

Healthcare transformation, we'll take you...

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HealthCare

THERE

Edition 7, 2010

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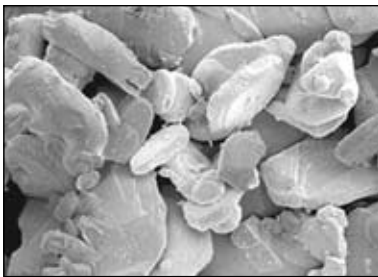


Who is offering needle-based image quality in both CR and DR?

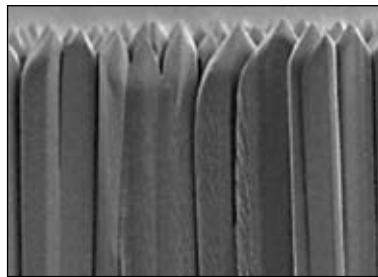
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Enjoy the highest possible image quality in both CR and DR

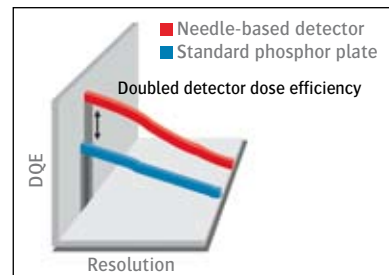
Radiography has many applications. But one constant remains: the demand for superb image quality. Agfa HealthCare offers needle-based technology in both CR and DR. This ensures the highest quality images with outstanding consistency and lower dose potential. It is part of a commitment to provide the world's best digital imaging across broad needs, from desktop systems to integrated radiography rooms. Only Agfa HealthCare includes the NX user station for an intuitive experience across CR and DR. And MUSICA², body part independent software that optimizes processing parameters for exceptional images across general radiography, neonatal or paediatrics. Transforming to digital radiography? **We'll take you there.**



■ Standard CR



■ Needle-based detector



Performance comparison

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Dear reader,

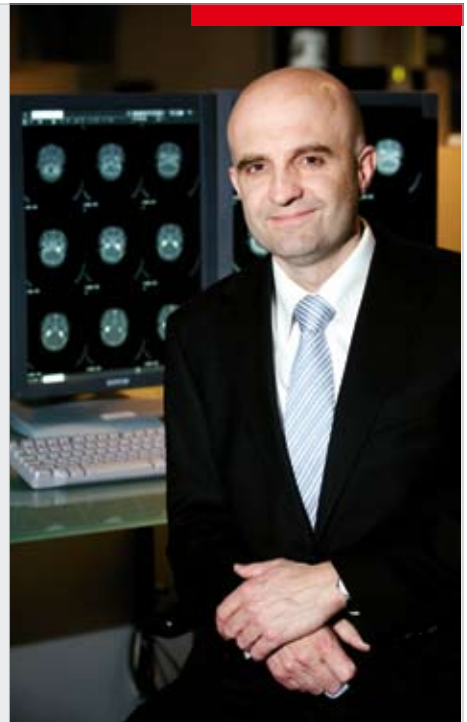
Welcome to the 7th edition of our increasingly popular publication THERE.

Although our editorials traditionally provide insight into some of the latest industry trends, occurrences and changes, for this edition we have decided to be a bit more commercial.

Why does the commercial side deserve so much credit? Quite simply because this year, Agfa HealthCare will have the broadest and largest portfolio of solutions to date. And in keeping with an Agfa HealthCare tradition, some of the highest quality solutions on the market. Our range has never been greater, from a growing family of DR technologies, next-generation CR systems, an impressive array of integrated PACS platforms and applications extending beyond radiology, to imaging repositories and a unique breakthrough viewer technology called XERO.

Add to that our recent expansion into contrast agents and surgical procedure sets, and that more and more hospitals across continental Europe use our ORBIS Hospital / Clinical Information System, we can truly say that in 2010, Agfa HealthCare offers its customers a broad range of solutions to suit nearly every need.

We have highlighted several of these new introductions here and invite you to also read our latest announcements on our website, to learn further details about the developments highlighted in this publication.



Also, should you wish to read past editions of THERE or be on the lookout for future issues, I hope you'll visit "<http://www.agfa.com/there>" to subscribe to this magazine, or download an electronic version.

HAPPY READING

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

Images of a modern Vienna

The buildings of Vienna are rarely associated with modern architecture. Yet despite the classical tastes of previous emperors and empresses like Maria Theresa (1740-80), Joseph II (1780-90), and Franz Joseph I in the early 19th century, Vienna today is as much a reflection of the new world as it is the old.

Today, modern structures are an integral part of the Austrian capital's skyline, not only in the city's surrounding area,

but even at its heart. Architect Hans Hollein's glass and concrete 'Haas House' at the very center of the city, the Stephansplatz, is a primary example of this reality.

This edition of THERE magazine celebrates Vienna's often overlooked modern architectural triumphs. Of course, the images and information provided here represent only a fraction of the buildings in this, one of Europe's most loved cities.

PACS today is PACS tomorrow?

Exploring the history, current realities and future expectations of PACS

Joost Felix is Agfa HealthCare's Global Requirements Manager for Next Generation Imaging Informatics solutions. He is considered a leading expert on PACS and is responsible for defining the scope of Agfa HealthCare's next generation RIS and PACS solutions. Joost started his career as a Radiographer and PACS administrator, taking his experience and knowledge into the development of today's and tomorrow's solutions. He joined Agfa HealthCare in 1999 as an application specialist and has grown through various management and technical functions to his current role.



The evolution of Picture Archiving and Communications Systems (PACS) over the past twenty years has been nothing short of spectacular. Since its introduction in the 1990's, PACS has grown, evolved and expanded its influence across medical departments, care centers and hospitals on every corner of the globe. Today, it is a standard for medical imaging which has supported the improvement of workflow and volume management on the one hand, and delivered new clinical insights and possibilities on the other. To understand the significance of this evolution and what the future holds, THERE Magazine caught up with Joost Felix, Global Requirements Manager for Next Generation PACS solutions at Agfa HealthCare and asked...

In the 1990's we talked about a PACS revolution. What have the last ten years brought us?

In the 1990's PACS was, as with many IT solutions, an early adopter product. After it had failed to push its head above water in the 1980's, primarily due to technological limitations, it matured a decade later and large institutions, primarily in the US and Canada, began making successful use of it at a departmental level.

Today PACS is no longer a novelty, only accessible to the privileged few, but has grown to be a business critical tool for a majority of hospitals around the

world. This has, for a large part, been driven by the spectacular growth of volume in medical imaging during the past ten years. Today, dependant on the type of image taken, and the modality, we have seen image volume growths ranging from 10% to as high as 35%, year on year, in many North American and European facilities. The growth in this image volume has, however, not been matched by a similar growth in number of Radiologists.

Yet despite the pressures over the past ten years, medical imaging IT has played a major role in keeping production up, and making the expertise of Radiologists and other imaging professionals available to Clinicians. PACS has especially managed to pick up both the growth and production concerns effectively, and supported its ongoing popularity by showing it could handle more and more each year. Today, it would be unthinkable to manage the thousands of slices generated MRI and CT scans each day without PACS. And as pressures continue to mount within medical imaging, PACS seems to take it all in its stride.

PACS today has moved beyond being a pure Radiology tool. How has it evolved to meet these needs and why?

Although PACS was originally designed as a Radiology tool, its success was quickly noticed by other image intensive departments. First

and most notable was Orthopaedics, as there was a clear need to not only be able to access and share images, but also improve overall measurement requirements and have tools available for pre-operative planning. Cardiology also followed soon, being of similar complexity and demand as radiology.

As demands for increased imaging support in assessing and diagnosing disease grew, PACS was also seen as a primary solution to meeting these increasing pressures as well. The need for imaging on this level drove PACS to every department that needed images to support their specialty, from Oncology and Cardiology to Nuclear Medicine, to mention but a few. Today, it is a set standard in many hospitals, and images and diagnostic reports are more than often managed and stored centrally, rather than in separate departments. This has in turn been driving their use and overall acceptance across the enterprise. In return, vendors have responded with a flood of groundbreaking and advanced clinical applications and unique solutions to meet the demands of the growing number of specializations, from Orthopaedic measurement tools, Computer Aided Detection (CAD) systems, 3D, virtual colonoscopy, registration and fusion tools, along with other image rendering and processing tools for improved diagnosis across time and modalities. PACS is,

today, a universal tool with specialist applications.

What does PACS deliver today that it could not in the past? Why?

PACS has a long history of doing things that it could not before. Today the integration of RIS, Electronic Patient Records (EPR) and other Information Systems is a reality, embedded image rendering capabilities is a fact, as is the availability of data from other sites and specialties. As the needs of medical professionals expand over time, more demands of PACS will materialize and it will evolve to meet those needs, again and again.

It is a fact we see today that regional and national health is increasingly becoming a reality. In some countries, this is driven by the government as they work on the establishment of Electronic Health Records on a regional or even national level, while in other countries, this is driven by regional health networks. Yet, wherever in the world we are, one reality is evident; we have moved PACS to a cross disciplinary reality in the past ten years, the next ten will transfer it to a cross-geography reality. In that, PACS will play a multitude of roles.

First, it will play a local role, managing and supporting the imaging needs within local realities (in a hospital, a local area or other). Second, it will play a regional role by being an integral part of a large network, sharing and delivering diagnostic imaging information beyond today's local barriers. Finally, it will play a part in the overall evolution of healthcare IT as, for example, the image management system for EPRs. Without it the EPR will be incomplete.

So PACS has a clear future?

A clear yes, as indicated. It has played its role and will continue to do so in the grand scheme of things. Without a diagnostic image, any healthcare IT solution, today or in the future, is simply incomplete. PACS is in an ongoing transition phase from a multi-departmental tool to a fully fledged enterprise medical imaging system which will serve as the general repository of all diagnostic imaging. On top of that, it will provide the tools to display, edit, measure and analyze these images and will easily integrate into a majority of other data sources. This will

be re-enforced by the fact that PACS, RIS, Reporting and clinical applications will, over time, become a single medical imaging informatics product.

Looking beyond the pure imaging factors, the future of healthcare IT will bring about three clear pillars. The first will be an administrative pillar. These solutions will enable the effective functioning of the business aspect of any care provider. The second will be clinical systems, driven by EPRs as a base, which are expected to grow in popularity as a driver to enable more complete patient care. Of course, some products will combine these pillars, offering both HIS and CIS capabilities, as Agfa HealthCare's ORBIS does in several European markets. Finally, but not insignificantly, is the imaging backbone, which will support the system's completeness.

Why give diagnostic imaging a distinct role in the grand scheme? Simply because imaging is probably one of the more complex realities of healthcare IT. It requires standards, the flexibility to work with various media types, high quality levels, storage capacity, application software and so forth. Add to that the geographic dimension, where there will be an expectation for images to reach all treating Physicians, including General Practitioners, often using varied technologies, and the sheer scale and complexity becomes clear. Combine these three pillars, and you have an effective healthcare IT solution, one we are all working towards.

Do you see decision support, in its various forms, as an integral part the PACS evolution?

Decision support is an evolving subject in Radiology, something we are aware of. I think it's important to clearly identify what that means; namely that it aims to assist Physicians in their diagnosis, not take it over.

Looking beyond today's status, I would say that decision support will have a clear role to play in the future of PACS and medical imaging in general. Decision support is not only limited to Computer Aided Detection (CAD) of course. Today you already find it on all levels of the system, from assisting the Physician in selecting the best exam for their patient, ensuring required clinical questions are covered before action is taken, and the integration of medical



knowledge tools supporting decisions with some of the latest data.

The overall role of decision support will grow through need, then acceptance and finally its application by Physicians. Looking at CAD as a specific example, we can see that this process is already well under way. Today CAD is accepted in Mammography applications, as a support to detection. It is also gaining acceptance as an important tool for lung nodules, prostate cancer, thyroid cancer and so forth. Decision support is an integral part of the PACS evolution, there is no doubt.

What does the future hold for Agfa HealthCare's IMPAX offering?

PACS has, for the past twenty years, been an integral part of Agfa HealthCare. As an early vendor of the solution, we have grown with it over time, observed its evolution and driven several of our own. As PACS grows, we will grow with it, not always in terms of driving installed base, but also growing the solution's capabilities to meet the horizontal needs of cross departmental requirements. Today IMPAX meets the needs of Radiologists, Cardiologists, Orthopaedic Surgeons, Oncologists, Nuclear Medicine Specialists and many more. As imaging technologies improve and offer new possibilities, more clinical specialists will require its services. Over time that will lead to integrated hospital systems, growing to regional systems and beyond. In short, PACS has an exciting future, and Agfa HealthCare will be a part of it. •

Less stress, rapid workflows and high image quality

Highly flexible CR solution accepts standard phosphor and needle detector cassettes. DX-G enhances departmental productivity by easing Technologists' workloads while reducing patient wait times

INTERVIEWEE Dr. Christian Schmidt, Senior Physician of the Radiology Institute, Bürgerhospital Frankfurt

Bürgerhospital Frankfurt has been using Agfa HealthCare's DX-G next generation CR solution since December 2009. The system greatly simplifies the work of Technologists and accelerates departmental workflows due to its ability to use either high performance needle detector or standard phosphor cassettes. This remarkable flexibility not only reduces process times, but also significantly lowers patient waiting times. Radiologists and Clinicians alike benefit from the highly consistent image quality, which increases diagnostic confidence especially in visualizing fine structures.

