

Agfa at RSNA05

Breakthrough Solutions

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We recognize that you face abrupt changes and we see the increasing complexity you must overcome: How to make the best use of your resources? What technology should you use? Which partner can you rely on to accompany you in the demanding transitions from analog to digital and from digital to IT?

We are that partner. Our in-depth clinical, imaging and IT knowledge enables us to develop and implement *Breakthrough Solutions* – innovative products and technology that help you solve the challenges you face.

We approach this year’s RSNA with great excitement. We are committed to providing world-class healthcare IT solutions built upon our proven strengths in imaging and radiology.

We will launch IMPAX Enterprise, a core component of Agfa’s healthcare IT strategy that serves as the enterprise platform and foundation for a hospital’s imaging and IT solutions. We will preview an expanded CR portfolio, and promote breakthrough imaging technologies like DX-S.

You will see the addition of our Heartlab cardiovascular applications, as well as expanded offerings for orthopaedics and women’s care, that highlight



our ongoing expansion in clinical systems.

We will also highlight our enterprise IT and EMR solutions, and demonstrate our seamless integrated workflow solutions that meet the specific needs of hospitals, departments and markets like imaging centers.

At RSNA 2005, you will see the ongoing evolution of the technology that has made Agfa so successful in the past, and also witness the launch of *Breakthrough Solutions* that will keep us as at the forefront in the future.

As you consider the future of your own healthcare facility, I invite you to review the following case studies. Here, you will see the ways we have helped healthcare organizations around the world overcome many of the same challenges you face. As you see the real-world results of our approach, I encourage you to turn to Agfa for the same *Breakthrough Solutions*. We would be honored to partner with you to help deliver efficiency and effectiveness in your continuum of care.

Philippe Houssiau
President, Agfa HealthCare

Integrated PACS,
CR and Speech
Recognition
solutions from
Agfa key to
enhanced
patient care

At Summa Health System, the focus is on patients – and the technology needed to send them home

At Summa Health System, one of the largest health delivery enterprises in northeast Ohio, it is customary to see more references to the healthy community beyond its campus than to the patients being treated inside. Communities reach full potential when their citizens are healthy, and Summa's goal is to make its surrounding communities the healthiest in the region.

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Agfa's reliability was a big determining factor in welcoming the Four-Point Guarantee. Also, the program is making system-wide interfacing as easy as it can possibly be. That, too, sets Agfa apart.

Dr. T. Clifford Deveny,
Vice President of Clinical Services,
Summa Health System

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In radiology, Summa has one of the most extensive data and documentation systems in the United States, meeting the diagnostic needs of 24 radiologists and 400 clinical physicians who conduct 320,000 procedures each year. Summa recently selected one of the most multi-faceted and complex diagnostic, data and documentation systems currently available, Agfa's integrated PACS (Picture Archiving & Communications System), CR (Computed Radiography) and Speech Recognition solution. It was Agfa's reputation for solving complex integrations and the benefits of its single-vendor approach that attracted Summa.

So did Agfa's exclusive Four-Point Guarantee. The program, which significantly reduces supply costs by assuming financial and operational risks, was approved by Summa after they saw how successful it was at another major medical center. "Agfa's reliability was a big determining factor in welcoming the Four-Point Guarantee," says Dr. T. Clifford Deveny, Vice President of Clinical Services at Summa. "Also, the program is making system-wide interfacing as easy as it can possibly be. That, too, sets Agfa apart."

In-house marketing of new products

Often the speed and dedication with which some staff members move to new systems can be an issue, but the 'clinical' portion of Agfa's Four-Point Guarantee addresses that well by providing effective marketing of all new products and systems to radiologists and referring physicians.

"We did a major site visit, due diligence on performance and service, and assessed the financial viability of Agfa," Dr. T. Clifford Deveny recalls. "When all was said and done, the decision was easy."

As Dr. T. Clifford Deveny points out, the integrity of technology is always the primary concern; however, hospitals can never discount financial considerations, which is why the 'financial' component of the Four-Point program was so attractive. Under it, no capital is required, and the enterprise is guaranteed predictable operating expenses.

Within the 'technical' component, complete desktop integration and consolidation of platforms are ensured. The other two components are 'clinical' and 'operational,' the former guaranteeing a reduction of lost films and retakes, and the latter assuring uptime and system-wide integration.

Selecting the right vendor

Summa's search for a new integrated system began back in 2001. "Through intensive site visits and demos, we narrowed the field and announced Agfa as our vendor of choice in 2004," says Zeeba Mercer, Director of Information Services.

An IMPAX PACS solution from Agfa is now at the heart of all picture archiving and communications throughout the Summa enterprise, which includes Akron City Hospital and St. Thomas Hospital, both in Akron, Cuyahoga Falls General Hospital, and five outpatient centers. The integration of IMPAX along with Agfa's TalkStation solution will cover two RIS (Radiology Information System), a CPOE (Computerized Physician Order Entry) system, and two clinical portal solutions.

