees: "The integration between RIS and PACS allows for more information to be available to our radiology staff when viewing images in PACS. The move from film to digital has improved report turnaround time and

has decreased lag time between exam completion and image availability."

### INTEGRATING INTO THE FUTURE

Today, OHSU has deployed its enterprise-wide IMPAX RIS/PACS solution into many departments, including radiology, cardiology, angiography, dental, G.I. lab, rheumatology, and urology. Agfa HealthCare's reporting component decreases the amount of time between exam completion and final dictated reports. IMPAX Scheduling decreases the number of scheduling errors because of its ability to allow more specific rules to be determined and enforced. With RIS, PACS, Reporting and Scheduling, the integration of all the Agfa HealthCare components in OHSU's technological wish list is complete. The RIS/PACS integration went well, which Hanada attributes to a combination of Agfa HealthCare's technology, its knowledgeable field personnel, a skilled OHSU radiology staff, and good chemistry between the hospital and the vendor. Today's technological solutions enable OHSU medical personnel to store, recall and transmit a diagnostic study around the world with just a couple of keystrokes. "We couldn't do that before. It's a major step in the right direction," Hanada concludes. •

### OREGON HEALTH & SCIENCE UNIVERSITY, PORTLAND, OREGON:

More than 3,400 students and medical trainees. Quarter of a million radiology procedures performed each year. **CHALLENGES:** Advanced diagnostic imaging and documentation. **SOLUTION:** Integrated RIS/PACS/Reporting/Scheduling solution. **BENEFITS:** Digitally managing all radiology functions boosts efficiency, improves workflow and increases productivity.



CHICAGO INSIGHTS  
**SPEED**

After 200 years of trial and error in Europe and North America, inline skating is commercialized in Chicago in 1966.



# QUEBEC'S CHUM USES IMPAX TECHNOLOGY TO SPEED UP CRITICAL PATIENT CARE

## Distributed teaching facility adds Cardiovascular Suite to further improve patient info access

**INTERVIEWEE** Dr. Patricia Santagata, Chief of Echocardiology  
**HOSPITAL** Centre Hospitalier de l'Université de Montréal, Quebec, Canada

Quebec's Centre Hospitalier de l'Université de Montréal (CHUM) needed a more efficient way to access and store patient exams, while providing students with a tool that was easy to learn and operate. As a distributed facility, CHUM also wanted to decrease the delays and costs of sharing patient information. As a result it implemented Agfa HealthCare's digital radiology solution, IMPAX™. To extend the benefits to other departments, in 2007 CHUM upgraded its solution with Agfa HealthCare's Cardiovascular Suite.

### PROVIDING SUPERIOR CARE AND INSTRUCTION

Located in the heart of Montréal, CHUM is leading the charge in adopting technology to provide superior care. An amalgamation of three hospitals (Notre-Dame, Hôpital St-Luc and Hôtel-Dieu), CHUM conducts more than 380,000 radiology exams per year, and acts as the primary teaching center for over 200 medical students. "CHUM is unique in Canada. Our primary focus is helping patients, but we are also a teaching hospital. We need to provide our students with the tools they require," says Lyne Marquis, Administrative Coordinator, Ambulatory Cardiology Center, CHUM. "We look for new technologies to help rationalize workflow and reporting, so we can spend more time with patients and students."

### CONNECTING THE DOTS IN RADIOLOGY

Traditionally, CHUM captured and archived radiology and cardiology tests and images on VHS tapes and magnetic optical disks (MOD). Locating archived patient images was time-consuming. To transfer patient files from one CHUM hospital to another, documents were sent by courier or taxi, at a high cost and taking up much time. MODs were expensive: 250 made per year, at almost \$120 USD each.

In 2006, CHUM implemented Agfa HealthCare's IMPAX solution to solve the

ongoing problems. The central repository allows its radiologists to easily access patient files and imaging from different departments. IMPAX also allows remote reviewing and distribution of patient results, through secure web-based access from virtually any location, even beyond hospital firewalls.

"With the old archiving system, it was very difficult for us to find an exam. We had to search for the tape, find an available machine and pull up the image. IMPAX offers secure, central storage capabilities, allowing physicians to access images and files easily and immediately."



Dr. Patricia Santagata,  
Chief of Echocardiology

### POINT AND CLICK IN RADIOLOGY

Building on the success of the IMPAX implementation, CHUM added Agfa HealthCare's Cardiovascular Suite solution for echocardiology exams in 2007, giving cardiologists the same

**CENTRE HOSPITALIER DE L'UNIVERSITÉ DE MONTRÉAL, QUEBEC:** 3 hospitals. 1,000 beds.

**CHALLENGES:** Immediate and remote access to data. Tools for physicians and students.

Rationalize reporting. **SOLUTIONS:** IMPAX.

IMPAX Cardiovascular Suite. **BENEFITS:** Cost savings. Dictation turnaround time decreased by 45% and productivity increased by 27%. Reduced patient wait times.

'point and click' access to patient data. Technicians and students can pull up an image or test from any computer in the facility, keeping them up-to-date at all times. "Agfa HealthCare's system offers a structured reporting feature, while doctors can access previous files and images more easily," says Dr. Patricia Santagata, Chief of Echocardiology, CHUM. Agfa HealthCare's echocardiology solution allows cardiologists to move from paper reports to standardized electronic reports.

### LOOKING AHEAD

CHUM is already reaping the benefits of its investment in advanced healthcare technology. After one year with IMPAX, dictation turnaround time decreased by 45% and productivity increased by 27%. The echocardiology system reduces patient wait times while creating a better learning environment for medical students. By implementing a digital environment, CHUM also saves money on the MODs and film.

Physicians have diagnostic information when and where it is needed for timely medical decision making, paving the way for improved operational efficiency, increased patient safety and greater patient care. In addition, Agfa HealthCare's suite of standards-based, vendor-neutral products provides CHUM with the IT platform it needs for future technology implementations. In June 2008, CHUM implemented Agfa HealthCare's Cardiac Catheterization lab. •

# INTERVIEW WITH RICHARD C. ALVAREZ,

President & CEO Canada Health Infoway



“EHR is a people project – not an IT project.”

that’s grown into the pan-Canadian collaboration we see today. In addition, our funding approach was a departure from the federal transfers the provinces and territories had become accustomed to. To qualify for funding, jurisdictions collaborated with Infoway to ensure their individual needs were addressed in a manner that conformed to the vision of a pan-Canadian, interoperable EHR. This effort was guided by the technical framework, as laid out in the Blueprint.

Standards also needed to be developed – a particularly important exercise given the majority of the IT vendor community did not offer the solutions needed to address the needs of a project of this scope. And of course because this was a completely new undertaking, there wasn’t a sufficient supply of experienced health IT professionals to meet the demand fueled by investment in the EHR. In essence, a new health informatics industry is emerging as a result of EHR investments.

**Canada is seen as a key driver of e-health, and the efforts of Infoway as a prime example of how this can be achieved. What do you think of this?**

In Canada, the Infoway model has been a success from the perspective that we are working collaboratively with the federal government and all the provinces and territories. Everyone is at the table. We developed our EHR (Electronic Health Record) Blueprint with input from our jurisdictional partners and private sector vendors. And our unique strategic investor model provides us with a way to make investments in accordance with jurisdictional priorities, while employing gated funding to ensure the investments are delivering against the overarching objectives of the pan-Canadian EHR project. Today, as a result of this cooperative approach, we have active projects in every jurisdiction in Canada. While we still have a considerable amount of work ahead of us – we’re transforming an industry after all – we feel confident we can achieve success because of the collaboration and cooperation we’ve experienced to date.