Bürgerhospital Frankfurt is on the road to digitization. As a result, all new systems at the facility have to be digital. "I expect digital imaging to have four benefits: a greater amount of diagnostic information, lower costs, improved working conditions from simpler handling, and more patient-friendly exams with enhanced comfort and shorter waiting times," says Dr. Christian Schmidt, Senior Physician of the Radiology Institute, Bürgerhospital Frankfurt. The institution uses a DX-G solution to perform nearly 3,000 examinations per month.

"The 'drop-and-go' cassette buffer assures a speedy and smooth-running workflow. Waiting times can be significantly reduced as a result. The work of the Technologists is generally less stressful and more relaxed."

DR. CHRISTIAN SCHMIDT,
Senior Physician of the Radiology Institute,
Bürgerhospital Frankfurt



HIGH AND CONSISTENT IMAGE QUALITY IMPRESSES STAFF

"The DX-G is currently the only cassette-based system that processes not only standard phosphor plates, but also needle-based detectors," says Dr. Schmidt. "We primarily use the latter in neonatology, paediatrics, the intensive-care unit and for the study of fine structures in the hands and feet, particularly at the hospital's Diabetic Foot Center. Because of the high detective quantum efficiency of needle-based detectors, the system gives us the exceptional image quality we need, especially in examining infants and children, as well as for problem

situations. Additionally, we can clearly visualize soft tissue and bone in a single image."

And the Clinicians are enthusiastic, too. "They always get consistently clear x-ray images," he adds.

DID YOU KNOW...

- » Bürgerhospital Frankfurt is a standard acute-care and emergency hospital
- » Largest maternity clinic in Hesse, with over 2,500 births per year
- » Roughly 120,000 radiological examinations per year



“The algorithms of the MUSICA² processing software ensure very high, consistent image quality at all times. The Technologist almost never has to post-process the images.”

DR. CHRISTIAN SCHMIDT, Senior Physician of the Radiology Institute, Bürgerhospital Frankfurt

SMOOTH-RUNNING WORKFLOW PRODUCES SIGNIFICANT TIMESAVINGS

However, general skepticism prevailed before introducing the DX-G. Since the purchase of only one digitizer was planned, it was feared there would be waiting times for patients, especially at peak periods. However, these doubts soon disappeared after a very short familiarization period. “We quickly learned the ‘drop-and-go’ cassette buffer reliably assures a speedy and smooth-running workflow, and waiting times can be significantly reduced as a result. The Technologists’ work is generally

less stressful and more relaxed, and that naturally boosts job satisfaction,” says Dr. Schmidt.

According to him, the DX-G saves time in the overall process, compared to previous working methods. “Today, the cassette is dropped into the buffer, the image is quickly available and automatically identified,” reports Dr. Schmidt. The rapid workflow is supported by the system’s very simple handling.

MUSICA² FURTHER IMPROVES IMAGING RESULTS

Patients benefit not only from the substantially shorter wait times, but also from the DX-G’s high image quality thanks to MUSICA² and the accompanying NX Workstation. As a result, hardly any examinations have to be repeated.

The improved images have a particularly positive effect in the case of intensive-care patients, reports Dr. Schmidt. “The algorithms of the MUSICA² processing software deliver very high, consistent image quality at all times,” he says. “The Technologist almost never has to

post-process the images. Although a somewhat lower spatial resolution is noticeable when evaluating small bones, it can be easily compensated for by window/level adjustment. All in all, the DX-G gives us additional reliability in our diagnostic procedures.”

When comparing images, Dr. Schmidt has found far less structural noise with the needle-based detectors than with the phosphor plates, which he believes could lead to even greater x-ray dose reductions in the future. •

SOLUTION BOX

- » Speedy, smooth-running workflow thanks to ‘drop-and-go’ cassette buffer
- » Minimization of waiting times for patients
- » More relaxed workflow for Technologists
- » Simple handling
- » Significant time savings
- » High, stable image quality thanks to MUSICA²
- » Good, consistent image quality
- » Very few repeat examinations

Technology Corner

Revealing the next generation in Computed Radiography (CR) at ECR 2010

Agfa HealthCare introduced its new line of CR systems at the European Congress of Radiology in March this year. The introduction of the DX-M and DX-G are two of the company's key highlights this year. Able to read both needle-based detector plates (NIP), as well as standard phosphor plates (PIP) they represent Agfa HealthCare's cutting-edge technological capabilities and its ability to offer flexible digital solutions to meet a broad variety of needs and realities. The new solutions are part of the company's drive to grow its leading position in Digital Radiography.

Agfa HealthCare launches DX-M*, a CR solution for mixed use

First introduced at ECR 2010, Agfa HealthCare's DX-M is a CR solution able to handle both needle-based detector plates (NIP), as well as standard phosphor plates (PIP). The solution's ability to read NIP for Mammography requirements as well as for General Radiography means that the solution meets a market demand for high quality diagnostic images across needs, and offers the potential for dose reduction. The dedicated Mammography needle-based detector delivers outstanding CR image quality and is compatible with existing breast imaging modalities, ensuring cost efficiency. Its small footprint, fast preview and user friendly drop-and-go buffer allows it to deliver a high throughput, enhancing the department's overall workflow. The solution is Agfa HealthCare's most complete CR system to date.



European introduction of DX-G, a next-generation CR system with unprecedented flexibility

Agfa HealthCare also introduced its next generation CR system with unprecedented flexibility for General Radiography at ECR. The DX-G supports general radiology, extremities, neonatal and paediatric applications with the flexibility of handling both standard phosphor imaging plates and needle based detectors. The needle detectors with high image quality offer the potential for dose reduction. It combines excellent imaging quality with high throughput delivered by a unique five cassette drop-and-go buffer for seamless workflow. It is housed in a compact system comprising the top features of already proven Agfa HealthCare CR systems. Requiring no dedicated area, its small footprint allows it to be placed easily inside the x-ray room or within the x-ray ward, where it can be slotted into small spaces.

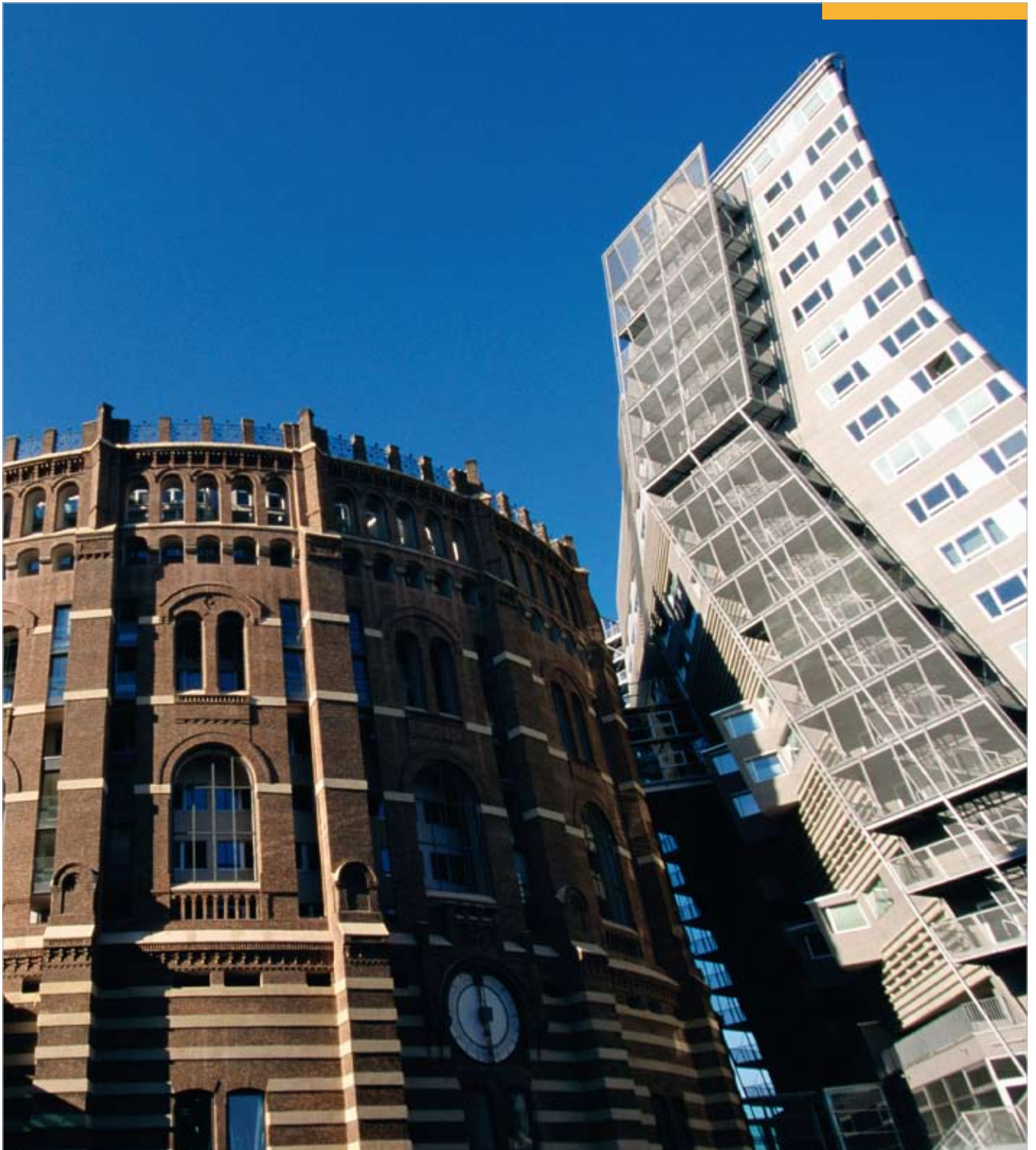


A data center viewer that needs – nothing...

At ECR 2010 Agfa HealthCare showcased a revolutionary medical imaging and results viewer that requires no updates, no downloads and no extras. THERE magazine's Technology Corner went to investigate and found that...

...the task of delivering images and information to caregivers across a wide range of technical and physical barriers has been solved in a unique way. IMPAX Data Center Viewer driven by the company's cutting-edge XERO technology is a zero-download medical imaging viewer developed to provide access to imaging information for Clinicians at any point of care regardless of network constraints and/or the wide variance of platforms and administrative rules that can be so problematic for typical viewers. By bridging the gap between the stringent controls of medical image formats, such as DICOM, and the flexible access formats of the internet, such as HTTP, XERO accesses and delivers all your images and reports but with none of the heavy infrastructure or headaches associated with legacy viewers. Other systems that claim zero download today actually require Flash, ActiveX, Silverlight, Java, a DLL, an EXE, or some other browser-based plug-in for the user interface.

For XERO, only an Internet browser and a simple network connection are needed; zero client software installation is required. IMPAX Data Center Viewer's innovation is the utilization of standards from healthcare IT (i.e. DICOM SR, C-Find, C-Move, WADO, and IHE actors for ATNA, CPI, SINR, KIN, and SWF) as well as standards from traditional IT (i.e. LDAP, SSO, HTTP/HTTPS, HTML, CSS, XML, JavaScript, JPEG and RESTful web services).



GASOMETER

The Gasometers were built from 1896 to 1899 in the Simmering district of Vienna near the Gaswerk Simmering gas works. In 1995, Vienna remodeled and revitalized the historic, protected monuments. The chosen designs by architects Jean Nouvel, Coop Himmelblau, Manfred Wehdorn and Wilhelm Holzbauer were completed between 1999 and 2001. Each Gasometer was divided into several living zones: apartments on top, offices in the middle, and entertainment and shopping on the ground floors. The shopping mall levels in each Gasometer are connected to the others by skybridges. The historic exterior wall was conserved.

Dose reduction: reducing unnecessary exposure

INTERVIEWEE Bruce Apgar, Agfa HealthCare

Bruce Apgar is based in Greenville, South Carolina (USA). As Agfa HealthCare's Application Lead for Imaging Services, he is one of the company's leading experts on dose reduction issues, especially in neonatal and paediatric environments. He represents the company, and its views, at several leading technical committees, including the American Association of Physicist in Medicine's (AAPM) tasks groups, and at the Medical Imaging and Technology Alliance (MITA). He joined Agfa HealthCare in 1981.