"Our operating room suites at all three campuses are equipped with dual high-resolution IMPAX workstations and monitors for immediate view capability," Zeeba Mercer notes. "We will be completely filmless when we finalize

installation and implementation at our outpatient imaging facilities."

"Improved reading turnaround is something the entire staff was interested in," adds Jeanette Doria, Director of Imaging Services. "With viewing available to outside physicians, and the ability to view all critical diagnostic areas, including surgery, it was an easy choice. And now there are no lost studies, which pleases everyone."

More advancements expected

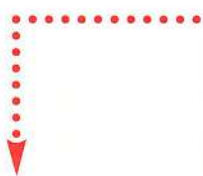
Zeeba Mercer says that they did not experience any significant technological challenges while moving into PACS. "Partially that's because of our Information and Technical Services department," she explains. "They were wonderful and supportive, and that's the key to the success of any IT project. At Summa we have a robust IT infrastructure with gigabyte connectivity to all the offsite imaging facilities, and even before the Agfa relationship we already had incorporated a mini-PACS setup for all cross-sectional modalities and were archiving a two-year history. With Agfa, we can expand into even newer areas."

"Agfa is a partner that strives not to let you down," says Doria. "We have three hospitals within an eight mile radius, and that's fairly unique. There is a tremendous volume of reports that need to be read and shared within the system." Minimizing or eliminating downtime is given a high priority, and that's what the Agfa systems help achieve.

Though Akron's population is 212,000, Summa serves more than a half-million patients each year. Its hospitals are teaching affiliates of major universities, and the Summa Health System Foundation provides funding for education, research and patient care initiatives. Radiology departments are fundamental to the effective functioning of all healthcare enterprises. To make it run smoothly, they must identify ways to manage costs, make efficient use of time and space, and implement new technology, all at once (hallmarks of Agfa's Four-Point Guarantee). Summa has met those goals. The more resourcefully they can handle their patient caseloads, the quicker patients can go home to make Akron a network of healthy communities. ■

Agfa's contribution

- Solved complex integration strategies in a timely fashion
- Made system-wide interfacing possible while keeping costs at a manageable level
- Provided valuable and effective training to a large staff population
- Eliminated lost studies and greatly minimized downtime
- Created an atmosphere of continuous technological improvement and innovation



Offering a growing range
of broad solutions

Success with
PACS leads
to federal grant
to expand
patient care
and efficiency
benefits further

Maine Medical Center, Portland, Maine, US

Portland's Maine Medical Center gives IMPAX technology center stage

Maine Medical Center, the largest hospital in the state, is known for several key strengths, championing the use of Picture Archiving and Communications System (PACS) technology among them. Physicians and radiologists there have enormous faith in the capability and reliability of PACS, and as a result, Maine Medical's reputation among healthcare facilities keeps growing.

Agfa's contribution

- Assisted in bringing PACS online seamlessly within existing RIS and enterprise patient index
- Through PACS effectiveness, helped win federal grant to expand the technology to other New England hospitals
- Allowed staff to maintain dedication to using prior studies without sacrificing time or effort
- Built groundwork for upcoming RIS/PACS/Speech solution
- Made it possible to bring advanced 2D, 3D and 4D imaging via PACS solution

Their success in PACS recently won them a sizable federal grant to help expand the technology to other hospitals within and beyond their family of sites in New England. "We're examining the benefits of sharing PACS across multiple facilities because the government is very interested in pursuing statewide initiatives designed to share patient data across the board," says Bob Coleman, Head of IT and Informatics.

Maine Medical is a private nonprofit corporation with 606 beds at its principal Portland facility. It is also a teaching hospital, with one of the busiest radiology facilities in the region, performing 185,000 exams per year, interpreted by dozens of subspecialty radiologists on 23 PACS workstations throughout the system.

Effective integration

By way of an IMPAX suite from Agfa, PACS went live in 2001. "As far as I know, Agfa has always had the lead in integrating with other manufacturers, so we've never had trouble using some components from other suppliers when necessary," says Dr. Mathew Ralston, Head PACS administrator. "In addition, PACS integrates well with our RIS (Radiology Information System), and is also integrating well with our enterprise Master Patient Index. That allows us to cross reference patients from all over the state. No matter which hospital a study comes from, when it gets into our system it will always be matched up with the patient – even if the patient had a different medical record at one time."

"When you link up several hospitals and imaging centers, as we've done with our PACS," Dr. Mathew Ralston says, "studies come in with whatever record numbers the patient had at the originating facility that did the study. The patient may even end up having two similar studies located in the PACS, which it wouldn't necessarily recognize as being from the same patient. We've overcome that with Agfa's IMPAX. The studies are always co-registered."

The implementation took nine months to complete, which included some new construction. "We came in on schedule and under budget," Bob Coleman says, "so overall it was as good an effort as we could have hoped for."