**What have been the primary challenges faced? Can you briefly sketch these challenges when you stepped into this role?**

Prior to Infoway’s creation in 2001, there was no unified effort to develop a pan-Canadian EHR with standards in place to ensure pan-Canadian interoperability. From the beginning, investments focused on solutions needed to manage the flow of information generated in tens of thousands of different points of care across Canada. This ‘hub and spoke’ model was a departure from the efforts of several other countries which focused on the adoption of EMRs (Electronic Medical Records) as a starting point. Canada’s approach from the start was to focus investments on generating health information in a standardized manner to ensure compatibility with the eventual adoption of EMRs. To this end, early efforts focused on educating the IT and medical communities about Infoway, its mandate and approach. This exercise remains a focal point for Infoway, and has helped build an element of trust

**What, if any, role have standards played in Infoway’s deployment?**

Standards are crucial to our success. Standardization enables interoperability, while allowing for jurisdictions to determine the best way to do things based on their unique circumstances, priorities and in consideration of legacy systems currently in place. Central to the success of EHRs from a clinical perspective is the critical need to establish messaging and terminology common to clinicians from across Canada. The acquisition of SNOMED CT (Systematized Nomenclature of Medicine – Clinical Terms) is supporting this requirement with comprehensive, clinical healthcare terminology standards. We also have a detailed roadmap addressing privacy and security issues, which helped diffuse some potential barriers.

**Why do you think Canada has achieved something that most countries are still evaluating?**

We need to be clear – there’s still a lot to be completed. That said, we’re

making solid headway on the pan-Canadian EHR because the approach we've adopted was developed to take into account the realities of the Canadian marketplace – while universal healthcare for all Canadians is enshrined in federal law, provinces and territories are ultimately responsible for funding and overseeing their respective, and to some degree unique, healthcare systems. We found a way to play a role without insisting people do everything the exact same way. The approach, as it turns out, works particularly well in a federated model.

**Canada is extremely large geographically. What have been the challenges in that regard?**

EHRs have in fact created tremendous opportunities to eliminate distance as a barrier to access to care. The vast majority of Canadians live within a narrow corridor near the US border. Naturally, most healthcare facilities and centers of excellence are located there as well. Meanwhile, Canada's three northern territories, which account for 40% of Canada's mass, is home to just 0.3% of its population. These residents live in remote communities that are medically underserved, and seeing a specialist requires long, expensive travel. Telehealth is eliminating distance, allowing patients to remotely consult specialist located thousands of kilometers away – greatly increasing access, reducing cost, and improving the patient's experience greatly in the process. Digital imaging plays a similar role, not only avoiding unnecessary travel, but vastly improving the productivity of radiologists. Digital imaging in Canada has boosted productivity to levels that can only be achieved if 500 additional radiologists were added to the current complement of approximately 2,000.

**Has it been easy to convince the different hospitals/stakeholders to join this initiative? How was this undertaken?**

Actually, we deal with the jurisdictions directly in most cases. They identify the projects and bring them to us for funding consideration based on their local priorities. Initially,

“Healthcare providers want to be included in the development of EHRs- not left out.”

the challenge was that this was a completely new approach to funding health IT projects. So there was a lot of discussion and we needed to assure partners we weren't there to dictate what they did. We collaborated on the EHR Blueprint to ensure we were developing a framework that everyone could live with. With a few years – and hundreds of projects – under our belts now, things are working quite well. We now collaborate with jurisdictions on their three year plans and work closely with them on a spectrum of related initiatives such as joint procurement, change management and knowledge management to help their projects succeed. I think the fact that we have active projects in every jurisdiction is a testament to our success in this regard.

**When do you expect your task to be over? When will Canada be fully interconnected? Is more expected beyond what is being rolled out now?**

We anticipate we'll hit a major milestone in 2010, when we expect to have the basic components for an EHR in place for 50% of the Canadian population. Specific to diagnostic imaging, around 80% of all images will be digital by the spring of 2009 so we've made considerable progress in that segment.

**How do you see emerging technologies impacting on this project? What, if any, technologies do you see in the near future as being critical to success?**

The growth of 'patient portals' through the Internet will expand greatly. This should allow an individual to securely access their medical history, treatment plans and other components of the EHR from a personal computer. Also evolving is wireless broadband networking, which offers many possibilities and enables solutions to be deployed in environments where conventional hardwired infrastructure is impractical or expensive. Finally, I foresee more improvements in data compression software to make quality diagnostic imaging and information easier to store more cost effectively.

**What in this project has been a key learning for you personally? What advice would you give other countries contemplating a similar EHR framework?**

Communication! It's critical to success. You have to clearly connect all

the dots to help stakeholders understand the importance of such an effort. You also have to continually work to educate the public and key stakeholders about the benefits associated with EHRs, showcasing real-world situations where outcomes and patient care has improved as a result. It's important to remember EHR is a people project – not an IT project.

**What are the next steps for Canada in this undertaking?**

We're continuing to focus on finishing what we've started, that is to provide EHRs for all Canadians. To accomplish this, it's important to note that it's not a question of building the system from the top down, or from the bottom up. Rather, it's necessary to do both. So we'll look at how the physicians' offices and other point-of-service systems will connect to the EHR infostructure, examining work flows and ensuring there are appropriate change management activities in place to ensure there's buy-in from health practitioners. We'll also continue to connect with key health IT vendors so they know in advance what our plans are and where we'll be making investments. These alliances are very important, and to paraphrase Canada's greatest hockey player, Wayne Gretzky, "We tell them where the puck is going to be". •

ABOUT CANADA HEALTH INFOWAY

Created in 2001, Canada Health Infoway is a federally funded, independent, non-profit organization whose members are Canada's 14 federal, provincial and territorial Deputy Ministers of Health.

Infoway is the nation's catalyst for collaborative change to develop and accelerate a common, pan-Canadian framework for EHRs for every Canadian. This framework will provide healthcare professionals throughout Canada with rapid, highly secure access to accurate, complete patient information, enabling better decisions about treatment and diagnosis. The result will be a modernized, sustainable healthcare system offering improved accessibility, quality and productivity.