In recent years, the topic of dose reduction has managed to hit press headlines several times. What used to be a purely clinical discussion has, today, taken on new proportions as the press and the public take an active interest in the issue. This has made dose reduction one of the hottest topics for discussion in healthcare today. **THERE Magazine** caught up with Bruce Apgar, one of Agfa HealthCare's leading authorities on the subject, to find out more, and asked...

Why has dose reduction suddenly become such a hot topic?

Dose reduction is not necessarily a new subject. Actually, since we discovered both the benefits of, and concerns about, radiation in 1895, it has been a much debated subject, but within the confines of healthcare and clinical practice. To better understand the current debate it is important to sketch out a few realities first. There are essentially two key factors that have driven the current discussion.

The first one has to do with the exponential growth of diagnostic imaging, worldwide. We have never generated as many medical images as we do today, driven by the availability of advanced digital and IT solutions, improved and more efficient workflows and better expertise. The rapid rise of new imaging technologies, such as CT, that are more accurate and provide more data but at higher doses, have also contributed to this reality. The increased number of images taken has driven many Clinicians to be more concerned about dose, and it has therefore driven debate. The second factor is the fact that today patients have become more aware of the risks and realities. They are better informed and opinionated and as a result, have driven the dose reduction story into the public domain, effectively boosting the debate to new levels.



The discussion became a public issue in the United States some three or four years ago, eventually leading to a Congressional hearing in 2010. In Europe, the debate on dose reduction had, in several markets, already achieved advanced levels. In Germany, for example, dose reduction is an expectation, rather than an ambition.

Why is a dose reduction so important?

The amount of dose a patient receives during a procedure and over a lifetime is very important. Too much dose may elevate a person's lifetime risk of developing certain cancers, but a dose that is too low on a specific image may mean that the image is unsuitable for diagnostic purposes. It is a delicate balance. The debate about dose reduction is especially heated in neonatal and paediatric environments and this is for two reasons. Firstly children are still developing and their tissues are much more sensitive to radiation exposure than adults. Secondly because children have an entire lifetime ahead of them; radiation induced cancers have a much longer time to manifest themselves.

In general however, radiographic images are considered "safe" and patients should not be afraid of having a medical radiograph. If patients are concerned about their radiation exposure, they should discuss it with their Physicians. This does not mean the debate should be sidelined by any means. For example, to enable effective care in premature children, a daily chest x-ray is common in many care centers. The topic has touched many Physicians working with young patients and has resulted in several campaigns, driven by them, to increase awareness of dose reduction and make demands on new technologies for achieving these.

Of course the debate on neonatal and paediatric levels is mirrored to other age groups receiving diagnostic images. The potential risk of cancer caused by excessive exposure is a legitimate discussion at any age.

How has Agfa HealthCare responded to this call?

We responded to this need on several levels. First, with the launch of the DX-S several years ago, we effectively introduced needle-based technology in our CR solutions. Agfa HealthCare's DX-S CR system created a new threshold in Digital Radiography at that time.

It is driven by DirectriX needle-based detector technology, that offers increased image quality and potential for x-ray patient dose reduction. We did not, of course, claim this without the necessary research.

A study by the University Clinical Center of Giessen and Marburg in Germany in 2008 evaluated the dose and quality performance of Agfa HealthCare's DX-S system, compared to the performance of a 400 speed class screen/film system. The study involved 200 thoracic exposures of children. The second study, by the Friedrich Schiller University in Jena, Germany, covered larger children and adolescents and exposures using a chest phantom. The results were evaluated by five investigators. Both studies concluded that, with Agfa HealthCare's DX-S system, the dose could be reduced by up to 50 percent, without reducing the diagnostic quality. It was a great leap forward!

Most recently, the Premier Healthcare Alliance's Innovation Celebration (2009) recognized the DX-S for significantly improving image quality while reducing radiation dose in neonatal radiography, one of the most demanding areas of medical imaging.

Today, with the launch of our next-generation DX-G and DX-M* solutions, we have taken our drive for dose reduction to another level. Never before has a CR system been so flexible and delivered such high quality images. It reads both standard and needle phosphor plates and delivers images that meet or exceed DR quality levels. Add to that our gold standard image enhancement technology MUSICA², that reduces a significant amount of retakes due to over or under exposure, and you have a formula for success.

What do you see as the core challenge for success in dose reduction?

One word: standardization. It is a common theme in healthcare, from working with standard image formats to standardized workflows. When talking image capture we see that there is a real concern about the lack of standardization with exposure standards. If you are operating two different DR or CR modalities from different vendors, you may have two totally different methods of indicating exposure with regards to the information you receive and how this information is compiled.

In 2009 the International Electrotechnical Commission (IEC), which sets global standards and conformity assessment requirements for all fields of electro-technology introduced a single exposure index standard for all digital radiography systems. This standardized approach, enables Technologists to better manage exposure. It provides an exposure index for every image taken and a deviation index which indicates the amount the exposure varies from a designated aim point. This will enable care facilities to identify consistent over or under-exposure and exposure drift. They can plot their exposure distribution and evaluate the standard deviation of exposures within their facility. Compliance with the IEC exposure index standard is an important factor to consider when evaluating new equipment.

In short, once a facility is able to implement the IEC exposure index standard, a full picture of exposure consistency can be provided for both CR and DR modalities. The methodology can be used across multiple modalities from different vendors. This will allow hospitals and practices to meet and easily maintain their standards, both in terms of exposure as well as final image quality. Agfa HealthCare utilizes the IEC exposure index standard with all our new products.

What does the future hold?

We have come a long way since x-rays first became a common diagnostic tool. Dose reduction has taken a foothold in the sector and a drive to decrease it further is ongoing. With so much public attention, this will only speed up. Success in dose reduction depends on two factors – firstly through acceptance by the sector that dose reduction is a target, and that standardization will support them in meeting this goal. Secondly, the arrival of new technologies and modalities, as well as supporting software and hardware around it. As they develop further, driven by a demand for dose reduction, we can expect to see great things in the very near future. •

"The amount of dose a patient receives during a procedure and over a lifetime is very important. It is a delicate balance."

* DX-M: Not available in the U.S. today.

Radiology group Maine Image Santé implements technologically advanced DR imaging solution

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

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

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

PROVIDING EXCELLENT PATIENT CARE

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

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

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

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



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

PRODUCTIVITY AND MEDICAL VISION IN THE LONG TERM

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

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

Dr. OLIVIER ALLAIN, Radiologist and Director

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

AGFA HEALTHCARE'S CONTRIBUTION

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



SOLUTIONS

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

DID YOU KNOW...

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

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

LAURENCE TOUCHARD, Technologist

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

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

workforce cohesion and staff satisfaction.”

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



* Available as DX-D 500ⁿ in North America.

Central PACS synchronizes CR workflows at nine satellite hospitals to help speed diagnoses

Novel network configuration also allows standardized digital security and image display protocols, as well as consultations by Radiologists at the main hospital

INTERVIEWEE Professor Wojciech Witkiewicz, M.D. Hospital Director, Regional Specialist Hospital in Wrocław

In Poland's largest teleradiology installation, an Agfa HealthCare IMPAX 6.4 PACS in this regional main hospital is integrated with the company's Computed Radiography (CR) imaging solutions and dry media imagers at nine satellite hospitals. It has proven to be an optimal strategy for synchronizing digital workflows in multiple, dispersed departments creating a common working environment throughout the enterprise.

EXCEPTIONAL VISION GUIDES MULTI-SITE DIGITAL INSTALLATION

Wojewódzki Szpital Specjalistyczny we Wrocławiu, or Regional Specialist Hospital in Wrocław, is a huge general facility in Poland's fourth largest city. It serves more than 100,000 patients annually and is affiliated with nine smaller hospitals or clinics as far away as 140 km, and as close as 6 km.

Eight of these facilities were until last year using conventional x-ray systems for all patient studies. Hospital administration in Wrocław and the main radiology department's medical director sought to convert these sites to digital imaging and link them to a new, central PACS to support an already-installed RIS. But in a departure from traditional wisdom, a novel information technology (IT) philosophy was adopted, according to Marcin Lenarczyk, CIO at the main hospital.

"We felt it was not practical to build a teleradiology network based on one central database for an entire region," he said. "We instead looked to place multiple, dispersed CR systems with storage in each facility's general radiology or outpatient departments to acquire and archive on-site digital images, and use the central PACS accessed through Internet protocol to



synchronize their workflows. This unified approach provides a common working environment for Radiologists regardless of their location, using CR as the frontline image capture platform. At the same time, it allows workflows that are scalable to an individual clinic's needs so Radiologists can better manage their time and skills."

He further explained the primary roles of the central PACS are to support internationally approved image display standards, provide a common security system based on trusted domains, and

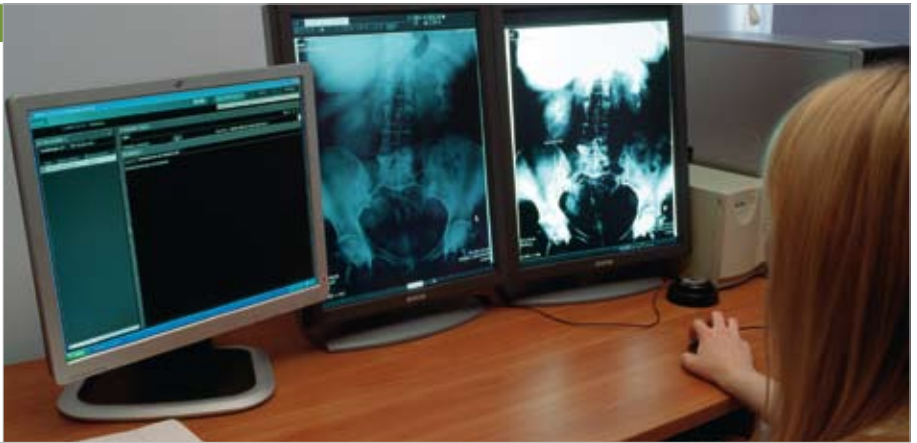
AGFA HEALTHCARE'S CONTRIBUTION

» IMPAX 6.4 PACS; CR 30-X and CR 35-X digitizers; DRYSTAR dry media imagers.

"The on-site CR solutions with PACS access let the satellite hospitals easily access our workflows and standards so they can quickly catch up."

PROFESSOR WOJCIECH WITKIEWICZ, M.D.
Hospital Director
Regional Specialist Hospital in Wrocław

- » IMPAX 6.4 PACS with open architecture brings a wide range of information to the Radiologists' desktop regardless of the source.
- » CR 30-X and CR 35-X are small footprint CR solutions for decentralized environments designed for general radiology including chest, extremities, orthopedics and paediatrics.
- » DRYSTAR AXYS is a high resolution and throughput direct digital imager accepting three dry media sizes. Ideal for CR, DR mammo, CT, MRI, DSA and R&F.



strictly control access at each facility to all patient images and data. He adds the design of such a network has better bandwidth and supports well-synchronized cache buffers, so images reach the Physician's workstations faster than less-advanced DICOM-based installations. Furthermore, the satellite facility can continue imaging even if its Internet connection with the PACS fails.

Finally, he says while some satellite facilities have MRI and multi-row CT capabilities, relatively few Radiologists at these sites can expertly interpret these images. The web link to the PACS would let images be sent to the main hospital anytime for specialized consultation.

OPEN ARCHITECTURE AND FLEXIBILITY KEY WINNING CRITERIA

With this strategy in place, a single tender was prepared for the central PACS and individual CR systems for the satellite facilities, with the Regional Specialist Hospital being the organizer for its off-site participants. The winning supplier would therefore provide equipment and services at all locations.

An evaluation committee was formed of Physicians, x-ray department heads, IT specialists and engineers from the 10 facilities. Three offers were received, and of the top two finalists, Agfa HealthCare was selected to provide the new core PACS containing blade servers, database, workstations, and hard disk storage. Included were nine CR 30-X digitizers and multiple DRYSTAR AXYS hardcopy imagers for each location, as well as a CR 35-X at the Swidnica hospital.

"For starters, we based our decision on Agfa HealthCare's competence and experience in radiology," Marcin Lenarczyk said. "Other factors included a stable and sizable support team in Poland, open PACS architecture to seamlessly work with the existing RIS and outside software, and an ability to embrace accepted standards like DICOM, HL7, and LDAP. Implementing such standards requires a lot of experience and on-going cooperation with outside suppliers. Agfa HealthCare's team here showed a deep appreciation of these aspects."

The new network has already shown many benefits, says the Regional Specialist Hospital's Director, Professor Wojciech Witkiewicz, M.D. "While we've practiced in a digital environment for many years, the satellite hospitals are now experiencing it for the first time. The on-site CR solutions with PACS access lets them easily retrieve our workflows and standards so they can quickly catch up."