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As far as I know, Agfa has always had the lead in integrating with other manufacturers, so we've never had trouble using some components from other suppliers when necessary.

Dr. Mathew Ralston, Head PACS administrator,

Portland's Maine Medical Center

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From the beginning, Maine Medical's administration and radiology staff knew that the goal of PACS was to help the hospital and its affiliates improve patient care by increasing throughput and efficiency. They wanted the ability to allow virtually any study to be read from any location, "without the radiologist being tethered to the original paperwork or the location where the images originated," Dr. Mathew Ralston says.

"We're big on prior studies," he adds, "and attuned to locating them and getting them in front of the radiologist quickly and effortlessly. It's typically a lot of work to get prior studies with a paperless system, but Agfa's IMPAX PACS allows that to happen."

Shared data and shared success

As is true at many medical centers, the nature of going entirely paperless requires patience – particularly for those physicians and radiologists who had been involved with film for decades. Bob Coleman says the entire staff worked hard to make PACS implementation as easy as possible, the result of which was a quick complete transition.

"In order to replace the radiologists' reliance on paperwork, PACS must be consistent in telling us what cases have been dictated, what cases have not been dictated, and what cases are in the process of being dictated," Dr. Mathew Ralston says. "Beyond that, the system needs to accurately group un-dictated cases into logical specialties or subsets so that the most appropriate radiologists will be directed to the cases they are assigned to or most qualified to interpret." Agfa's IMPAX, he says, enables them to meet each one of those priorities.

Maine Medical's success with the IMPAX solution made it reasonable for them to consider an entire RIS/PACS Speech integrated workflow from Agfa. Because of the volume of work handled at the facility, and the fact that there are many sites involved, it will be a fairly complex implementation procedure, yet the staff is confident about the process. Toward that end, Bob Coleman acknowledges the advantages of a single-vendor approach. "It has always been seen as the balanced approach," he says. "We intend to continue to work with Agfa to enhance our workflow through even tighter integration between the RIS, PACS and Speech components, while continuing to manage complexity and optimize functionality – all of which Agfa helps us do."

Multi-dimensional imaging

Maine Medical also utilizes PACS for advanced 2D, 3D and 4D imaging via integration with a processing system from TeraRecon. They are one of the first major healthcare facilities to put it to daily use.

"Agfa was responsible for integrating PACS and TeraRecon seamlessly here at Maine Medical," Dr. Mathew Ralston adds. "They're forward thinking enough to have allowed for these integrations to occur by building the appropriate infrastructure in the first place. And that was well before we even knew we'd need it."

Dr. Mathew Ralston, Bob Coleman and others at Maine Medical attribute the hospital's diagnostics successes to a knowledgeable and dedicated PACS support team that works very closely with IT support personnel, transcriptionists, technologists, film librarians, Agfa, and most importantly, its radiology staff. ■

Financial and
operational
benefits aim
of new PACS
and speech
recognition
technologies

Ephraim McDowell Regional Medical Center, Danville, Kentucky, US

At Ephraim McDowell, the mission is to stay on the leading edge

The staff at Ephraim McDowell Regional Medical Center in Danville, KY knew of Picture Archiving and Communications System (PACS) technology years before implementing it internally, and how new systems would impact the bottom line. At Ephraim, keeping up with new technology is part of everyone's job. That's the best way to most effectively serve patients.

Ephraim McDowell is a 187-bed, not-for-profit hospital that practices well over a dozen diagnostic modalities and has over 50 technologists performing 70,000 procedures each year. Facility-wide IT integration, anchored by a complete PACS implementation, was a challenge they had eagerly accepted – and won.

Easing the digital transition

A major reason behind the achievement was their recognition of the value that is part of Agfa's Four-Point Guarantee, a unique and exclusive program that enables healthcare facilities to fully enter the digital world with as little financial risk as possible by eliminating prohibitive costs, resolving IT issues, and working closely with all users to ease the digital transition.

"Agfa's finance team was well aware of our goals and was able to assist us in educating our board with the advantages of the program," says Ephraim McDowell's Chief Financial Officer, John Anson. The operational commitment of the plan guarantees the uptime of the Agfa products and integration with all modalities and information systems; the clinical commitment assures the reduction of retakes and the availability of advanced diagnostic tools; the technical commitment pledges workflow efficiencies and flawless service response; and the financial commitment certifies that there will be at least a 75% reduction in hard costs and predictable operating expenses. John Anson says that all the Agfa team members involved in the process were extremely cooperative and knowledgeable.

"We have always been excited about new technology," says Robyn Pulliam, Director of Diagnostic Services.

"We continually evaluate our needs and invest in the latest technology, while at the same time benchmarking services to ensure quality."

Ephraim McDowell Medical Center, which is at the core of a regional healthcare delivery system serving 150,000 residents from six counties in central Kentucky, is the proud user of a wide suite of Agfa solutions and systems, including IMPAX (Agfa's PACS), multiple plate and single plate computed radiography readers, and TalkStation technology.