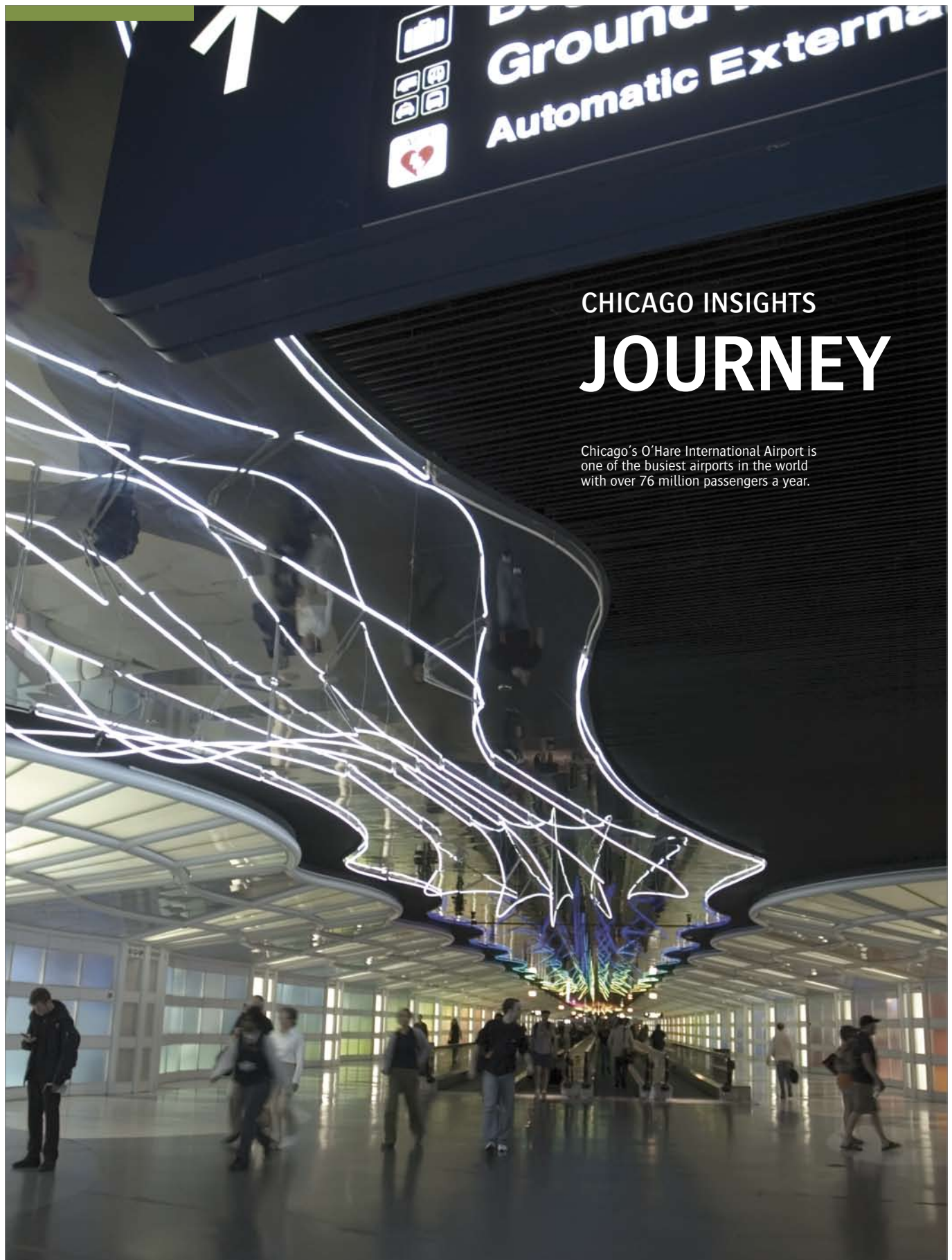
Since its inception, Infoway has approved 272 projects in nearly all provinces and territories in targeted areas including, among others, Diagnostic Imaging Systems, Drug Information Systems, Laboratory Information Systems, Public Health Surveillance, and Telehealth.



Ground  
Automatic External

# CHICAGO INSIGHTS JOURNEY

Chicago's O'Hare International Airport is one of the busiest airports in the world with over 76 million passengers a year.



# MAJOR MEDICAL CENTER LEVERAGES EXISTING PACS TO SUPPORT TRANSITION TO DIGITAL MAMMOGRAPHY

## Full transition to all-digital mammography facilitated by adaptability of Agfa HealthCare's solutions

**INTERVIEWEE** Andrea Doria, R.T. (R)(M), Mammography Co-ordinator  
**HOSPITAL** Maine Medical Center, Portland, Maine, US

Two years ago, Maine Medical Center (MMC) began exploring the possibilities of converting all mammography exams from screen/film to digital. A key challenge was to link new full field digital mammography (FFDM) equipment at the main radiology department with similar units at two satellite locations outside the city. The facility was able to display, import, network, and archive digital mammography studies using the hospital's existing IMPAX® Picture Archiving and Communications System (PACS) through multiple mammography display stations.

### TEAM EFFORT GUIDES MAJOR DECISIONS

MMC's Radiology Department has all the advanced tools of digital diagnostic imaging, including a department-wide IMPAX PACS from Agfa HealthCare that links satellite locations in Falmouth and Scarborough. In mammography, 20 radiologists and 13 technologists help the department perform approximately 18,000 screening and diagnostic exams, and more than 600 stereotactic, needle biopsy and localization procedures annually. In January 2006, a dedicated team began exploring the potential of transitioning all mammography exams from analog to digital using FFDM, and linking all locations on a digital image and data network. Included in that effort were Director of Breast Imaging Elizabeth Pietras, M.D., Radiology Clinical Manager Mary Duffy, R.T. (R), Mammography Co-ordinator Andrea Doria, R.T. (R)(M), Radiation Physicist Beth Quate and Radiology Informatics Systems Analyst Stephen Zabrocki. At MMC, one FFDM unit each was purchased for the main department and Falmouth site, with two units placed in the busy, suburban Scarborough location.

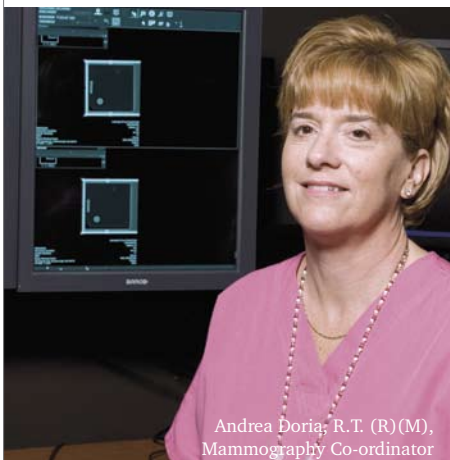
### ADDRESSING PACS FOR MAMMOGRAPHY

The team investigated the best solution for providing radiologists and technologists the tools to optimize

the diagnostic process. According to Dr. Pietras, there were two options: "Interface the new FFDM modalities to a fully functional PACS workstation, thereby providing multi-modality breast imaging capabilities, or install a modality-specific workstation dedicated to mammography. Having a workstation that displays images from all modalities was a critical consideration." Another decisive factor centered around MMC being a teaching hospital where medical staff continually rotate through the hospital, including radiologists moving between imaging disciplines such as mammography. "Physicians and radiologists were familiar with using IMPAX," says Mary Duffy, Clinical Manager, Radiology at MMC. "It appeared wise to integrate mammography with the PACS platform that other medical and clinical staff were accustomed to using."

### OPEN INTEGRATION/WORKSTATION FLEXIBILITY IMPROVES EFFICIENCY

MMC successfully integrated digital breast imaging onto the existing PACS, including deployment of six IMPAX



Andrea Doria, R.T. (R)(M),  
Mammography Co-ordinator

"Overall service to patients and referring physicians is significantly improved."

### MAINE MEDICAL CENTER, PORTLAND,

**MAINE:** Founded in 1874. 606-bed teaching facility. Leader in 21<sup>st</sup> century medicine.

**CHALLENGES:** Complete electronic workflow, combining FFDM images with medical data.

**SOLUTION:** PACS/Mammography integration.

**BENEFITS:** Improved service to patients and referring physicians. Mammo report turnaround time reduced by nearly half.

Breast Imaging Review Stations, specifically designed for displaying all digital breast imaging throughout the three sites. This solution was selected because of its ability to display FFDM imaging, breast US and MR from a single workstation. An added benefit was the ability to use these same workstations for all other imaging display needs. Radiologist efficiency was enhanced by Agfa HealthCare's ability to integrate the breast imaging review station with the department's existing mammography reporting and tracking software and dictation system. The fact that the IMPAX Breast Imaging Review Station is vendor neutral fits with MMC's desire to provide digital reading for facilities outside of their own network who wish to convert from analog to digital. Other successful PACS integrations involved Agfa HealthCare's IMPAX Radiology Information System (RIS) used throughout the Radiology Department, and even distributing FFDM images through Agfa HealthCare's web-based PACS system, providing referring physicians secure access to diagnostic images. "Overall service to patients and referring physicians is improved now that tasks like callback coordination, archiving, report integration and other mammography components are available on all workstations unified on the IMPAX network," says Doria. "Since the implementation of FFDM with a fully integrated IMPAX Breast Imaging Review Station, the time for a completed report to reach the attending doctor has been reduced by nearly half," concludes Duffy. •

# REDUCED X-RAY DOSES AND IMPROVED NEONATOLOGY IMAGING PROCESS IN BELGIAN HOSPITAL

## Higher quality images and a 30% reduction in radiation doses

**INTERVIEWEE** Dr. Léon Rausin, Pediatric Radiologist, Head of the Radiology Department

**HOSPITAL** Citadelle Regional Hospital, Liège, Belgium

Citadelle Regional Hospital in Liège is equipped with a high-tech neonatology unit. The hospital chose Agfa HealthCare because it was offering the solution that it determined was best suited to pediatric radiology: the DX-S Computed Radiography (CR) system and the MUSICA<sup>2</sup>® image processing software. The pediatric radiologists now benefit from high quality images obtained with a considerable radiation dose reduction.