He adds that nearly all medical specialties benefit from this solution. Iwona Idiebro, M.D., a surgical resident who works in the main hospital's emergency department says, "The combined CR and PACS has excellent potential not only for radiology, but other departments like A&E and surgery. We make decisions quickly, and can obtain fast consultation by sharing images and data through the Internet with colleagues in Poland or even across oceans. It's very exciting for a young doctor like myself to have these new digital resources." •



DID YOU KNOW...

» Wrocław is Poland's third largest education center. Some 135,000 students attend 30 colleges there.

"We sought multiple, dispersed CR systems with storage for each facility and a central PACS to synchronize their workflows."

MARCIN LENARCZYK
CIO
Regional Specialist Hospital in Wrocław

Healthcare transformation and the United States Air Force

INTERVIEWEES Lt. Col Grant P. Tibbetts, M.D. • Thomas E. Lewis, Director



With healthcare transformation enabling clinicians to achieve new levels care in civilian environments, **THERE** magazine wondered how these developments were benefiting military organizations today. To better understand these realities we asked the United States Air Force...

Looking back over the last 10-15 years, how has radiology evolved and how has the role of the Radiologist changed? What role has technology played in this evolution?

Tibbetts: For one thing, we're not running around the file room trying to help the surgeon find films. We're navigating a much different world, with a new vocabulary and dramatically different tools. For example, before PACS, the way that Radiologists learned to read images was not necessarily natural – it was driven by the limitations of film technology. For example, I learned how to read a 3D image by looking at multiple image slices on sheets of film and visualizing what those images would look like if assembled into a 3D image. Our very first PACS simply emulated our experience at the lightbox. For a 3D image, we still looked at image slices tiled across a page – on a monitor instead of on a lightbox. We learned to scroll at the CT console, only later imputing this capability to PACS and would have it no other way. A Radiologist coming through residency

today has a difficult time relating to tiled slices. Their brain expects to scroll through a dataset, or view a realistic 3D image, which is much more natural, and fortunately what we can now give them.

Radiologists have to be so much more comfortable with technology. Too, we are a conduit of information to the Clinician, and we have to present our findings to them confidently and quickly. There are more and more images and data, and Clinicians want new data, and older data including prior exams, with reports integrating both, more and more quickly. Anything that helps us get through this mountain of data faster and more accurately is better.

The arrival of PACS, RIS and other such solutions had a significant impact on radiology when introduced in the 1990's. Looking back, what could you say we have learned?

Tibbetts: We understand that the ability of technology to improve patient care and department workflow is accompanied by challenges that can't be ignored. We have learned that technology can slow you down if you're not prepared for these challenges, and keep you from your main focus – serving the Clinician and their patient. For example, on the support side, we are much more dependent on others than before the advent of PACS and other information systems. Radiology has

always needed biomedical equipment personnel, but now, we need IT experts that we rely on to install, support, maintain, and repair our PACS, RIS, etc. These and other systems require a lot more training. Too, sub par technology, can create distractions that can lead us to take our eye off the ball. For example, poor voice recognition integration or accuracy may require you to divert attention from the image. Losing focus may mean missing the diagnosis. The best adjunctive software in any application must be designed to limit distractions.

PACS adoption in the military/government healthcare is wide-spread. What is the next level of transformation that needs to be achieved, in terms of medical imaging needs?

Lewis: We need to have greater access to all medical images, not just radiology images. They need to be available across the DoD (U.S. Department of Defense) and the VA (U.S. Department of Veterans Affairs) enterprise. We need to provide all Clinicians with the ability to view non-standard images of all formats. Cardiology is getting there but there are other “-ologies,” particularly those that are not standards-based, that need to be available. How will we do this? Will our PACS continue to be used as our

imaging vehicle or will we migrate to an EHR (electronic health record) that is image-enabled? In the DoD, our EHR is not image-enabled although we're migrating to that as quickly as we can. We currently have PACS for easy image viewing, and we have to decide: how does PACS play in the future if we're going to have an image-enabled EHR? There are many issues with that. For example, do you want diagnostic quality images or referential images in the EHR? Radiologists need diagnostic-quality images as well as a rich toolset for viewing and manipulating images. But unless the EHR can provide advanced visualization, there's always going to be a need for PACS to support radiology's advanced imaging needs.

Speaking of the EHR, how will the current push for universal adoption of the EMR/EHR in the U.S. affect radiology in the military? Do you see diagnostic imaging specialists playing a key role in its roll-out?

Lewis: The military should have a key role in a U.S.-based EHR based on our vast experience in providing critical patient data in an electronic format across a multitude of Army, Air Force and Navy hospitals. As far as diagnostic imaging, the military was the pioneer in transitioning to digital imaging in the hospital environment. We were the first at creating "filmless" hospitals. The next challenge was moving images from facility to facility regardless of location. With the war efforts, we have many patients that transition between the DoD's U.S. medical centers and VA hospitals. I think we are a step ahead because we have facilities that span the globe. We're even now taking images from the battlefield and moving them within the rest of our enterprise. All of this experience can be leveraged as the

U.S. works towards the requirements for the image-enabled EMR. One new and ongoing effort to define our next EHR is beginning with Clinician input, and has already very much sought radiology input. This could well form the cornerstone of a national EHR format, standard, or starting point.

What do you see to be the core challenges and opportunities for providing quality healthcare to our military personnel and veterans in the near future, from a radiology perspective? How can technology help?

Lewis: One challenging area where imaging technology will continue to play an important role is with service members coming back from the battlefield that need rehabilitative care due to multiple traumatic injuries. Many of these patients begin treatment in DoD facilities and are eventually moved to VA polytrauma centers. All of their medical data, including images, must seamlessly migrate along with them. We have two medical centers—Walter Reed Medical Center in Washington and the National Naval Medical Center in Bethesda—that are currently connected to five VA polytrauma centers across the country. We can now send all radiology images and all necessary patient information among these facilities via a PACS-to-PACS connection over our WAN (wide area network). Sustaining and improving bidirectional information flow in our security environment is a pressing challenge.

What will be the impact of increasing volumes of patient data and images in radiology and how can technology be used to help?

Tibbetts: We're still learning how to interact with all of the data being generated. In terms of individual studies,

it's great to have so much more detail but there are consequences to that. It takes longer to read a study today because there's so much more information, detail, and processing options. Tools that help Radiologists manage the volume of the data and the image detail efficiently are critical. Archiving is another issue. I suspect in the future, instead of saving raw data and sagittal slices, we'll be archiving a 3D dataset. 3D images are far more tolerant of compression and it's easier to return clinically lossless data than it is with 2D images with far greater efficiency. Bandwidth is a huge deal; the DoD operates in parts of world that have limited bandwidth and we have a lot of competition for that bandwidth. For example, we send a large number of imaging studies between war zone hospitals, Landstuhl Regional Medical Center in Germany (the U.S. military hospital that serves as a treatment center for wounded service personnel coming from Iraq and Afghanistan), and trauma centers in the U.S. It's a huge amount of data and most Radiologists don't care how it gets there—they just know they want it. They need to have the richness of the prior exams and the opportunity to note changes to minimize re-imaging and provide best guidance.

Have industry standards and interoperability among hospital technology systems had a positive impact on the ability of radiology departments to operate more effectively within the military hospital enterprise?

Lewis: Yes, standards have been very critical and the military has supported them from the beginning, starting with the ACR-NEMA (American College of Radiology-National Electrical Manufacturers Association) that eventually evolved into DICOM



**Lt. Col Grant P. Tibbetts, M.D.. USAF Medical Corps
CSTARS Radiology Director
Office of the Surgeon General, Radiology Consultant**

Grant P. Tibbetts has spent his entire career as a Radiologist and radiology consultant with the U.S. Air Force. Tibbetts has worked on and consulted for numerous DoD global PACS deployments and teleradiology enhancements. He authored the DoD policy on image compression tolerance/acceptance and was the 2008 chair of International Battlefield Healthcare Conference in London. In addition to his work with the Air Force, Tibbetts is a trauma/ER radiology fellow at Baltimore Shock Trauma, a faculty member at the Center for Sustainment of Trauma and Readiness Skills at the School of Aerospace Medicine, and an adjunct professor at the University of Maryland Medical Center. He is a graduate of the U.S. Air Force Academy in Colorado Springs and received his MD from the Uniformed Services University of the Health Sciences in Bethesda.

(Digital Imaging and Communications in Medicine). In my opinion, we've quickly outgrown current standards and we need groups like IHE (Integrating the Healthcare Enterprise) to help us move to the next level. It's fairly easy to send images in DICOM formats but we need more functionality. We need better interoperability, particularly in terms of non-radiology department images. At the same time we need to interact more with groups such as IHE and SIMM (Society for Imaging Informatics in Medicine) to define what we need and to get our vendor partners together to achieve the goal of more open standards-based design.

What are the biggest challenges that the DoD and the VA face with regards to implementing radiology technology?

Lewis: As Grant mentioned earlier, one of the major challenges that we face is the bandwidth required to move images across an enterprise. You have to have a solid WAN between facilities and the more you connect, the more WAN bandwidth you need. In the Air Force, we have static connections between our sites. Right now, it's more likely that the smaller sites are sending images to the larger sites where they can be read but it's going to evolve to where Physicians will want any image at any time. It's going to get harder and harder to model what kind of bandwidth is needed. We have to work through Air Force-controlled firewalls and their firewall administrators need to know who we are they are communicating with. Currently I have larger facilities that communicate with 10-15 different hospitals. If that number turns into 80 or more, how do they deal with that? Another challenge that we have is that we don't currently have one single HIS/RIS that interconnects across all DoD hospitals. We need a uniform HIS/RIS

to help insure all of our data is properly validated and that interconnections work more easily. Additionally, we have different PACS vendors across the enterprise and we continue to experience challenges with interoperability between different vendors and the different levels of DICOM that they're implementing. Network- and computer-based security is another technical challenge for us. The DoD has a much higher level of security mandates than civilian hospital systems. The U.S. military is a constant target of outside cyber-security threats and these attacks are felt within our hospitals as well. We currently require all PACS vendors to meet the requirements of the DoD Information Assurance Certification and Accreditation Process (DIACAP). The DIACAP process is very intensive and stringent with very few of our vendor partners that are willing to modify their existing software to meet these requirements.

What insight can radiology offer to other hospital departments (i.e., cardiology, surgery, ophthalmology, gastroenterology, endoscopy, etc.) about implementing technology for clinical images and information?

Tibbetts: I don't think PACS should be limited to radiology. Medical imaging is not limited to our pictures. We already have standards that can work for many other "-ologies," allowing their images and data to be integrated into PACS. I haven't yet seen a demand for any tools that radiology doesn't already have in its PACS toolsets. For example, today's PACS has all the measures that a cardiologist or dentist may need. And the radiology PACS could also house any department-specific tools that may be developed or already exist. There are definitely some administrative issues, such as the use of study accession numbers, may be

new to a clinics' workflow. However, other departments could gain a lot from leveraging the hard work that's been already done by IT experts and the digital imaging community. It would be easier, cheaper, and more easily integrated to stand on our shoulders than re-invent the wheel.