The right time for new technology

"About two years ago we felt we were at the right place to bring in PACS," recalls Mary Begley, Director of Marketing. PACS, she notes, was one of the final and most important links in bringing individual imaging modalities together with the hospital information and medical record system. "We fully expected this to positively impact our entire service area, and it started to do that almost immediately."

Staff members already had a lot of pride in EMR, its comprehensive, system-wide electronic medical record and patient documentation system. Its ability to fully access PACS via multiple interfaces increased the effectiveness of all the communications systems throughout the hospital and at all of their off-site extensions.

The radiology department is fully committed to becoming a state-of-the-art filmless and paperless environment, with significant time and cost efficiencies among the short-term goals. That's precisely why the other Agfa components, such as TalkStation speech recognition for reporting technology, have been brought into the mix.

"Certainly among the primary reasons for choosing a vendor are the quality and economic advantages their products and systems will help us realize," says Vice President of Operations, Dan Stone, who has been involved in all of the recent systems reviews and integrations. "In addition to everything else a system must deliver, it has to be able to allow us to work in a timely and economically sound fashion, and that's exactly what we've been experiencing with the Agfa's IMPAX and TalkStation solutions."

Staying informed

Technologists are sometimes hesitant to process change, Robyn Pulliam says, but at the same time they are eager to be a part of the improvements that will enable them to deliver the best possible healthcare. "In all we have over 1,100 associates hospital-wide who are advocates for our services, and they all stay as informed as possible about our current technology."

As of mid July 2005, IMPAX Web viewing training for referring physicians was completed. Approximately 100 physicians and additional office staff were successfully trained to access the system. "Overall, the response has been very positive," adds Robyn Pulliam. "Everyone is looking forward to the complete transition to a filmless environment, with softcopy viewing via the web and CD."

When Ephraim McDowell purchased Agfa's TalkStation solution, they were already maintaining national standards in turnaround time, but they were also seeking further improvements. "Once fully installed and implemented, the benefits showed up right away," Robyn Pulliam explains. "With TalkStation, the time it takes between initial dictation and signed report to be released can now be measured in minutes instead of hours." Ephraim McDowell is an extensive integrated healthcare delivery system, with components that include a wellness center, an independent and assisted living community, and outpatient rehabilitation centers. "And we're still growing," Robyn Pulliam adds. "We're always looking for opportunities to improve technology. We want to be the best. PACS and all the related products and systems provide a major strategic step toward that goal." ■

Agfa's contribution

- Enabled facility-wide conversion to digital with no financial risk
- Made it possible to set aggressive goals for a totally paperless environment
- Cut down signed-report time to the levels desired
- Helped successfully train a large number of stakeholders
- Created an infrastructure designed to embrace new technologies immediately

“In addition to everything else a system must deliver, it has to be able to allow us to work in a timely and economically sound fashion, and that's exactly what we've been experiencing with Agfa's IMPAX and TalkStation solutions.

Dan Stone, Vice President
of Operations,
Ephraim McDowell
Regional Medical Center

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We have a breadth of integrated solutions...

Big deal!

We don't want you to remember our solutions. We don't really want you to think about them. We've engineered them to be a seamless extension of your daily work. It's why we interviewed healthcare professionals worldwide before developing IMPAX Enterprise. To deliver a solution that provides users with the unique information they need, exactly the way they need it. Because the value of an integrated solution is that it connects seamlessly with your technology as well as you.



To see the breadth of Agfa's integrated solutions, visit us at RSNA 2005, Hall A, Booth 2729

Southern Ohio Medical Center, Portsmouth, Ohio, US

At SOMC, Agfa becomes RIS/PACS/Speech vendor of choice after comprehensive evaluation

Reducing report
turnaround to less
than two hours
helps SOMC
deliver better
patient care

In 1996, Southern Ohio Medical Center, a 232-bed acute-care facility in Portsmouth, decided to do something about it. They began researching Picture Archiving and Communications Systems (PACS), determined to make an informed decision that would satisfy all stakeholders. The staff eagerly welcomed an evaluation process slated to last as long as two years.

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Sometimes the processes that are already in place are believed to be the most efficient, but when we look closely at the bottlenecks that often remain from earlier days, we see that improvements can still be gained. Agfa's integrated approach was an IT solution that helped us move decisively into the 21st Century.

Luis Marquez, Administrative Director for Medical Imaging, Southern Ohio Medical Center

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“We started by looking at several vendors while exploring the kind of solutions the military was using at that time, such as homegrown DIN/PACS,” recalls Howard Stewart, RIS/PACS Administrator. “Agfa, which was among the group, had the most fully developed PACS solution, and it was ready to deploy. So, once the evaluation process was completed, the Agfa solution became our choice.”