### SPECIAL REQUIREMENTS REGARDING DOSE AND IMAGE QUALITY

Citadelle Hospital's Radiology Department employs 25 doctors, three of whom are pediatric radiologists. "Pediatric radiology is one of the hospital's central preoccupations, as the Pediatric Department has university beds," explains Dr. Léon Rausin, Head of the Radiology Department. In 2007, the Radiology Department saw 160,000 patients, 15% to 20% of whom were children. Neonatology performs 10 to 12 exams a day, 7 days a week. Citadelle Hospital has been an Agfa HealthCare customer for many years. "We have a very close relationship with Agfa HealthCare, so we continued to place our trust in them when we switched over to computed radiography. We like working with them for various reasons. First, we have an excellent relationship with the company. Second, we have performed quality surveys, and the DX-S CR system seems to be very promising." The hospital also chose Agfa HealthCare for financial reasons, as they were offering the best solutions at the most reasonable price. "Once we had made the choice, we had to review the entire system for neonatology. DX-S was perfectly set up for adult and child radiography, but not for neonatology," explains Dr. Rausin. The Citadelle team therefore calibrated the system for premature neonates, with the assistance of Agfa HealthCare. Dr. Rausin explains that this adjustment was very delicate. "We had to balance both quality and radiation requirements, because we have neonates weighing down to 0.5 to

"Compared to standard radiography, the DX-S CR system for neonatology has enabled us to make a 30% saving on radiation doses. This is the most important benefit. The second aspect relates to quality of service: we can now monitor disease progression carefully from one hour to the next if need be."

Dr. Léon Rausin, Pediatric Radiologist, Head of the Radiology Department



1 kg who undergo up to 3 X-rays per day. You can imagine the kind of dose that they end up receiving: it's not enormous, but it's nonetheless a worry for us." Compared to standard radiography, DX-S equipment uses around 30% less radiation, which is a fairly significant saving.

### SIGNIFICANT QUALITY IMPROVEMENT WITH MUSICA<sup>2</sup> IN NEONATOLOGY

Citadelle Hospital has two DX-S CR systems: the first was installed in 2007 in the Pediatric Radiology Department. The second, which has been operational since last September, is reserved exclusively for neonatology. After just one month of using the DX-S CR system, the radiologists could see a major difference in the quality of the images given to the neonatologists. Images can be viewed on the workstation in the pediatric radiology unit and will soon be available on doctors' personal computers. An additional benefit is the system's MUSICA<sup>2</sup> enhancement software, which provides consistently reliable and better image visualization. It automatically optimizes processing and as such minimizes re- or post-processing.

### VALUABLE SUPPORT OF WORK PROCESSES

The DX-S CR system enables doctors to make valuable time savings. "For doctors' day-to-day work, it represents an amazing transformation as we can now view images and process them with the various tools on a workstation. But above all, and most importantly, we can compare the images on a linear basis. It completely changes our way of working and considerably improves the efficiency of our workflow," says Dr. Rausin. Finally, the DX-S CR system does not require time-consuming staff training because it is very user-friendly. •

### CITADELLE REGIONAL HOSPITAL, LIEGE:

Public hospital with 990 beds on-site. Three peripheral sites, bringing the number of beds to 1,400. **CHALLENGE:** Calibrate Agfa HealthCare's DX-S CR system for neonatology. **SOLUTIONS:** DX-S, PACS and MUSICA<sup>2</sup>. **BENEFITS:** 30% dose reduction. High quality images. Time savings for doctors.

# FULLY INTEGRATED CR/RIS/PACS/SPEECH SOLUTION HELPS HOSPITAL INCREASE PRODUCTIVITY

## Large Brazilian hospital grows radiology exams by 140%

**INTERVIEWEE** Marcos Menezes, M.D., Chief Radiologist

**HOSPITAL** Hospital Sírio-Libanês, São Paulo, Brazil

One of Brazil's most prestigious, private medical institutions, Hospital Sírio-Libanês (São Paulo), has recently converted from a primarily film-based image sharing and archiving system to a fully integrated, enterprise-wide digital workflow.

Agfa HealthCare was selected as the sole provider of various Computed Radiography (CR) systems, Radiology Information System (RIS) software and equipment, and a Picture Archiving and Communications System (PACS), as well as the complete infrastructure needed to efficiently distribute images, data and other critical information securely throughout the institution.

### NEED FOR A RELIABLE AND COHESIVE DIGITAL WORKFLOW

Until two years ago, nearly 60% of the hospital's radiology exams were printed on film. CR studies, as well as images from three Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) units, and numerous ultrasound imagers, were printed on film. A legacy PACS served basic department needs. Over the years, it was upgraded with various components and software from different suppliers. Finally, a rudimentary RIS from yet another firm supplemented the PACS, but neither platform could reliably communicate with each other or the institution's Hospital Information System (HIS). "With different solutions from diverse systems, our department's ability to effectively communicate was limited," says Marcos Menezes, M.D., Chief Radiologist at Hospital Sírio-Libanês. That's why in 2006, the hospital sought proposals from five major suppliers to provide a single, fully integrated RIS/PACS system with interfaces to the HIS, as well as new CR systems for extremity, chest and head studies and Direct Radiography (DR) for mammography.

### EXTENSIVE REVIEW LEADS TO A SINGLE SUPPLIER

Supplying a full range of solutions from a single source required a review of each firm's proposal, which took

the team six months to complete. But the challenge was worth the effort to achieve an integrated CR/RIS/PACS/Speech solution from one single supplier. "We selected Agfa HealthCare because of the completeness of its



"Agfa HealthCare clearly demonstrated its ability to provide high-quality images supported by extremely productive workflows."

Marcos Menezes, M.D., Chief Radiologist

solution, its knowledge of information technology workflows and systems integration, its user training, service, and a very favorable price," Dr. Menezes says. "They clearly demonstrated how their combined CR, RIS, PACS, voice recognition software and other solutions properly integrate through our HIS. Furthermore, they could provide excellent customer service through faster, more accurate report creation and they could guarantee an optimal use of our modalities." Dr. Menezes adds that Agfa HealthCare's capability to make the most of a digital workflow and improve productivity by increased exam throughput was a major contribution. "They have a deeper understanding of system integration, and clearly

### HOSPITAL SIRIO LIBANES, SÃO PAULO:

450 beds. 170,000 diagnostic imaging procedures annually. **CHALLENGE:** Fully integrated, enterprise-wide digital workflow. **SOLUTION:** CR/RIS/PACS/Speech integration. **BENEFITS:** 140% growth in radiology exams.

demonstrated an ability to provide high-quality images supported by extremely productive workflows," he says.