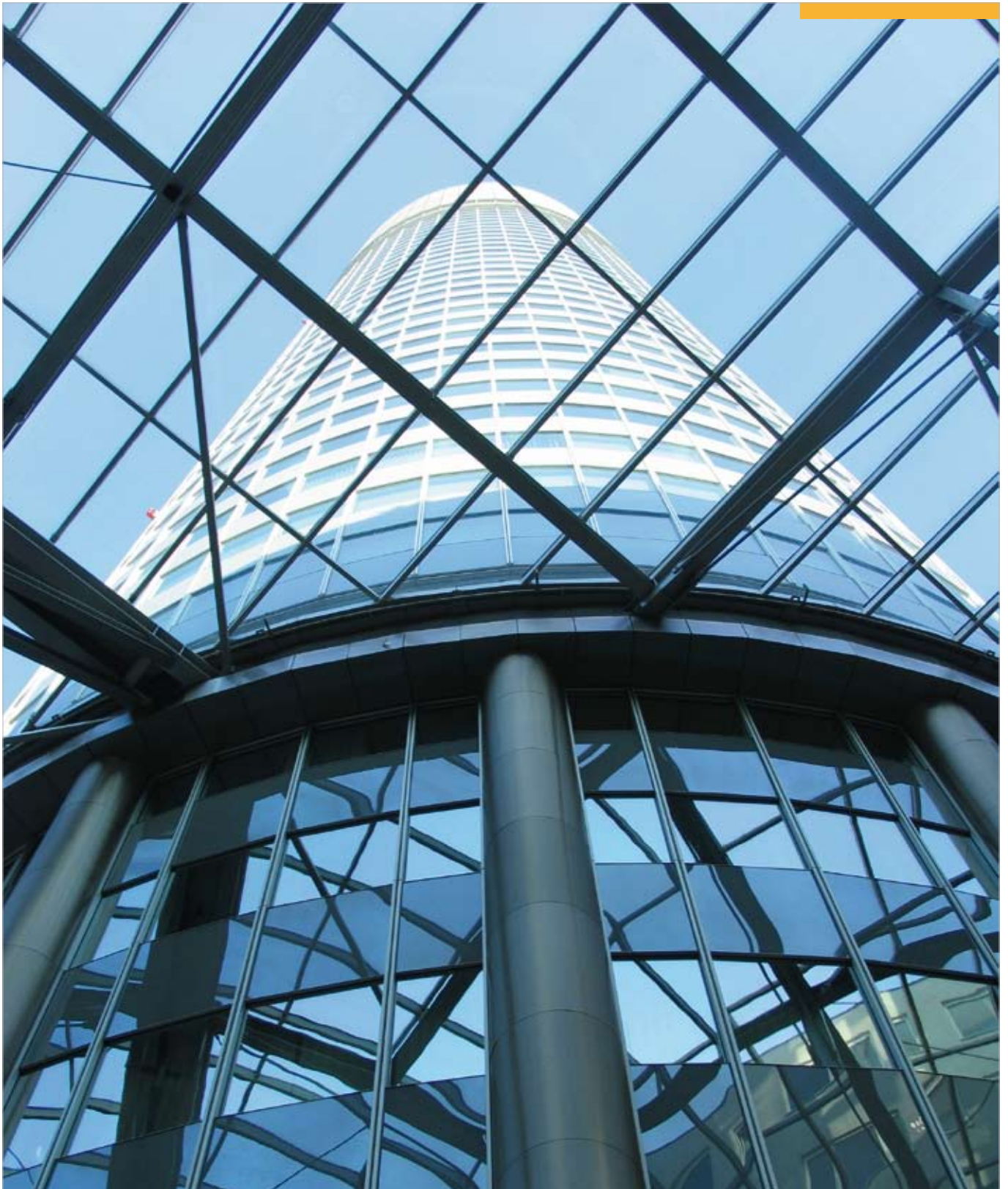
How can radiology departments better address the needs of patients and their families?

Tibbetts: Technology advances mean that Radiologists need to become experts in patient management. This is a tough concept for the small number of stereotypical Radiologists who entered the field for less patient contact. Imaging is much in the public eye today because it involves sophisticated technology advances which so clearly impinge on today's care as a primary diagnostic tool. For patients, there's an explosion of information in the media, particularly on the Internet, and we need to be able to respond to it. For example, patients bring to the table questions and information that they got from the Internet. How do we react to that? We shouldn't be offended by it, but we should realize that patients need our expertise to help them navigate this minefield and they or their Physician may seek our information expertise. We need to become more involved in educating patients about potential procedures and screening for potential risks without getting tangled up in jargon. We need to be able to help put patients at ease. If we can do that, we'll be able to do a better job of managing patient expectations. •



**Thomas E. Lewis, Director
U.S. Air Force PACS Office
Office of the Surgeon General, Clinical Engineering Branch**

Thomas E. Lewis began his career in the military as a biomedical equipment technician (BMET) and has since served in a variety of positions to include all levels within the Army BMET career field, executive positions within Army and Air Force Medical Logistics, the Joint Digital Imaging Arena and DoD Health Affairs. Before assuming his current duties as director for the Air Force PACS Office in 2001, he was the deputy chief of the Technology Assessment and Requirements Analysis Team for the Joint Imaging Technology Project Office (JITPO). Lewis graduated from Regis University in Denver and has a Master of Engineering in Biomedical Engineering from Worcester Polytechnic University in Worcester, Massachusetts.



MILLENNIUM TOWER

Located at Handelskai in Vienna, it is the city's tallest building and 4th tallest in Austria. The tower stands some 171 meters (without its antenna) and has 51 floors. Serving both commercial and residential needs, it was designed by architects Gustav Peichl, Boris Podrecca and Rudolf Weber. The tower was completed in 1999 for the coming of the third millennium.

New diagnostic center offers nation's first integrated digital imaging service

Combined RIS/PACS with new CR digitizer for general radiology provides advanced imaging services to healthcare facilities throughout the region

INTERVIEWEE Alexander Gutu, Managing Director, Centrul Diagnostic German (CDG), Moldova

Centrul De Diagnostic German (CDG), or German Diagnostic Center, is the first facility of its kind in Moldova and the nation's only facility offering fully integrated digital imaging and archiving capabilities from a RIS/PACS. CT, MRI, US and a CR digitizer all connected to its internal network, making the CDG a showcase for all healthcare providers in the region.

GLEAMING NEW CENTER FUNDED BY GERMAN INVESTORS IN LATE 2009

With a population of over 3.5 million, Moldova is situated between Romania to the west and Ukraine to the north, south and east. It became a parliamentary republic in 1991 following independence from the former Soviet Union.

As a relatively new nation, its growing economy has, over the years, drawn businesses and investors from Western Europe and other major regions. Such is the case with CDG, a private clinic opened in October 2009 in the nation's capital Chisinau, by Berlin-based German Service of Diagnostics GmbH as a pilot project. It's the first diagnostic center in Eastern Europe funded by these investors.

The center occupies a new three story, 2,000 square meter building in the downtown area, among the most modern in Chisinau. Inside are contemporary, tastefully decorated patient lounges, a coffee shop and children's play area. Also contained are the latest digital imaging modalities including a 1.5 Tesla MRI scanner, 64 slice CT unit, cardiac



and conventional ultrasound, digital fluoroscopy as well as a conventional screening mammography unit. CDG plans to perform nearly 60,000 studies in 2010, and expand its current Monday through Saturday service to a 24/7 operation.

Such expectations required an efficient way to link and archive images from its digital modalities as well as electronically manage patient scheduling, dictation, report generation and other tasks. A key criteria, says Alexander Gutu, CDG's Managing Director, was a fully integrated solution from one supplier versus different products cobbled together from multiple companies.

PROMOTING CENTER'S LAUNCH TO PUBLIC/PROFESSIONALS CRUCIAL TO SUCCESS

"The investors' goal was to make this a showcase for the latest digital diagnostic technology so it would attract both Physicians and patients seeking state-of-the-art medicine," said Alexander Gutu. "It's been highly successful, thanks to aggressive public promotion using regional advertising, as well as special events for Physicians, health ministers and other care providers. A recent 'open house' for doctors and Clinicians drew more than 350 attendees."

"Most Moldovan hospitals and clinics use a wide range of conventional imaging equipment supported by paper

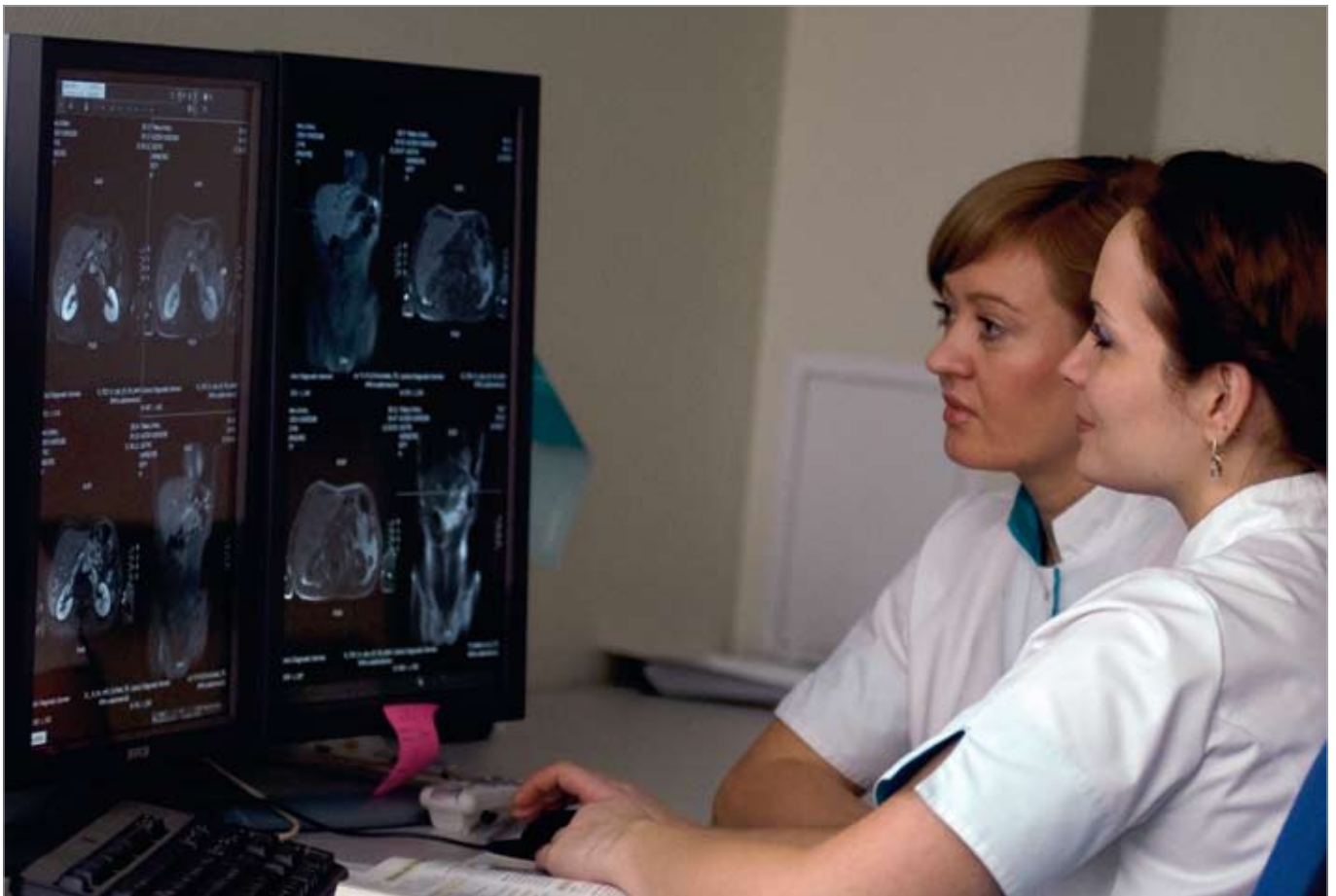
"The investors' goal was to make this center a showplace for the latest digital diagnostic technology."

ALEXANDER GUTU, Managing Director, Centrul Diagnostic German (CDG), Moldova



AGFA HEALTHCARE'S CONTRIBUTION

» IMPAX RIS/PACS linking multiple modalities for a more productive, efficient workflow that expedites patient care. CR 35-X digitizer with MUSICA² process enhancement software providing optimal, consistent image quality.



“We chose Agfa HealthCare because its individual systems are fully integrated. This way, we avoid having different components from various companies that don’t always work well together.”

ALEXANDER GUTU, Managing Director, Centrul Diagnostic German (CDG), Moldova

management and record keeping, which is slow and error-prone,” he added. “So the medical community here, many of whom have been trained outside Moldova and are quite familiar with digital technologies, seem to appreciate and use our services whenever possible.”

In selecting the first RIS/PACS in Moldova, CDG interviewed multiple suppliers and chose Agfa HealthCare’s newest IMPAX 6.3 system and software, along with its 5.6 version RIS and a CR 35-X computed radiography digitizer with NX workstation and MUSICA² image enhancement software.

“We preferred Agfa HealthCare primarily because its RIS, PACS and CR systems are provided as a fully integrated solution from one company that eliminates the complexity of having multiple products from different suppliers,” Alexander Gutu said. “This saves significant time and cost when service issues arise, or parts and upgrades are needed. Everything is handled in a single contact. We also liked the company’s professional yet friendly attitude, as well as its solid experience in similar centers across Eastern Europe. They have a good reputation here.”

CDG’s 12 full-time Radiologists have been impressed with the IMPAX system’s ease of use and the image quality achieved with the CR 35-X and its MUSICA² software.

“They really like the images and how the software easily permits maximum visualization of subtle details for better reading comfort,” Alexander Gutu said. Also noted is the system’s ability to automatically display the appropriate grade of image enhancement regardless of the exam being conducted. “This is not an easily impressed group. All our

Radiologists have been trained and have practiced in Germany and Austria before coming here, and are keenly aware of the latest digital techniques and standards associated with modern diagnostic imaging. •

IMPAX RIS/PACS; CR 35-X

- » IMPAX RIS/PACS/Speech provides a complete, fast digital workflow.
- » Fast access to patient information: records, scheduling, outcomes, follow-up.
- » Increases productivity with quickly available data contributing to more informed decisions.
- » Faster report turnaround times for decreased treatment cycles.
- » Digitizer is versatile; compact for general radiology, extremities, orthopedic and paediatric exams.