Eliminating lost, misplaced films

In the winter of 1998, SOMC installed Agfa's IMPAX PACS architecture. One major point of satisfaction was that IMPAX accepted images from all modalities without the need to employ special interfaces. Also, physicians and technologists almost immediately noticed that imaging and reporting times were being reduced by more than half, and that radiologists were routinely reading studies virtually in real time while patients were still in the ER or ECU.

Prior to the implementation, it was not unusual for SOMC to log in large annual losses and misplacements of pre-interpretation films. After implementation, it dropped to zero.

Today, SOMC has gone even further into cost-efficient, time-efficient, state-of-the-art technology with an integrated RIS/PACS/Speech solution from Agfa. Their physicians, radiologists and technologists are very pleased with how easily full integration puts all the information they need at their fingertips, from patient history, to notes, to images. Plus, with TalkStation Speech technology, they can dictate and sign off on reports at once.

Report turnaround – from patient arrivals in Radiology to the creation of signed reports – averages less than two hours. “With voice recognition and RIS (Radiology Information System) working together, images get to the radiologists faster, they dictate their reports, do their own editing, and sign off when completed,” says Luis Marquez, Administrative Director for Medical Imaging. “We already knew the Agfa components would integrate well with each other, but we took it on faith that they would integrate well with

our own RIS, which is called Insight. We had no reason to believe otherwise because of our history with Agfa – and we weren't disappointed.”

Depending on the power of IT

The hospital, which resides in a town of 21,000 in the Ohio River Valley, has a physician staff of more than 150 and a schedule of nearly 170,000 diagnostic procedures each year. Without disregarding the value of the personal touch in growing a meaningful and thriving healthcare organization, the radiology staff at SOMC embraces IT as the engine that drives diagnostic efficiency. That, too, is why they have eagerly embraced what Agfa offers. Uptime, a key to successful diagnosis and treatment, has increased because of the integrity of the integrated systems and the diagnostic programs that connect them directly to Agfa. In fact, SOMC staffers say that it is not infrequent for Agfa to call in to say there is a minor technical problem even before they notice it themselves.

With an Agfa integrated RIS/PACS/Speech solution, SOMC stores images for its cancer center, cath lab, endoscopy suite and cardiac lab. As administrators note, it isn't only fast, accurate images they are now capturing, but revenue, as well, for the new integrated technology has made it faster to issue bills and has vastly reduced the risk of claims denial and errors.

“Sometimes the processes that are already in place are believed to be the most efficient, but when we look closely at the bottlenecks that often remain from earlier days, we see that improvements can still be gained,” Luis Marquez says. “Agfa's integrated approach was an IT solution that helped us move decisively into the 21st Century.”

While there had already been a good relationship with Agfa during a 2002 system upgrade, SOMC felt it was prudent to look at multiple vendors. “But Agfa proved, as they had before, that their package was the most rounded out. So the choice was clear. We upgraded and expanded with Agfa,” Howard Stewart says.

Getting the credit they deserve

SOMC receives accolades from patients, its own staff, its partners and vendors, and even from the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), which is the country's predominant medical association that sets standards for health care practices. SOMC has received several top honors from JCAHO. Continual updates and improvements are par for the course at SOMC. Refinements and progressions do not cause any undue stress or tension on the part of administration or medical staff, and to a great extent that is traceable to the relationship they have with Agfa, a company known to work closer with the client than any other vendor.

“Agfa sales and applications people are entirely well versed in everything there is to know, not only about their own products and systems, but also about our needs and challenges right here at Southern Ohio,” Howard Stewart says. “Reps and specialists from other vendors are good at reciting the material found in their sales brochures, but that's about it. Agfa goes beyond the brochure and right into the hospital, into every exam room, every lab, and every department.”

Information technology and compassionate treatment have taken healthcare service and efficiency into the future, and at Southern Ohio Medical Center, that future is today. ■

Agfa's contribution

- Helped cut imaging and reporting time by more than half
- Eliminated lost or misplaced pre-interpretation films
- Increased uptime in all areas of the Radiology department
- Significantly lowered risk of claims denial and errors due to fast, effective integrated technology

Integrated
imaging and
reporting solution
spanning
radiology and
cardiology
vascular, echo,
and cath labs

Greenville Hospital System seamlessly integrates Cardiology and Radiology departments with single solution from Agfa

The Greenville Hospital System (GHS) is a not-for-profit health organization affiliated with the Medical University of South Carolina and the University of South Carolina Medical School. The hospital has more than 1,100 beds and 1,000 staff physicians located on five campuses throughout Greenville County, South Carolina.

The GHS Heart Institute is well-known for its innovative and comprehensive cardiac care, and has the largest vascular disease program in the state. Annually, more than 10,000 patients choose GHS as their partner in the prevention, diagnosis, and treatment of cardiac and vascular diseases. Patients have access to a variety of invasive and non-invasive catheterization and echocardiology procedures at the Chest Pain Center and physicians use the latest ultrasound technology to perform more than 17,000 non-invasive vascular exams each year in the hospital's state-of-the-art vascular labs.