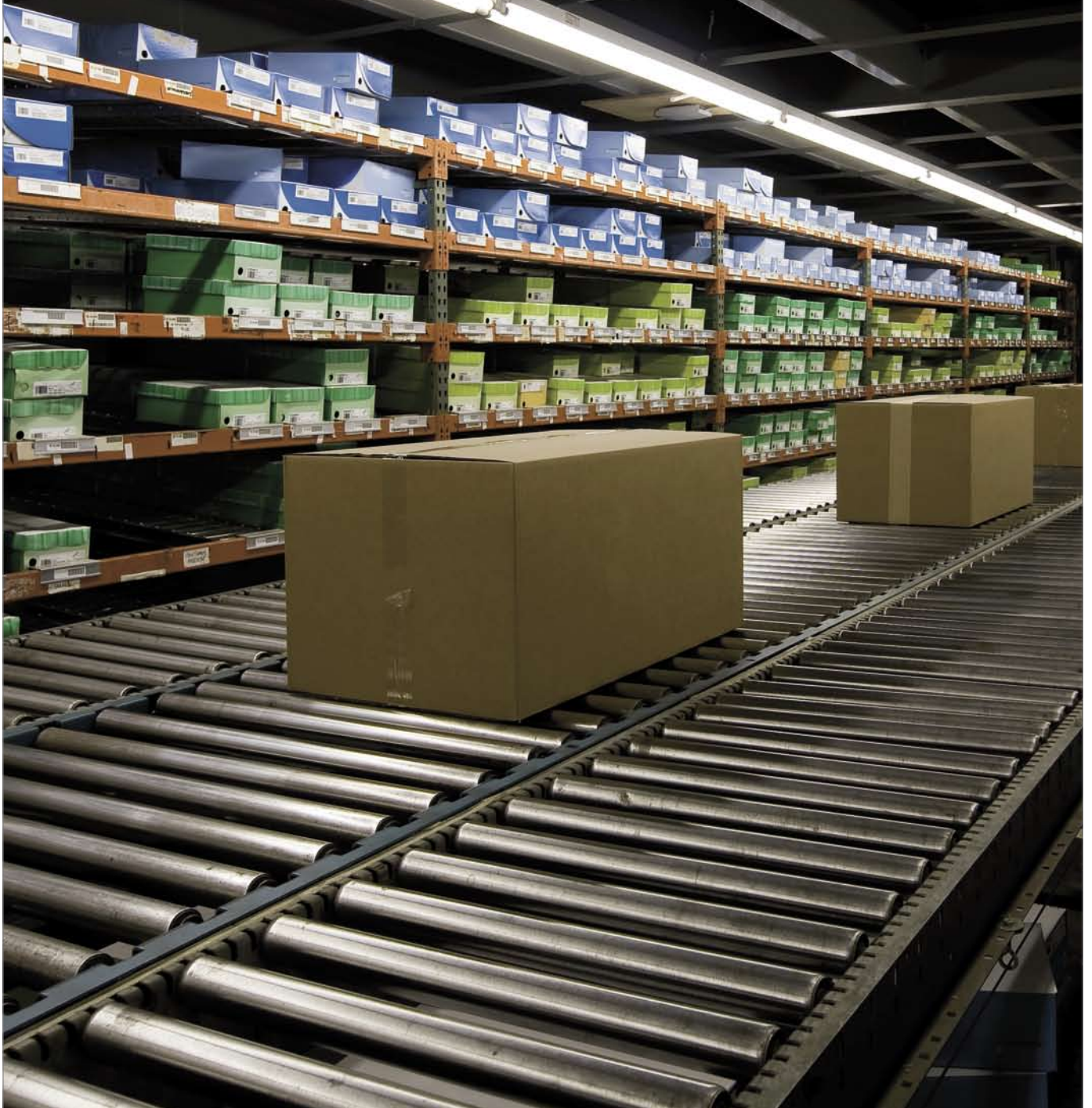
### HIGHLY INTUITIVE SOFTWARE EASES ANALOG-DIGITAL TRANSITION

A critical part was training hospital staff to transition from an analog-to-digital workflow. Radiologists, medical department heads and referring physicians were the most enthusiastic about the improvements in workflow, record keeping and archiving. A major advantage of the Agfa HealthCare solution is its easy-to-use, system-wide integrated software, which is highly intuitive, uncomplicated and user-friendly. The entire system consists of the company's IMPAX® PACS linking all modalities, IMPAX™ RIS with speech recognition transcription software for report generation, and a new desktop program for health plan verification. There are eight HL-7 compatible interfaces to the HIS that merge digital imaging, data, and patient demographics with pharmacology and pathology records, among others, on a single screen. Agfa HealthCare also provided two of its CR 85-X systems and one CR 30-X for general radiology, all interfaced into the combined RIS/PACS/HIS. In two years following implementation, the complete system has contributed to a huge growth in exams performed; a 140% increase according to Dr. Menezes. "The IMPAX RIS is the strongest part of the system," he concludes. "It's extremely flexible and easily customized, making it patient-centered versus modality-centered. It makes us competitive with the world's finest medical institutions. We could not grow without it." •

CHICAGO INSIGHTS

# SCALABLE EFFICIENCY

Montgomery Ward & Co., the world's first giant mail-order enterprise, revolutionized how people bought goods and services.





# A HOME RUN FOR ORTHO SUBSPECIALTIES AND SPORTS MEDICINE

Georgia-based healthcare group adopts scalable IMPAX technology for physicians' efficiency

**INTERVIEWEE** Dr. Stanley Dysart, one of Pinnacle's directors and leading physicians

**INSTITUTION** Pinnacle Orthopaedics & Sports Medicine, Georgia, US

Pinnacle Orthopaedics & Sports Medicine, a diagnostic and treatment group in Georgia, is a leader in the United States for advanced procedures such as total joint replacement, limb lengthening, synthetic bone grafts and other life-improving and life-saving practices. The physicians who research and implement these specialized advancements are among the most qualified and dedicated in the country. The organization often makes medical news for its innovative approaches and 'can do' attitude toward any kind of orthopedic problem.

## THE DIGITAL LANDSCAPE

Nearly 57,000 imaging exams are conducted each year under the direction of Pinnacle physicians. Recently they implemented Agfa HealthCare's IMPAX™ Picture Archiving and Communications System (PACS), providing medical staff with digital tools to review, measure, plan and evaluate the results of a patient's treatment. In a comprehensive all-in-one workstation, they have rapid access to all patient images, as well as measurement, surgical planning and templating tools. "Advanced digital technology helps us do our jobs better and lets our patients know that we're a cutting edge organization," says Dr. Stanley Dysart, one of Pinnacle's directors and leading physicians. "There were several things we liked about the Agfa HealthCare portfolio. They produce state-of-the-art technology and they are a progressive, research-oriented organization dedicated to supporting its installed products even as new technologies come down the road."

The relationship goes back several years. Dr. Dysart recalls first surveying the digital landscape at the RSNA annual meeting in Chicago a few years ago and being impressed both with the customer support network and the strength of Agfa HealthCare's research and development. "We wanted to associate with a company that's going to be around for a long time," he says. "That's why we selected

Agfa HealthCare. As far as support is concerned, there is no avoiding the fact that even the best products will occasionally have technical issues, and we wanted to be confident that the technical assistance and collaboration was there. Agfa HealthCare has a large sales and support staff, and we know they'll always be there for us when we need them."

## LOOKING AHEAD

"Agfa HealthCare's PACS solution is scalable, so our solution can grow with us," Dr. Dysart says. With IMPAX, Pinnacle has an image and information management system that's completely digitized and web-deployable among all of its sites, helping Dr. Dysart and his colleagues streamline their workflow, which in turn aids in timely and effective diagnosis and treatment.



"Agfa HealthCare's PACS solution is scalable, so our solution can grow with us."

Dr. Stanley Dysart,  
one of Pinnacle's directors and leading physicians

## PINNACLE ORTHOPAEDICS & SPORTS MEDICINE, GEORGIA:

Founded in 1997. Ten fully-staffed sites in 9 Georgia towns. Affiliated with 11 hospitals. Nearly 57,000 imaging exams annually. **CHALLENGES:** Access to digital tools to review, measure, plan and evaluate the results of a patient's treatment. **SOLUTION:** IMPAX PACS/CR/FLFS software. **BENEFITS:** Scalability. Cost reduction. Elimination of physician frustration.