DID YOU KNOW...

- » The CR 35-X can be used inside the x-ray procedure room so the Technologist never has to leave the patient.
- » Chisinau, the largest city in Moldova, has the highest proportion of green space among major European cities.

Significant time savings allows more patients to be examined

DX-G reduces radiation dose by up to 50 percent in paediatrics

INTERVIEWEE Dr. Andreas Wieschen, Senior Physician of the Institute for Radiology and Nuclear Medicine, GPR Klinikum Rüsselsheim



“With the DX-G, the Technologists now see a significant time savings in their work compared to the previous system. The automated workflow with the ‘drop-and-go’ cassette buffer allows us to examine more patients in the same time with the same effort.”

DR. ANDREAS WIESCHEN, Senior Physician of the Institute for Radiology and Nuclear Medicine, GPR Klinikum Rüsselsheim

DX-G, a new CR solution from Agfa HealthCare that bridges the gap between high performance needle detector imaging and traditional phosphor cassettes, is now being used at GPR Klinikum Rüsselsheim to optimize workflows in the Institute for Radiology and Nuclear Medicine. In addition, the system has substantially reduced patient waiting times, even at peak periods. The Technologists’ productivity has also significantly improved, and as a result, they now examine more patients each day. In paediatrics, the DX-G lowers radiation dose by up to 50 percent compared to other imaging systems, depending on the case.

GPR Klinikum Rüsselsheim is a suprapregional hospital with 460 inpatient beds in 12 clinics. The Academic Teaching Hospital of the University of Mainz treats some 25,000 inpatients and 29,000 outpatients per year. The Institute for Radiology and Nuclear Medicine covers the entire range of radiological diagnostics, including paediatrics and neonatology. In all, about 65,000 x-ray examinations are performed each year.

SUPERB IMAGE QUALITY; PACS INTERFACE; DROP-AND-GO CASSETTE BUFFER ARE KEY BENEFITS

“We completely digitized our Institute in early 2006 when a PACS was installed

along with a DX-S digitizer from Agfa HealthCare. We were one of the first DX-S users. What we particularly appreciated was its outstanding image quality,” explains Senior Physician Dr. Andreas Wieschen.

He also appreciates the improved, faster workflow with the new system, which is complemented by its seamless integration with the PACS. After an examination, the Technologist brings the phosphor plate or needle-based detector to the DX-G, where the patient’s data is confirmed and digitized, including the examination parameters. “The ‘drop-and-go’ cassette buffer then provides a smooth-running, speedy workflow,”

SOLUTION BOX

- » Rapid, smooth-running workflow thanks to 'drop-and-go' cassette buffer
- » Reduced patient waiting times
- » More relaxed environment for Technologists
- » Consistently high image quality and resolution
- » Up to 50 percent dose reduction in paediatrics

explains Dr. Wieschen. "The Technologist can load up to five cassettes at once, which are then output automatically, one after the other.

This is one of the key advantages of the DX-G. Workflow using the previous system slowed down in peak periods. Today, the DX-G's speed significantly reduces patient waiting times, particularly during high volume periods. As a result, the Technologists now work in a more relaxed fashion and devote even more attention to their patients. And in emergencies, the images are quickly available, meaning that any necessary treatments can be initiated without delay.

"Our Technologists are very satisfied," says the doctor. "Even during the test phase, they clearly spoke out in favor of purchasing the system. Their rapid familiarization was helped by its simple, convenient operation via touch screen. The digitizer has been reliably operating since it was put into service."

"With the DX-G, Technologists now see significant timesavings in their work compared to the previous system," he adds. "The automated workflow with the 'drop-and-go' cassette buffer allows us to examine substantially more patients in the same time with the same effort," says



Dr. Wieschen, emphasizing the efficiency potential for his Institute.

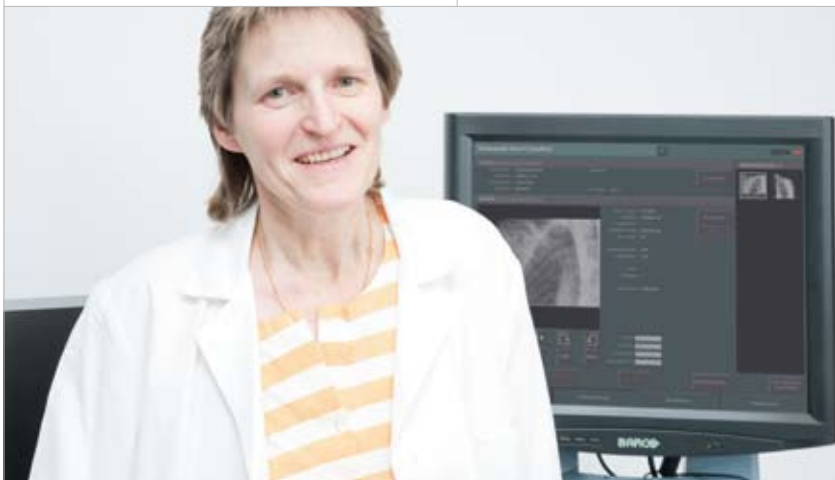
PAEDIATRIC RADIATION DOSE REDUCED BY UP TO 50 PERCENT

Radiologists primarily benefit from the consistently high image quality and resolution detail, the senior Physician says. "The DX-G combines the image quality of DR with the flexibility of CR. That allows us to give patients a diagnosis in a short amount of time." The users have several options in this context: they can choose between standard phosphor plates and newer needle-based detectors. They can also select output at either 150 μm standard resolution or 100 μm high resolution.

"The DX-G combines the image quality of DR with the flexibility of CR. That allows us to diagnose patients in a short amount of time."

DR. ANDREAS WIESCHEN, Senior Physician of the Institute for Radiology and Nuclear Medicine, GPR Klinikum Rüsselsheim

"We primarily use the DX-G in paediatrics, as well as for chest x-rays and intensive diagnostics. Thanks to the system's high image quality, we can reduce the dose for paediatric exams versus other imaging systems," says Dr. Wieschen, emphasizing an essential advantage. •



DID YOU KNOW...

- » GPR Klinikum Rüsselsheim serves a regional population of about 59,000
- » Rüsselsheim is the birthplace of Adam Opel, founder of the Opel automobile company

Agfa HealthCare enables leading Chinese academic institution to manage over 1,300 radiology exams per day

RIS/PACS solutions critical in enabling efficient management of growing patient volume

INTERVIEWEE Dr. Shao Wei, Chief Information Officer, Chinese Medical University First Affiliated Hospital

The China Medical University First Affiliated Hospital (CMUFAH) is a renowned academic institution in China and a general hospital with a history of over 100 years. It has 2300 beds and handles over 5000 outpatient visits a day.

The hospital was an early adopter of Hospital Information Systems (HIS) in China. In 2001, a Laboratory Information System (LIS) was installed and integrated with the HIS. In 2006, Agfa HealthCare's IMPAX 5.2 PACS and IMPAX China RIS I was installed as part of a digital radiology project. All radiology equipment including 16 major diagnostic modalities were connected,

enabling the department to achieve a workflow which managed over 700 examinations per day. "Following the PACS implementation, the hospital replaced its traditional 'naked-eye' observation of images with the review of softcopy images, significantly streamlining the workflow process. Since then, patient waiting times have been reduced, and medical treatment has become more convenient," states Dr. Shao Wei, CMUFAH's Chief Information Officer.

In early 2008, the collaboration between Agfa HealthCare and CMUFAH expanded into a second phase. The existing RIS/

IMPAX RIS/PACS

- » IMPAX 5.2 PACS with integrated IMPAX RIS configured for use in China.
- » IMPAX RIS/PACS solution manages and stores all images and data from multiple digital modalities.
- » RIS allows doctors to write structured reports in Chinese.

"The RIS/PACS is a great step forward in enabling an efficient and cost effective environment."

DR. SHAO WEI, Chief Information Officer
Chinese Medical University First Affiliated
Hospital



“Following the PACS implementation, waiting times have been reduced and treatment is more convenient.”

DR. SHAO WEI, Chief Information Officer
Chinese Medical University First Affiliated
Hospital

PACS solution was upgraded to also serve the different image intensive departments outside Radiology, including Intervention and Cardiology. In this phase, the entire RIS/PACS solution was integrated with the HIS, allowing full digital workflow from patient registration to order entry to report distribution. Over 500 clinical workstations became image-enabled with a complete overview of available diagnostic data.

As part of the phase II project, the new IMPAX China RIS II replaced the old 4D based RIS. The new system provides features specifically tailored to the Chinese environment. The modularity and scalability of the architecture enables the solution to better handle high volume and complex workflows, enabling a further reduction in patient waiting times, with MRI and CT reports



being provided 4 hours after the images were captured.

The overall new RIS/PACS solution greatly improves the efficiency and quality of diagnosis. Today, the number of radiology exams has grown dramatically, to 1300 per day, generating 100 gigabytes of image data each day. “During the first years following its installation, the technical performance of the IMPAX system has proven to be

AGFA HEALTHCARE'S CONTRIBUTION

» IMPAX RIS/PACS to manage entire radiology department workflow.

very sound and has continued to run smoothly, despite the ever increasing volume of exams,” Dr. Wei states.

“IMPAX provides users at the hospital with web-enabled access to patient images, past studies, key RIS information, and procedure reports – all from a single desktop. Together the RIS and PACS manage the entire departmental workflow, including patient administration, image management, reporting and report distribution, promoting an efficient workflow and high-quality patient care. It is a great step forward in enabling an efficient and cost effective environment and we look forward to a continued and successful co-operation with Agfa HealthCare,” Dr. Shao Wei concludes. •



DID YOU KNOW...

» Shenyang's Olympic Sports Center Stadium hosted football matches during the 2008 Summer Olympics.

Delivering expertise across sites and beyond borders

ORBIS and IMPAX enable a smooth transition and successful HIS/RIS/PACS implementation at important German medical facility

INTERVIEWEES Prof. Pickuth, Head Radiologist and Medical Director, Caritasklinik St. Theresia • Dr. Hagen Barlag, CIO, cts

Caritasklinik St. Theresia is part of the Caritas Group cts which manages care facilities in the Saarland region of Germany. The hospital offers its patients medical treatment in a modern architectural environment supported by state-of-the-art solutions and advanced workflows. Today, the facility works with a HIS, RIS, and PACS from Agfa HealthCare, delivering medical imaging to the facility and one additional hospital in the group. The site is an important Agfa HealthCare reference center for RIS and PACS.

NEW DIGITAL TECHNOLOGY WORKFLOWS IMPLEMENTED WITHOUT INTERRUPTION

In January 2008, the hospital's legacy HIS required replacement, and Agfa HealthCare won the tender. To enable the transition to work effectively, hospital and Agfa HealthCare teams carefully evaluated the conversion before taking specific actions, ensuring the installation would meet the customer's needs as well as future integration requirements.



“We took extra time in the pre-implementation phase, adapting Agfa HealthCare’s ORBIS IT management solution and ORBIS RIS to the specific requirements of our department, particularly our workflow”, outlines Franz-Josef Bermann. Efforts invested at this stage, according to the Head Technologist, helped avoid complications later, such as when adding a PACS to the system.

With this foundation laid, a PACS tender was implemented in October 2008. A key benefit of the “one-stop solution”, describes Dr. Hagen Barlag, CIO of cts, is “the lack of a need for an extra interface”. This would, in turn, enable cost savings and IT-related efforts for both ORBIS and IMPAX could be

integrated effectively. “The intuitive user interface and easy handling were also major advantages of the system,” adds Dr. Barlag. The transition, carried out while the department continued its routine activities, was smooth and fast, he concludes.

“The close collaboration between Radiology, IT, and other clinical departments together with Agfa HealthCare contributed a lot to our success.”

PROF. PICKUTH, Head Radiologist and Medical Director, Caritasklinik St. Theresia



AGFA HEALTHCARE'S CONTRIBUTION

- » Close cooperation with customer in adapting HIS, RIS, PACS to specific workflows
- » Smooth implementation while routine activities continued
- » Integration of all digital modalities in the hospital
- » Collaboration with customer on emerging new projects – digital rounds, integration of hospitals and medical service centers

PACS WORKFLOWS RESULT IN TIME, COST, AND PRODUCTIVITY SAVINGS

Thanks to the PACS and adapted workflows, time and cost savings have been significant, according to the team. The hospital has improved staff productivity as well as increased patient throughput as a result of the new solutions. Physicians now know they can expect images and reports shortly after the patient's exam, and thanks to the ORBIS RIS, the massive influx of phone calls confirming the availability and location of patient information has been eliminated. "Our walk-in activities have profited considerably", explains Prof. Dirk Pickuth, Head Radiologist and Medical Director, Caritasklinik St. Theresia. "The challenging, manual management of images for these patients is no longer an issue. We hand patients CDs to take to their GPs, and we retain the information in our digital system for access wherever required during the care chain," he says.