Last year, when the Catheterization department at GHS began looking for an imaging system they turned to Agfa. GHS selected Agfa because Agfa's Heartlab cardiovascular image and information management system integrated seamlessly with the hospital's existing IMPAX, Agfa's PACS (Picture Archiving and Communications System).

Single solution supports all cardiology sub-specialties

The Echocardiology and Vascular departments at GHS also became interested in the Heartlab system when they began to experience limitations with the imaging system that was in place in those departments at the time. Because the Heartlab system supports

multiple modalities, it was a single solution that could support all the hospital's cardiology sub-specialties, and it was available from a vendor with whom GHS was already familiar. According to Cindy Coffey, Manager of Non-Invasive Cardiovascular Services at GHS, the echo and vascular staff wanted to access cardiology reports and images from the main IMPAX PACS. "But our previous cardiology imaging system wasn't able to implement standardized reporting to the PACS," she explains. "We were frustrated with the lack of progress in enabling reporting."

Now, GHS is working with Agfa to implement Heartlab imaging and reporting in its cath, echo, and vascular labs. Currently, imaging has been deployed in all three labs. Structured reporting is available for echo and is in progress in the vascular lab. When the deployment is completed, GHS will be the first US facility to have a fully integrated imaging and reporting solution that spans radiology and cardiology vascular, echo, and cath labs.

Cardiology and radiology images and reports available on same workstation for more transparent workflow

With Agfa's solution clinical staff at GHS can review cardiology and radiology images and reports from the same workstation. As far as Cindy Coffey is

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We now have the ability to see the cath and vascular images at the same time, without having to go to another PC somewhere else.

Cindy Coffey,
Manager of Non-Invasive
Cardiovascular Services,
GHS Greenville

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concerned, that's the best feature of the fully integrated systems. "We now have the ability to see the cath and vascular images at the same time, without having to go to another PC somewhere else," she explains. "And, we can see a patient's radiology studies – chest X-rays and reports for example – that aren't even on the Heartlab system. It's all transparent to the users and that's invaluable." ■

Agfa's contribution

- Specialized solutions to meet needs of various hospital departments and specialties
- In-depth knowledge of workflow and hospital processes
- Fully integrated solutions maximize workflow benefits
- Ease-of-use lets clinicians utilize full potential of system
- Partnership approach facilitates sharing of knowledge and expertise

Providing
best-of breed
functionality within
an integrated
enterprise
approach



We have innovative technology...

So what?

A truly innovative solution is one you don't think about. It just works. Perfectly. In exactly the way you need. It's why we devised breakthrough technology like *DX-S*, a superior quality, yet completely mobile CR solution perfect for the diverse needs of radiology today. As you face new challenges, you require new solutions. And the most innovative solution is the one that requires no innovation from you.



To see innovative technologies that work the way you work, visit Agfa at RSNA 2005, Hall A, Booth 2729

Simplified
access to patient
and image files
gives the Institut
Claudius Regaud
a substantial
advantage

The Institut Claudius Regaud in Toulouse takes major steps toward paperless, filmless environment with Agfa's integrated RIS/PACS/EPR suite

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Agfa's RIS and PACS
solutions give the ICR
considerable advantages
with respect to the
storage of digital images,
comparison and
follow-up of images for
adjustment of the
treatment (radiotherapy),
and surgical or
endoscopic sequences.
The solutions have
allowed us to increase
the effectiveness of our
organization and the
quality of patient care

Pierre Canal,
Director of the Hospital
Informatics Department,
ICR Toulouse

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The latest objective of the partnership between the Toulouse-based Institut Claudius Regaud (ICR) and Agfa is to create a paperless, filmless working environment at the ICR by the end of 2006. As part of this major project, the Institute recently implemented Agfa's RIS/PACS/EPR (Radiology Information System/Picture Archiving and Communications System/Electronic Patient Record) suite. "The Agfa solution is truly at the heart of our work," says Pierre Canal, Director of the Hospital Informatics Department at the ICR.

The ICR is the Cancer Treatment Centre of the Midi-Pyrénées region in France. It receives around 6,000 new patients per year, 3,500 of whom have cancer. More than 30,000 patients go to the ICR for follow-up. The ICR has a staff of 700, including 70 practicing physicians. The Institut Claudius Regaud is very active in the area of training and research: 95 clinical trials are currently in progress (covering 20% of the new patients) and each year the ICR receives 500 students and trainees.

The project began in 2002, when the ICR in Toulouse, France, decided to modernize and digitize its information systems, from appointment requests to patient file management, all to be linked with image files. The choice of Agfa as a partner in this project was based on Agfa's experience and excellence in global solutions for hospital information management.