## EDUCATING PATIENTS

Dr. Dysart is a great proponent of the digital streaming technology that goes along with IMPAX. "I can sit with a laptop and show my patients the part of their body that we're diagnosing and treating. I can show them a virtual image of what we're going to do and how it will look afterwards. This is a huge advantage. Patients feel that we're doing everything we can to keep them totally informed of their situations, as well as our ability to diagnose and treat effectively. It is our job as physicians to educate our patients, and we can do that much better with a digital solution." Pinnacle acquires images using Agfa HealthCare's CR solution, a versatile, decentralized computed radiology digitizer. By using software designed specifically for full leg/full spine (FLFS) imaging, images are automatically assembled and misalignments are corrected with minimum manual interaction. This further improves the Pinnacle physicians' efficiency while providing them the high-quality diagnostic images they appreciate. •

# NATIONWIDE PACS CAPABLY STORES AND CONVEYS VAST AMOUNTS OF IMAGES AND DATA

Agfa HealthCare systems, technology and expertise are instrumental in daily operations linking Estonia's medical centers and nearly 1,000 physicians

**INTERVIEWEE** Andrus Aavik, Board Member (Foundation of Estonian PACS), Head of Biomedical Department (Tartu University Hospital)

**INSTITUTION** Foundation of Estonian PACS, Tartu & Tallinn, Estonia



Andrus Aavik, Board Member (Foundation of Estonian PACS), Head of Biomedical Department (Tartu University Hospital)

“Putting all digital image files on a unified, national network encourages every practitioner to excel in their profession.”

necessitating greater networking and resource sharing.

At that time, Tartu University Hospital installed an IMPAX PACS from Agfa HealthCare based on the recommendation of the colleagues at the Swedish hospital. IMPAX provided the multi-modality capacity to bring all digital modalities (Computed Tomography, Magnetic Resonance, and Computed Radiography) to a single workflow and provide distributed image viewing throughout the 850-bed Tartu University Hospital, employing DICOM standards.

In addition, a wide area distribution network was established using the Agfa HealthCare Web1000 platform for web-based image delivery and high-quality image review.

## SECOND IMPAX PROVIDES MIRROR-IMAGE PROTECTION

The nation's second largest hospital, 750-bed North-Estonian Medical Centre, 180 kilometers away in the capital, Tallinn, soon installed its own IMPAX PACS and DICOM server. In 2006, the two institutions linked their PACS and servers using the high-speed telecommunications network and made imaging available to other healthcare providers forming a countrywide PACS. The two primary servers provide mirror image backup should one fail.

With a total DICOM cache capacity of 18 Terabytes (TB), the unified system today receives digital imaging from 80 modalities at 21 hospitals, which is

Estonia's two largest medical institutions, Tartu University Hospital, and North-Estonian Medical Centre, are the foundation of a nationwide, Picture Archiving and Communications System (PACS) serving 24 hospitals, 6 major medical centers, and nearly 1,000 private physician offices throughout the Baltic republic.

Agfa HealthCare's IMPAX™ 6 PACS technology provides the backbone of this network, contributing to significantly improved patient throughput, higher image quality, and better service by Estonia's healthcare providers.

## GROWING A DIGITAL NATION

Today's nationwide PACS traces back to the mid-1990s, when the Estonian government proactively established a telecommunications infrastructure throughout the country employing a 1 Gigabit (Gb) bandwidth capacity. Healthcare providers originally used this national high-speed network to

“The ability of IMPAX to easily accept the output of numerous modalities, workstations and software is absolutely crucial to our success.”

link main and satellite facilities for voice and data exchanges.

In 1999, an experimental multinational PACS was set up as part of the Baltic International Telemedicine Network, or BitNet. By means of Integrated Services Digital Network (ISDN) telephone lines, medical records and scanned films were sent between a prominent Swedish hospital, four Estonian institutions, and hospitals in nearby Latvia and Lithuania to enable tele-consultation.

Network expansion continued as more hospitals added digital imaging modalities and between 2001 and 2002, all independent Estonian hospitals were merged into one national group,

## DID YOU KNOW...

- » With 1.4 million inhabitants, Estonia is one of the EU's most sparsely populated countries.
- » Despite its smaller population, Estonia has one of the region's fastest growing economies due in part to its eagerness to adopt new digital technologies.
- » Estonia is highly Internet savvy. It embraces e-government and e-voting. In 2005, more than 30,000 citizens voted via the Web. It also has an elite e-military group used to defend against cyber attacks.

roughly 86% of the country's imaging capability. An average of 60Gb of data is archived daily. An additional 50TB capacity is available for long term archiving.

The nationwide PACS also permits clinicians to view images on secure, IP-based digital workstations at 24 hospitals, along with 98% of the nation's general practitioners who access high quality images and reports via a secure web site.

Physicians use IMPAX' powerful viewer applications to search the main servers at either hospital for patient studies, whether at a regional clinic or remote location, such as a medical office. Images and data can even be stored short-term on the computer or workstation's hard drive. As a result, many Estonian hospitals and physician offices have now become completely filmless and paperless.

Supported by strong, government-enacted data protection laws, the PACS network is today owned, operated and maintained by a private, non-profit organization established in 2005: the Foundation of Estonian PACS. This group is primarily funded by the two major hospitals, with individual hospitals and physicians providing funding based on an average use.

### IMPAX INTEGRATION CRUCIAL TO SUCCESS

"The ability of IMPAX to easily accept the output of numerous digital modalities, workstations, as well as a wide range of hospital information systems (HIS), laboratory and radiology information systems (LIS/RIS) is absolutely crucial to the success of this effort," says Andrus Aavik, Board Member of the Foundation, and Head of the Biomedical Department, Tartu University Hospital.

He adds that this is especially significant in Estonia, where most HIS, RIS and LIS



software is locally designed and produced, "so it's not 'off the shelf' generic product that's easy to assimilate," Aavik says. "Joining images with reports from various clinical programs throughout the country on a single display has significantly improved workflows at the major hospitals, as well as smaller institutions."

Both main hospitals recently upgraded their IMPAX client server software to version 6.3, which Aavik says improves the acquisition, archiving and display of data, particularly older files.

He cites a recent experience where colleagues in Latvia tested the system by trying to open 10-year old digital files. "Even though archived to DICOM standards, we were unsure if IMPAX could still display them. You can imagine our delight when the old files properly displayed in about four seconds. It's very fast, and a great way to share archival data anywhere."

Aavik adds many Estonian hospitals and nearly all general practitioners using the Foundation's PACS now provide better service to patients in a variety of ways. "First, whenever a patient changes doctors or moves to another part of the country, his or her medical information follows them digitally," he says. "Wherever there's a network workstation or one accessed via WEB1000, a doctor can have access to all necessary files. This reduces repeat exams and eliminates the physical transport of medical images and files."

The system also improves overall image quality. "Putting all digital image files on a unified, national network encourages

every practitioner to excel in their profession," says Aavik. "No one wants the medical community to see a poorly positioned or exposed image, which is never acceptable."