There are further benefits of the combined solutions: the system helps the care provider avoid errors and optimize billing, and they bring transparency to radiology department performance and support management tasks such as assigning Physicians to patient cases to maintain or improve skills. "Another beautiful feature", Prof. Pickuth continues, "is that as a teaching hospital, we can now easily create studies of rare



"The intuitive user interface and easy handling are major advantages of this system."

DR. HAGEN BARLAG, CIO, cts

and interesting cases for educational use, as well as for publications."

ACCEPTANCE – UNDERSTANDING THE "PEOPLE" FACTOR IS CRITICALLY IMPORTANT

Reducing staff concerns about new technology and training them in its operation is key to establishing acceptance, says Franz-Josef Bermann. And projects do not depend on contracts alone, he adds. "It was the close collaboration between Radiology, IT, and other image intensive clinical departments together with Agfa HealthCare which contributed a lot to our success", says Prof. Pickuth.

INTERNATIONAL KNOWLEDGE TRANSFER GREATLY ASSISTS PEOPLE IN NEW EU NATIONS

Harmonizing radiology care in new EU member countries – this is the aim of various European exchange projects. Prof. Pickuth contributed significantly to the modernization of hospitals and helped set up large state-of-the-art imaging centers. Trans-border cooperation also works for short distances. With the French border nearby, the team is negotiating

cooperation on a regional, Franco-German scale.

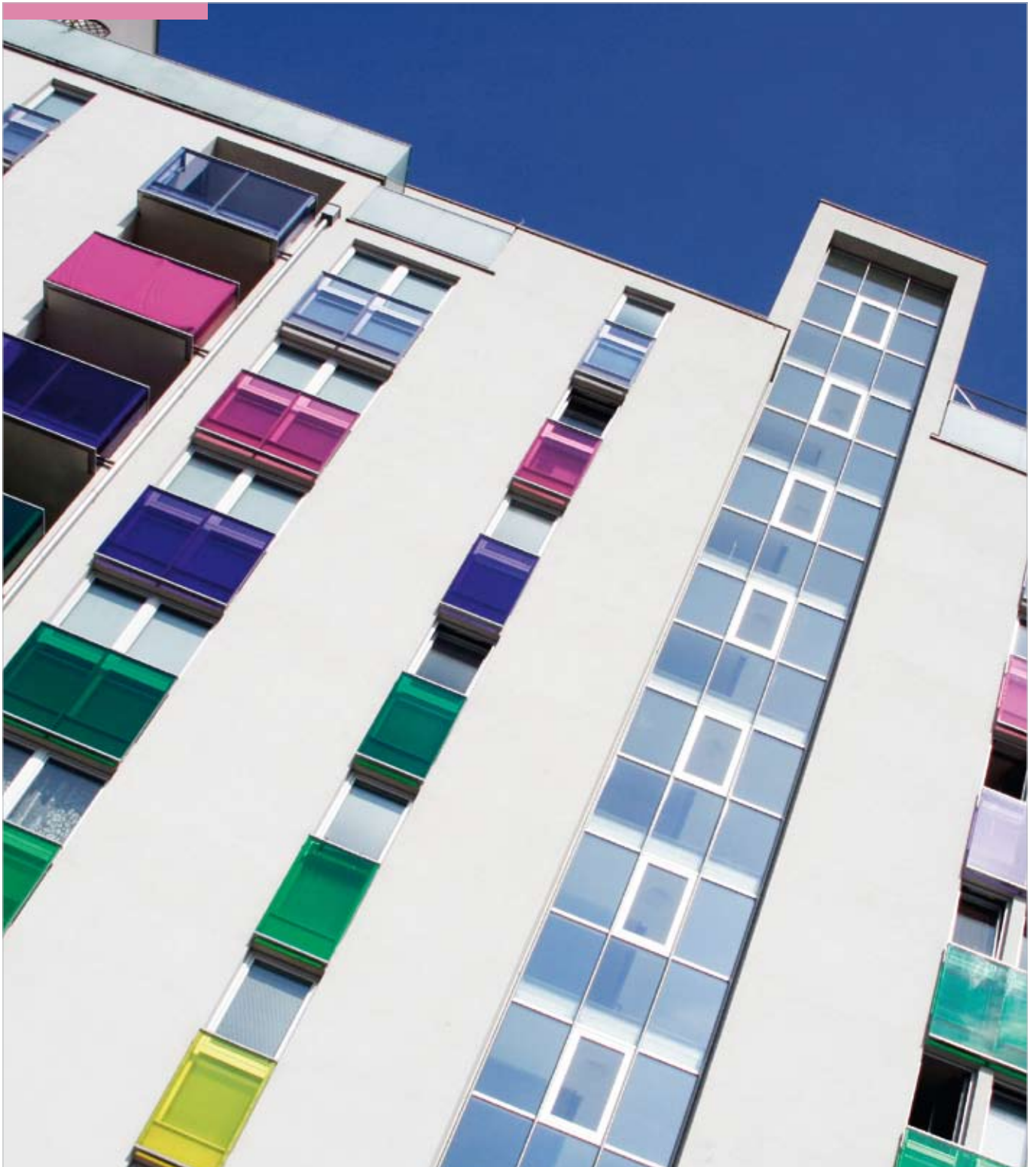
"In the future, even more colleagues and partners will profit from the instant availability of images and reports," explains Prof. Pickuth. "Based on our HIS/RIS/PACS installation, we are working on the further improvement of processes across departments and between locations". At the ward level, this will include the implementation of digital rounds based on trolleys. The challenge here is primarily in adapting the workflows. At a cross-site level, the team is looking into integrating the medical service center and additional hospitals into this IT landscape. •

DID YOU KNOW...

- » cts maintains 27 organizations in acute care, rehabilitation, and care for children and the elderly.
- » Centralized IT currently serves St. Theresia and St. Josef Hospitals as well as various child/elderly care facilities.
- » Nearly 1,000 staff at Caritasklinik St. Theresia serve 17,000 inpatients and 50,000 outpatients annually.

SOLUTION BOX

- » IMPAX allows images and reports to be distributed across the hospital and to/from other sites. After an image is acquired, it can be accessed from any workstation. IMPAX contains all images from CR, DR, CT, MR, Angiography, and Sonography. Both inpatient and outpatient activities benefit from IMPAX.



RESIDENTIAL PROJECT

The Nineties witnessed a major turning-point in the city's history. The demise of the Iron Curtain and the opening of Central and Eastern Europe meant that, for the first time since the 1920s, there was new hope of growth after continual decline in previous years. New residential areas in Vienna's suburbs were developed. A unique "school construction program" was approved, spurring many committed architects to create original solutions. And in collaboration with dedicated developers and innovative architects, the much-praised social housing scheme in Vienna succeeded in developing new models which have since attracted international acclaim.

News from Agfa HealthCare

Agfa HealthCare expands consumables offering with contrast media solutions

Agfa HealthCare recently announced that it had expanded its current offering of consumables through the acquisition of Insight Agents GmbH in Germany. Insight Agents is a European developer and producer of contrast media, with business activities in multiple European countries. Contrast media are primarily used during medical imaging examinations with x-rays, computed tomography (CT) scans and magnetic resonance imaging (MRI), either to highlight specific anatomical structures (mostly vessels) or to perform functional imaging. The expansion into contrast media is an important step for Agfa HealthCare as it builds and expands its diagnostic imaging portfolio beyond pure hardware, software and film.

“The inclusion of contrast media into our portfolio is an important strategic step towards future growth opportunities”, states Christian Reinaldo, President of Agfa HealthCare. “Agfa HealthCare is a strong player in the radiology market with both imaging and IT solutions. Today, we further enhance our business with a set of products that are increasingly used for diagnostic imaging procedures. These products are a logical addition to our portfolio of film, chemicals and printers and will be distributed through our extensive logistics and distribution network.”

“The acquisition of Insight Agents allows us to offer to our customers a broader range of products for medical imaging”, states Dirk Debusscher, Vice President Imaging at Agfa HealthCare. “Agfa HealthCare has always been a leader with its film & print solutions. The decision to purchase a new line of business was made to ensure that we continue to offer a range of diagnostic imaging products over which we have full control, enabling us to deliver the highest quality radiology solutions, on time, all of the time.”

At present, Agfa HealthCare will distribute its new portfolio of contrast agents across parts of Europe, but is investigating a potential expansion of the number of markets it will serve in the future. •



Agfa HealthCare’s Peissenberg facility wins “Factory of the Year” award in the category “Outstanding Assembly”



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

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

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

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

Newest CR imaging technology debuts in France

A private imaging center in the Loire Atlantic region is the nation's first to install Agfa HealthCare's new DX-G Computed Radiography solution that accepts both standard phosphor plates and needle detectors

INTERVIEWEE Dr. David Morillon, M.D. Radiologist, Centre Catherine de Sienne, Nantes, France

One of the first radiation therapy centers in France, Centre Catherine de Sienne, has recently been equipped with Agfa HealthCare's new DX-G CR solution which uses both phosphor imaging plates (PIP) and needle imaging plates (NIP), also known as needle-based detectors. This leap step in CR imaging has resulted in significant image quality improvement and time savings for Technologists performing a wide range of exams.

CENTER'S RADIOLOGISTS SOUGHT NEW SYSTEM DISPLAYING IMAGES IN 13 SECONDS

Centre Catherine de Sienne specializes in cancer therapy and related imaging necessary to guide and evaluate treatments. It's among the first private centers of its kind in France serving the entire Nantes region. The institute, which has 250 employees, includes 77 inpatient beds. Its radiology department performs more than 30,000 examinations each year. Located where the Loire and Sèvre rivers meet, the Center's Radiologists collaborate with Nouvelles Cliniques Nantaises, a major surgical clinic that shares the same site.

The Center's radiology department was already digitally equipped, but wished to replace some older equipment. Christian Depuiset, Director of the Centre Catherine de Sienne, says: "We were very interested in improving image

- "The DX-G's image quality, price and time saving benefits for Technologists is giving us ideas for other sites where we can install it."

DR. DAVID MORILLON, M.D.
Radiologist, Centre Catherine de Sienne
Nantes, France



SOLUTION BOX

- » DX-G CR solution.
- » NX Workstation interface.

“Improved image quality is not just theory; it is really clear in the visualization of images.”

DR. DAVID MORILLON, M.D.
Radiologist, Centre Catherine de Sienne
Nantes, France



acquisition time, and we were intrigued by this latest solution. Agfa HealthCare's DX-G that could display images in 13 seconds compared to 45 seconds with our older systems.”

The Nantes center installed the DX-G in January. David Morillon, M.D., a Radiologist at the Center says: “As a supplement to our original PIP cassettes, we now have needle-based detectors which we use on the same consoles for orthopaedics. The emergency department at Nouvelles Cliniques Nantaises sends us a substantial number of minor traumatologies, so we do a lot of extremities: hands, feet, and ankles.”

EXCELLENT IMAGE QUALITY AND SPEED IMPRESSES PHYSICIANS

The needle-detector technology provides higher-quality images and the potential for lower patient radiation dose. The transition from theory to practice has fulfilled its promises. Dr. Morillon says: “When we compared NIP to standard cassettes, the images obtained with these detectors showed a very significant reduction in background noise, which makes it possible to substantially

optimize image quality. The difference between the two types of cassettes is obvious. Improved image quality is not just theory; it is really clear in the visualization of images.”

Technological change often causes concern among staff. The Center, however, benefited from on-site training by an Agfa HealthCare application engineer, and soon mastered the new DX-G digitizer and its accompanying NX Workstation console. “Technologists and Physicians appreciated its simplicity and unanimously agreed: the console is easy to use and intuitive. It's a source of great satisfaction when staff appreciate the system and use it easily”, Dr Morillon acknowledges.

AGFA HEALTHCARE'S CONTRIBUTION

- » DX-G solution delivering superb image quality with both PIP and NIP cassettes.
- » NX Workstation with a highly intuitive, easy to learn ergonomic design.
- » Enhanced image quality due to the DX-G's ability to accept NIP cassettes with their higher Detective Quantum Efficiency.
- » Five cassette drop-and-go buffer

The DX-G improves productivity and allows more time for users to look after their patients.

“After taking images, the Technologist easily deposits all cassettes in the digitizer and moves quickly to the next patient. The cassettes are automatically read and processed quickly without any manual intervention. As a result, Technologists don't have to linger around the system waiting to perform another step. This is particularly important in the emergency department where a high work flow demands fast response times,” says the Radiologist.

Concludes Christian Depuiset: “For me, the DX-G's main advantage is it standardizes operations throughout the radiology department and allows Technologists to be more efficient. This means we can attain an image production process that's fast and efficient. We have achieved a small revolution in healthcare!” •

DID YOU KNOW...