Enhanced access to information improves patient care

Agfa's RIS/PACS/EPR solution was the logical choice for the ICR, as it permits enhanced medical follow-up, contributes to faster decision-making, and allows for adjustment of treatment as a disease progresses. Comparison and follow-up are essential in treating chronic diseases such as cancer. In addition, cancer is always treated collaboratively, with consultation from a number of specialists. Agfa's solution makes medical information available "everywhere and for everyone," which speeds up and optimizes medical decision-making.

Between July, 2002 and September, 2003, the ICR implemented Agfa's RIS suite, which streamlines radiology workflow including appointment scheduling and management, management of the various modality platforms, inputting reports, follow-up of the paper file and management of the distribution of images and information via the results server.

Agfa solutions help ICR increase organizational effectiveness

IMPAX, Agfa's PACS solution, is at the core of the ICR system. Chosen by the ICR in July, 2004, IMPAX has been up and running there since November, 2004. The link between IMPAX and the new RIS is transparently established by sending worklists, as needed, as soon as the patient enters the Radiology department. "Agfa's RIS and PACS solutions give the ICR considerable advantages with respect to the storage of digital images, comparison and follow-up of images for adjustment of the treatment (radiotherapy), and surgical or endoscopic sequences. The solutions have allowed us to increase the effectiveness of our organization and the quality of patient care," says Pierre Canal.

The integration of Agfa's RIS solution was a veritable 'Big Bang' for the ICR. The initial inputting of patient data involved more than 1 million text reports and approximately 2 million laboratory results. Around 400,000 patient files and 1.3 million borrowed files were entered into the system, along with files from 25,000 internal and external physicians. The hardware architecture of the RIS solution is based on a group of six Citrix servers in load balancing mode (where users are

automatically routed to the least busy server for high network performance and availability), which serve 400 client workstation PCs and 60 small terminals.

Integration streamlines worklist process flow

The link between the administrative file and the patient file passes through the HL7 communication protocol, and the link between the RIS for managing radiology examination requests and the PACS, which sends the worklists generated by the RIS upon the patient's arrival in Radiology, is established by Agfa's PACS Broker. The PACS Broker generates the DICOM worklists, which direct the image acquisition modalities.

Many of the ICR's modalities are currently connected including X-ray, senology, nuclear medicine, radiotherapy and MRI. Digital mammography will also be connected to the PACS. The archiving of the data is done on a DVD bay with a storage capacity of 1.2 terabytes, and distribution of images and information within the ICR is managed by the WEB1000 DICOM web server.

The IMPAX BASIX server manages the distribution of the images in DICOM format to the IMPAX DS3000 diagnostic display stations and the IMPAX CS5000 clinical review stations. From there, the images can be distributed to the outside world. Results are distributed via Agfa's MediWeb results server. In late 2005 the ICR plans to implement Agfa's patient follow-up software, and in the first half of 2006, an application to input medical prescriptions. "For us, the objective is truly to arrive at the end of 2006 with a zero paper and 100% filmless working environment," says Pierre Canal. ■

Agfa's contribution

- Partnership approach most effectively supports large-scale IT projects
- Extensive experience in global solutions for healthcare
- Integration strengths and knowledge of hospital environments
- Implementation expertise facilitates 'Big Bang' implementation of RIS
- Technologies enable paperless environment and other future developments

Six hospitals
integrate common
IMPAX, Agfa's
PACS solution into
centrally-managed
patient records

Vejle County, Denmark

Agfa's answer to regional healthcare challenges speeds up patient treatment

After one year, six Vejle County hospitals have successfully integrated a common IMPAX PACS (Picture Archiving and Communications System) from Agfa into their existing Radiology Information System (RIS), creating centrally-managed radiology patient records in the central south region of Jutland. This has reduced waiting times and considerably shortened time lags to start patient treatment. "Key to the success was a carefully planned and organized rollout by a team of experts from Agfa and the hospitals," says Vejle County's Project Manager, Peter Nielsen.

Vejle County covers an area of 2,997 square kilometers (1,850 square miles) in southern Denmark, with a population of approximately 358,000. Situated on the east coast of the Jutland peninsula, Vejle County is one of the most densely populated areas outside greater Copenhagen. The six hospitals in the county are spread out over the area and perform around 257,000 radiology examinations annually, which results in about 10 terabytes of patient data per year. The six Radiology departments combined have about 200 users and the hospitals count about 4,000 clinical users altogether. Roughly 25% of patients seen in radiology are inpatients; the remaining 75% are outpatients. Approximately 50% of all patients are referrals from private physicians.

Agfa solution helps resolve operational and budget issues

"The main reasons for going digital were to save on time and cost, as well as increase operational efficiency," says Radiologist Dr. Finn Kristian Mathiesen, who is responsible for IT within the Radiology departments of two of the Jutland hospitals. "Vejle County decided to go digital five years ago, but then the government demanded that hospitals invest in new scanners for cancer therapy. The budget that was intended for digital was invested in more scanners. This caused problems with how to store and handle this additional data. A reorganization of the surgical functions in the county caused further problems with outpatients who were referred to other hospitals for operations, so all images had to be transported there."