He concludes, "We're very happy with the cooperation from Agfa HealthCare in operating and maintaining the Foundation's PACS. If you're in a small country, you sometimes don't always get the support you need. It's different with Agfa HealthCare. Their best people in Finland, Sweden and even Germany are always here for us, highly responsive, and always a short phone call, flight or ferry away. It's almost as if they're based here." •

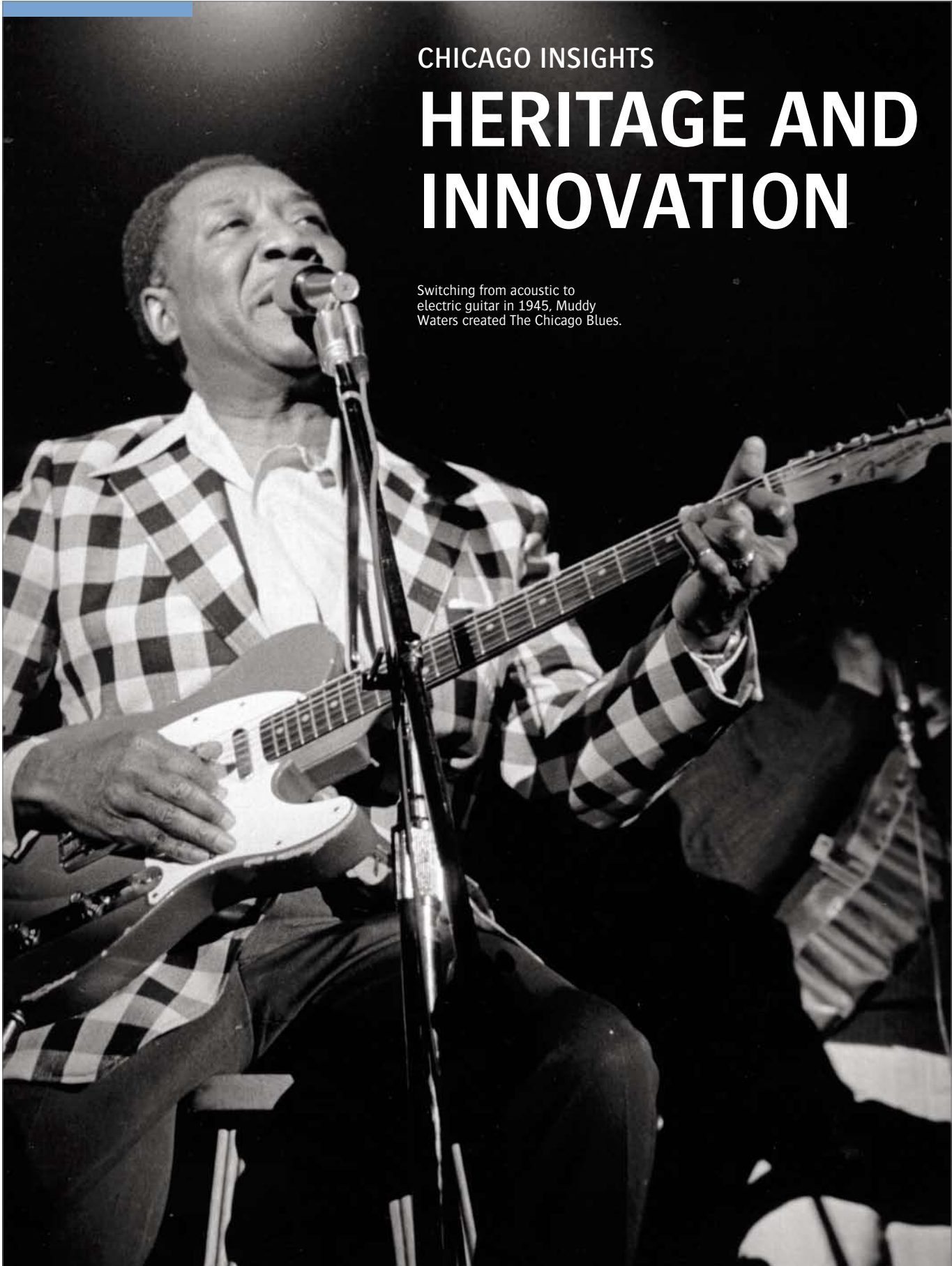
### IMPAX PACS

- » A complete electronic healthcare workflow, combining patient imaging and data with HIS, LIS, pharmacy, admitting and other critical demographics from multiple software programs throughout Estonia.
- » Easy, reliable interface with a wide range of healthcare information systems, even those written and sold locally.
- » Full DICOM compatibility. IMPAX facilitates secure yet quick online access to high quality imaging and information. Intuitive design to expedite data and image review.



### AGFA HEALTHCARE'S CONTRIBUTION

Two IMPAX PACS mirror-imaged systems interfaced to a variety of HIS, LIS and RIS systems at hospitals and medical offices throughout Estonia.

A black and white photograph of Muddy Waters performing on stage. He is seated, wearing a checkered blazer over a white shirt, and is playing a white electric guitar. He is singing into a vintage microphone on a stand. The background is dark, and the lighting is focused on him.

CHICAGO INSIGHTS

# HERITAGE AND INNOVATION

Switching from acoustic to electric guitar in 1945, Muddy Waters created The Chicago Blues.

# OCHSNER HEALTH SYSTEM: HERITAGE AND INNOVATION THROUGH THE YEARS

Louisiana Healthcare Organization benefits from a more efficient and versatile workflow with DX-S CR system

**INTERVIEWEE** Brian Deshotel, Radiology Informatics Director  
**HOSPITAL** Ochsner Foundation Hospital, New Orleans, US

Those who view the websites of the NFL (National Football League) New Orleans Saints and the NBA (National Basketball Association) New Orleans Hornets are likely to notice something in common. The Ochsner Health System is a 'Patron Saint' of the football club and a 'Corporate Partner' of the basketball team. Ochsner, one of the largest medical research organizations in the Gulf South region of the United States, is also a leader in sports medicine and athletic care and partners with both professional teams for expert care and treatment. That's only one of the badges of honor and excellence worn by the 65-year-old healthcare organization. Ochsner was also recently named one of the '100 Most Wired' health systems by Hospitals & Health Networks magazine, enabling patients to take charge of their own healthcare through the internet.

## RANKED ONE OF THE 'BEST PLACES TO WORK'

Ochsner traces its roots back to the 1940s, to the Alton Ochsner Medical Foundation in New Orleans, where research initially focused on hypertension and vascular disease. As Ochsner's research grew, so did its medical specialties and number of campuses providing quality healthcare to communities in Louisiana, nationally, and internationally. Today, Ochsner is known for its research and the care it provides to patients (and athletes) in southeastern Louisiana. The organization has seven medical centers, a major sub-acute facility, and 35 neighborhood health centers. Combined, Ochsner's 600 physicians conduct approximately 550,000 imaging exams each year at its Louisiana sites, which include centers in New Orleans and Baton Rouge, and the smaller cities and towns in between. These exams cover more than six dozen medical specialties and subspecialties.

Ochsner is also noted for many regional medical firsts, including the first kidney transplant and the first heart transplant in the Gulf South. Its education and research programs are highly regarded.



Brian Deshotel,  
Radiology  
Informatics Director

"By having an integrated image processor control and X-ray unit, our technologists have the convenience of working at one control panel. It can't be more user-friendly than that."

Every summer Ochsner's Academic Division welcomes 12 'Summer Science Scholars' from local high schools to go through an intense learning program. Their noted 'Research Night' is an annual event that shares biomedical research with the community and with college students. Ochsner also has a Center for Health Research and a Center for Nursing Research. A non-profit healthcare organization with more than 10,000 employees, Ochsner Health System was ranked one of the 'Best Places to Work' by the New Orleans CityBusiness magazine for the past three years, received the 'Consumer Choice' for Healthcare in New Orleans by the National Research company for the past 12 years, and has been ranked a 'Best Hospital' by U.S. News and World Report 8 times, the most recent in 2007.

## AGFA HEALTHCARE'S CONTRIBUTION

DX-S, a groundbreaking compact, computed radiography (CR) solution designed for decentralized or in-room use for general radiography, pediatric and emergency environments.

Ochsner today is involved in far more activity than it was 65 years ago, while the dedication and confidence attributed to its staff are exactly the same. Its heritage has not wavered.

"One of the greatest challenges at an organization like Ochsner is simply a result of our own growth and success: our ongoing challenge is to provide effective and seamless radiologist coverage among all of our facilities and clinics," says Brian Deshotel, Ochsner's Radiology Informatics Director. "We do that in many ways, some of the most important of which are digital imaging and a highly effective PACS."

## HIGH IMAGE QUALITY SIMILAR TO DR, BUT WITH MORE EFFICIENT AND VERSATILE WORKFLOW

For image acquisition, Ochsner selected Agfa HealthCare's DX-S Computed Radiography (CR) solution. Two units were installed toward the end of 2007 at the Ochsner Sports Medicine Clinic in Jefferson, LA, which is used by the Saints and the Hornets, as well as by the general public. Each unit is integrated with Quantum's Q-rad radiographic system in a digital X-ray room to provide an advanced, single point-of-care system for Ochsner digital imaging.