- » Centre Catherine de Sienne was opened in August 2003.
- » Various medical and medical-technical services are located at the same location, including Nouvelles Cliniques Nantaises and a separate rehabilitation medical center.

“We have achieved a small revolution in healthcare!”

CHRISTIAN DEPUISET, DIRECTOR
Centre Catherine de Sienne,
Nantes, France



NICE UNIVERSITY HOSPITAL, CÔTE D'AZUR, FRANCE

Nice University Hospital enters the age of virtualization

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

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



“For our weekly consultation meetings, the PACS has changed our lives because we manage to concentrate all information on a single support through our intranet: the images, reports, and biological tests. How we can discuss a patient’s record simply, concisely and quickly.”

Prof. PATRICK CHEVALLIER, Radiologist

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

Nice University Hospital is a public institution operating on five sites: the Archet, Pasteur, Saint Roch and Cimiez hospitals and the Tende convalescent center. It is located in the Provence-Alpes-Côte d’Azur region of France, which is at the heart of a basin with a population of 4.5 million. The hospital provides an important service for the

region and is characterized by a high proportion of elderly and an influx of about a million tourists during the summer. The 6,000 professionals (of which 1,000 are Physicians) who work there must provide quality care along with training, education and research appropriate for a university center.

AGFA HEALTHCARE’S CONTRIBUTION

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



“Agfa HealthCare understands the end user’s requirements and responds accordingly.”

PHILIPPE MAYER, Information System Director

TOTAL MAKE-OVER

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

Nice University Hospital wanted a tool that would allow staff to manage images from digital scanners, MRI and conventional imaging, then return them to the various healthcare services. “As an IT company, Agfa HealthCare was able to fulfill our initial requirement because we took a very unique approach: we purchased an IMPAX 6 software solution and not a complete package,” he continues. “Agfa HealthCare fully understood the need for rapid deployment from the moment we alerted them to the urgency of our requirements. This company has the capacity to understand the end user’s requirements and respond accordingly.”



FAST INTEGRATION

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

PACS CHANGES LIVES

Having used the system for nearly a year, the healthcare services are happy with the changes, which have produced time savings and efficiency. “For our weekly consultation meetings, the PACS has changed our lives because we manage to concentrate all information on a single support through our intranet: the images, reports, and biological tests. How we can discuss a patient’s record simply, concisely and quickly,” explains Professor Patrick Chevallier, Radiologist. IMPAX has enabled significant progress in clinical research too. “We can archive imaging exams efficiently and limitlessly, which will let us build collections and make the job a lot easier.”

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

IMPAX 6

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

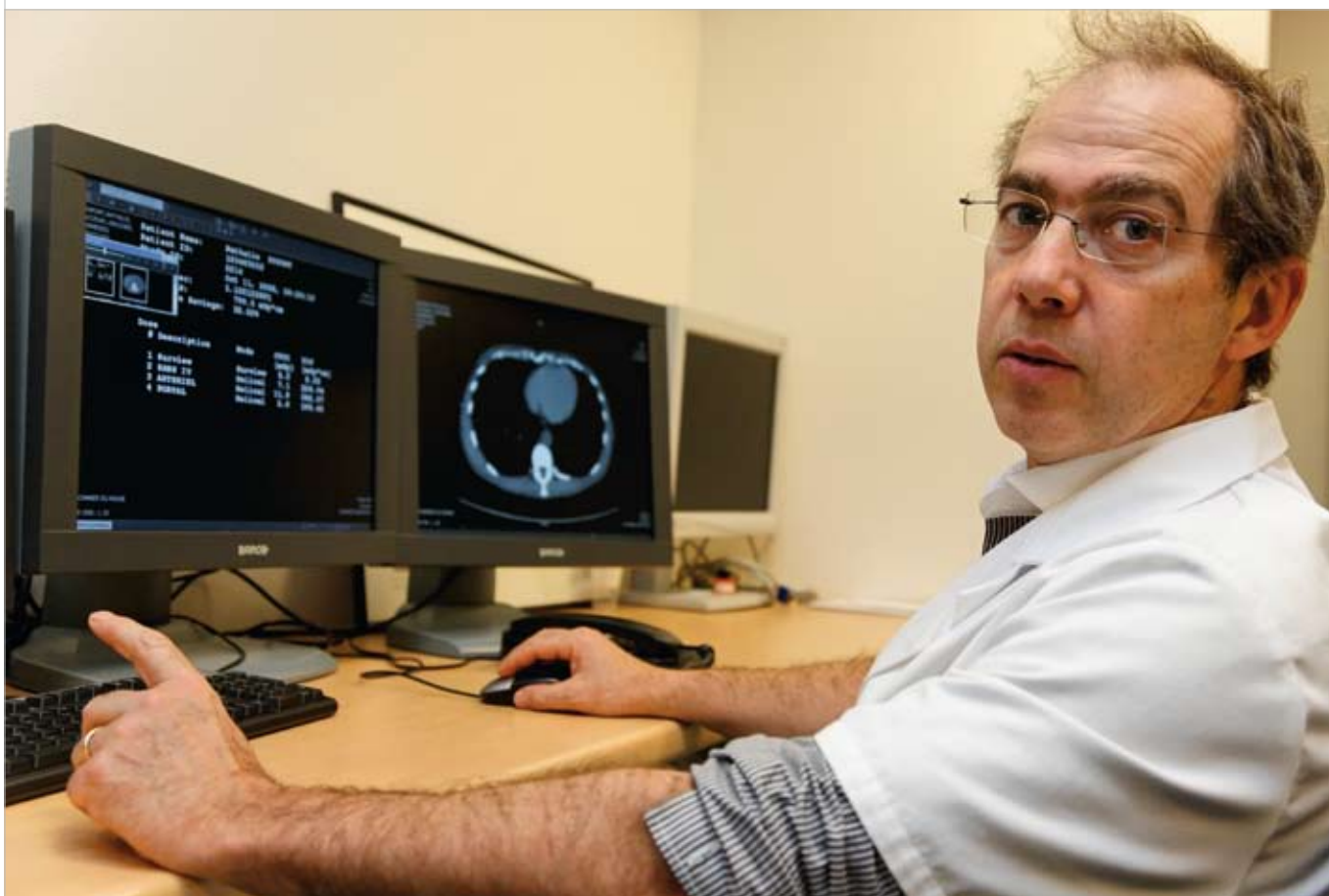
DID YOU KNOW...

- » Nice is a leading resort city on the French Riviera and the fifth most populous area in France.
- » Artists including Toulouse Lautrec, Renoir, Picasso and Matisse were all artistically inspired by Nice.
- » For Radiologists, there is a very practical side to having all the information on a single medium and being able to access it from any computer in the hospital.
- » Thanks to the simplicity and intuitive nature of the IMPAX 6 solution, the users quickly got used to it.

Maine Image Santé implements enterprise-wide management of all digital imaging

Agfa HealthCare's IMPAX PACS software enables interactive, secure data sharing on an extensive, multi-site network that helps improve the delivery of patient care

INTERVIEWEE Dr. Paul Descamps, Radiologist, Maine Image Santé, Le Mans, France.



Maine Image Santé has installed Agfa HealthCare's IMPAX PACS solution to allow patient file sharing between practitioners at its different medical centers. The IMPAX system made it possible to establish a shared database platform which now facilitates access to patients' medical imaging files from any of Maine Image Santé's 10 dispersed sites.

LINKING DISPERSED SITES IMPROVES PRODUCTIVITY AND DELIVERY OF CARE FOR PATIENTS

As an association of 25 Radiologists, Maine Image Santé provides a locally based radiology service at 10 sites across Le Mans and in three other cities. This multi-site configuration, however, posed communication challenges between the different facilities due to the inability to share patient files between different Radiologists (e.g., loss of files, redundant examinations, etc.).

"The IMPAX solution has revolutionized the daily work of the group's Radiologists. We no longer view radiographic images manually; our workstation screen becomes our main point of contact."

DR. PAUL DESCAMPS, Radiologist,
Maine Image Santé Le Mans, France.



Maine Image Santé therefore decided to implement a digital network that would provide secure access to all patients' files, grouped in a single database shared by all 10 sites.

INTERACTIVE DATA EXCHANGE ALSO EXPANDS SERVICE TO PRIVATE PHYSICIANS

Following a competitive bidding process, Maine Image Santé chose to implement Agfa HealthCare's IMPAX PACS solution. Now, each radiology department is equipped with a server where all examinations performed at each site are stored. The data are transferred to a central server each evening in order to form a shared database of medical imaging examinations.

Each Radiologist can easily access the data stored on any other PACS network server at any time, with all servers linked by broadband connections. With IMPAX's high performance diagnostic imaging client, Radiologists can read real-time any study from any location. Furthermore, thanks to RIS/PACS integration, the medical reports and clinical information can also be accessed at the same time as the images.

Standards compliant, the IMPAX central server at Maine Image Santé securely allows referring Physicians to access images from their private offices. In time, this system will also be extended to securely interface with imaging systems at other, regional healthcare institutes.

DIGITAL ACCESSIBILITY IMPROVES STAFF PRODUCTIVITY AND SATISFACTION

Two years after implementing the project, the system has proved its value to both medical and paramedical staff, including some who were initially hesitant about it. Staff productivity has improved thanks to the interactive exchange of thousands of patient images and data files through the networking of workstations.

Apart from simple, user-friendly access to network data, the IMPAX solution also helped various staff members feel

more confident in their work. The project was actually a factor in the internal promotion of various clinical staff who saw their contributions to healthcare enhanced by their new network skills. •

DID YOU KNOW...

- » The NX Workstation features an ergonomic, user-friendly interface for greater user comfort.
- » Le Mans, best known for its role in the French Grand Prix auto race, actually has two separate racing tracks.

"Agfa HealthCare helps us respond to all demands of an interactive image network, from rapid acquisition to securely storing and sharing data with all partners concerned."

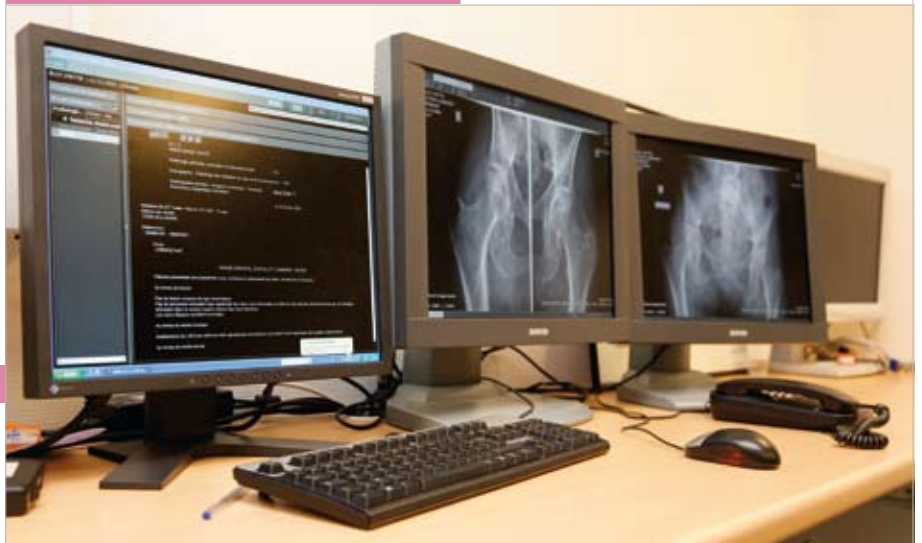
DR. PAUL DESCAMPS, Radiology,
Maine Image Santé Le Mans, France.

AGFA HEALTHCARE'S CONTRIBUTION

- » The IMPAX system optimizes electronic data management at 10 sites of Maine Image Santé. It also helps medical and clinical staff be more productive by simple, interactive data sharing.

SOLUTION BOX

- » IMPAX Enterprise PACS serving 10 sites
- » NX Workstation
- » DRYSTAR 5503, 5302 imagers
- » DX-S digitization solution



A medical image viewer that requires no updates,
no downloads and no extras?

No kidding?

XERO technology, all your images

Delivering images and information to caregivers across a wide range of technical and physical barriers has proven to be a continuing challenge in healthcare. But as care providers expand and integrate their capabilities beyond today's hospital walls and move towards integrated regional and national care solutions, the need for technology neutral solutions has never been greater. To support this need, Agfa HealthCare is introducing XERO, a zero-download medical imaging viewer developed to provide access to imaging information for clinicians at any point of care regardless of network constraints and/or the wide variance of platforms and administrative rules. By bridging the gap between the stringent controls of medical image formats and the flexible access formats of the internet, XERO accesses and delivers your DICOM images and reports, with none of the heavy infrastructure or headaches associated with legacy viewers. We are not kidding when we promise XERO technology for your DICOM images.

Learn more about our solutions via <http://www.agfahealthcare.com>.