"The integration of our two units is part of a very smooth process, and the compact footprint of each helps us conserve space," Deshotel says. "The increased speed at which the DX-S processes images is also a great advantage to boosting throughput. I estimate that we can do about 25% more exams due to its speed."

# HOSPITAL GROUP INSTALLS TEN DX-S CR SYSTEMS AND POSITIONS ITSELF FOR THE FUTURE

High-speed and enhanced image processing at two Wisconsin hospitals and satellite imaging clinic

**INTERVIEWEE** Richard Blattner, Radiology Manager, Waukesha Memorial Hospital  
**HOSPITAL** ProHealth Care of Wisconsin, US



Richard Blattner,  
Radiology Manager

**PROHEALTH CARE OF WISCONSIN:** Consists of 300-bed Waukesha Memorial Hospital, 80-bed Oconomowoc Memorial Hospital, and the D.N. Greenwald Center in Mukwonago. **CHALLENGE:** Be well positioned for the future with latest CR technology. **SOLUTIONS:** DX-S. MUSICA<sup>2</sup>. NX workstation. **BENEFITS:** Outstanding image quality. High-speed image processing. Improved departmental workflow.

## DX-S CR SYSTEM, A TECHNOLOGY PLATFORM THAT WOULD BE STATE-OF-THE-ART YEARS FROM NOW

ProHealth recently sought to upgrade its older CR multiplate systems at Waukesha Memorial, and add the latest CR technology to the other two locations. According to Richard Blattner, Radiology Manager, Waukesha Memorial Hospital, three criteria had to be met. “First, we wanted a system that could well-position us for the future. A second consideration was fast image processing speed with a flexible image flow pattern. Equally important was the third component of image quality with a balance for reducing patient exposure.”

Two CR solutions suppliers and Agfa HealthCare competed for the project. Agfa HealthCare’s solution consisted of the company’s DX-S CR imaging system using its proprietary Directrix™ needle-based detector technology, and Scanhead™ accelerated line-to-line light collection technology. These components provide exceptional image quality at a reduced dose, which is especially valuable in pediatric and neonatal examinations either in general radiology, surgery or emergency departments. Of major importance is the system’s ability to deliver a full range of imaging exams directly at the point of care, with minimum wait times. Blattner says in addition to radiology, the CR system would also be placed in emergency,

Excellent image quality and processing speed for improved response time prompted ProHealth Care, a major American hospital group, to install ten DX-S computed radiography (CR) systems from Agfa HealthCare. Physicians and technologists have praised the systems’ ease of operation and outstanding image quality thanks to its advanced needle IP plate technology and MUSICA<sup>2</sup>® image processing software.

## ADVANCED HEALTHCARE REQUIRES NEWEST SOLUTIONS

ProHealth Care operates Waukesha Memorial Hospital, a tertiary care center and teaching facility, and Oconomowoc Memorial Hospital, specializing in acute care. A third ProHealth facility, the D.N. Greenwald Center in Mukwonago, has a medical clinic supported by an ambulatory imaging center. These facilities, roughly 18 miles apart, are well known for their advanced technology and the latest proven diagnostic and treatment options. In diagnostic imaging,

“The DX-S CR system provides this image quality at a significantly reduced dose, which is especially valuable in pediatric and neonatal examinations either in general radiology, surgery or emergency departments.”

services between the three facilities have been aligned to support each other, including General Radiology, Computed Tomography (CT), Magnetic Resonance (MR), Ultrasound (US), and Nuclear Medicine (NM), all linked using an IMPAX® Picture Archiving and Communications System (PACS) from Agfa HealthCare. Waukesha Memorial Hospital performs the most imaging annually, averaging 125,000 procedures. The hospital has used CR technology since the late 1990s, deploying three original CR multiplate systems; two in radiology and one in the emergency department.

intensive care and surgery areas where patient comfort, exam speed and imaging flexibility are most critical.

**USER-FRIENDLY SOLUTION DELIVERS STREAMLINED WORKFLOW**

Using Agfa HealthCare’s MUSICA<sup>2</sup> image processing software on the DX-S CR system, “the image resolution and quality was superbly enhanced, and superior not only to the other two firms’ offering, but also to our original multiplate CR systems and two direct radiography (DR) systems used throughout the hospital,” says Blattner. ProHealth Care’s Radiology Committee contracted Agfa HealthCare.

The result was the installation of six DX-S CR units at Waukesha Memorial Hospital, three at Oconomowoc Memorial and one at the D.N. Greenwald Center. Within Waukesha Memorial, three units are in general radiology, two in emergency and one maintained inside the hospital’s surgical suite. ProHealth Care is also using Agfa HealthCare’s NX, the CR workstation of Agfa HealthCare. “The technologists have favorably commented on the workstation’s easy to operate touch screen interface,” says Blattner. “It’s designed with a high level of intuitive user friendliness, which makes it quick to learn and improves overall productivity because it moves processes along with minimal user interaction.” •



Originally, Ochsner was investigating DR (Direct Radiography) systems, but the organization was intrigued when they heard that the DX-S could be integrated with their digital X-ray room. With the tight integration between the two systems, Ochsner benefits from high image quality similar to DR, but with more efficient and versatile workflow and at a lower cost. “By having an integrated image processor control and X-ray unit,” Deshotel adds, “our technologists have the convenience of working at one control panel. It can’t be more user-friendly than that.” Additionally, Ochsner recognized that there were exams that could not be performed with DR, but could now be completed easily, using the new integrated solution.

“Among many other things, we perform scoliosis and long leg exams, in addition to various special orthopedic views with the DX-S,” Deshotel explains. “The unit also has the ability to be lowered very close to the ground, giving us the ability to image weight-bearing feet very easily.”

When it went live at the sports clinic, this high-end solution imaged more than 50 patients in each of its two radiology rooms in the first day of implementation. As Ochsner discovered, two unique technologies are combined with expertise into one highly effective system. DX-S uses two unique breakthrough technologies – Directrix™ needle-based detector

**DX-S**

- » High-speed image capture and display with excellent image quality.
- » Exams completed faster with fewer retakes – improved patient throughput.
- » Less expensive to install and maintain than DR.
- » Technologists don’t have to leave patient unattended.

**DID YOU KNOW...**

**DX-S BRIDGES THE GAP BETWEEN CR AND DR:**

- » DR-like image quality.
- » DR-like dose reduction.
- » All of the ± 250 general radiology exams covered.
- » CR into the X-ray room – efficient cassette-based workflow.
- » Attractive cost of ownership.



technology and Scanhead™ line-to-line stimulation and light collection technology. The tightly integrated solution provides a fluid workflow, low patient dose, outstanding image quality, fast throughput and an increased ability for patient proximity.

Every decade has seen remarkable growth and expansion at Ochsner Health System. With the medical research, patient care and technical alliances it promotes and advances year round, that kind of progress seems unlikely to let up any time soon. •

## Healthcare transformation

# We'll take you there.

Your radiology department and your path to digital is unique. Yet, your goal to provide the highest level of care is shared worldwide. We know. Found in 1 of every 2 hospitals, Agfa HealthCare works alongside radiologists every day. Our systematic steps to integrated digital radiology allow you to advance at your own pace, without jeopardizing current systems or investments. This allows you to choose the solutions you want: advanced imaging systems, integrated RIS/PACS/Reporting, sophisticated data management, or integrated digital workflows for radiology, mammography, cardiology and the healthcare enterprise. So as you consider your chosen path, let our proven experience support your next step, and every step after that.

**Learn more about our proven solutions. Visit [www.agfa.com/healthcare](http://www.agfa.com/healthcare).**

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