Agfa's contribution

- A centrally-managed IMPAX PACS database solution, with distributed diagnostic and clinical rich clients
- Careful planning and organization of rollout
- Understanding the unique educational system of the hospitals, offering a Teaching Files solution
- Experience with project management, radiology procedures, process flow and technology
- Customer confidence in Agfa's top-of-the-line local staff
- Extensive staff training supporting new technology solutions
- Dramatic improvement of workflow efficiency in radiology from 18 to 7 steps

"The Agfa solution that helped us out of this situation was a centrally-managed PACS, which links all the hospitals and helps cut costs and enhance the exchange of data and examination images, both within and between the different hospitals," says Dr. Mathiesen.

Enormous workflow improvements and productivity gains with IMPAX

Dr. Mathiesen sees major benefits from integrating a centrally-managed PACS with the existing RIS. "Our workflow management and operational efficiency have improved enormously. A standard radiology examination used to involve 18 steps, from ordering the examination to receiving the result. With IMPAX, we managed to bring this back to seven steps."

The process is even more efficient thanks to speech recognition. 95% of referring physicians get results the same day of the examination, while in-house clinicians get instant access to the reports. For outpatients, throughput time from examination to report is the same day – 30 minutes for inpatients and immediately for urgent cases.

Extensive training program organized by Agfa experts

The project's implementation stage started in June 2004 and the last hospital was completed a year later. Extensive training was organized by Agfa Denmark for all of the hospitals, with a special focus on the IMPAX WEB1000 web server.

“ Our workflow management and operational efficiency have improved enormously. A standard radiology examination used to involve 18 steps, from ordering the examination to receiving the result. With IMPAX, we managed to bring this back to seven steps.

Radiologist Dr. Finn Kristian

Mathiesen, Radiologist, Vejle County

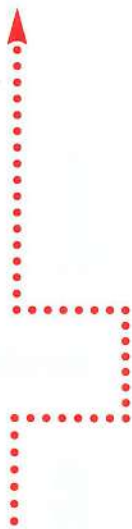
Agfa installed an IMPAX solution that was integrated with the existing RIS used by the six Vejle County hospitals. The solution is based on a centralized IMPAX database together with a Storage Area Network (SAN) archive. The integration of modalities, modality workstations, IMPAX DS3000 diagnostic display stations, IMPAX CS5000 clinical review stations and IMPAX QC3000 workstations was accomplished via a decentralized IMPAX. Distribution of study images and descriptions are handled by the IMPAX WEB1000 web server.

A separate test environment was set up in which new software versions and changes can be tested against the existing interfaces before widespread release. Another important issue for the Vejle County hospitals was an education system. To meet this need, Agfa provided Teaching Files as part of the total IMPAX solution.

Planning, organization and expertise behind successful project

"With hindsight, we believe that the critical success factor was careful planning and organization," points out Project Manager Peter Nielsen. "It was above all the expert quality of the Agfa team that helped us through the process." ■

Understanding workflow issues of healthcare specialists



Belgian hospital center increases efficiency and staff confidence with a combination of healthcare knowledge and IT expertise from Agfa

The Tournai hospital center has increased its competitiveness with the deployment of Agfa's integrated RIS/PACS solution

The Centre Hospitalier Régional du Tournaisis (CHRT), in the southwest region of Belgium, is a public facility that employs around 1,000 people. With the implementation of a RIS/PACS (Radiology Information System/Picture Archiving Communications System) solution from Agfa, the CHRT has improved the quality of its diagnoses and increased the confidence of its clinicians, who can now easily access images via the WEB1000 web server. The CHRT's radiologists appreciate the time saved and the comfort provided by the new system. "With Agfa's RIS/PACS solution, everything flows," says Dr. de Mûelenaere, Assistant Chief Radiologist at the CHRT.

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Agfa was very flexible in adapting to our methods in terms of information technology.

Jean-Louis Mapessa,
Director of IT, CHRT

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With a capacity of 406 beds, the CHRT is composed of two sites a kilometer apart, the Dorcas Clinic and the Civil Hospital. In 2003, the CHRT decided to switch to a digital workflow to meet financial and organizational constraints. The CHRT opted for Agfa's integrated RIS/PACS solution, which covers the entire medical image production chain and the administrative management of the images produced. "We wanted a complete chain that offered an integrated process. Agfa was able to provide us with that," says Dr. de Mûelenaere, Assistant Chief Radiologist.

Agfa solution strengthens links between Radiology and IT

The benefits of the integrated RIS/PACS solution are many. From a human point of view, the installation of a digital imaging system has brought together teams that previously never worked with each other. As Jean-Louis Mapessa says, "With the implementation of the RIS and the PACS, the X-ray has emerged from out of radiology and is now incorporated into the medical record. Now, the radiologists expect to work closely with the information technology department; we have become a link in the image production chain. Skills are being transferred from management to IT, and we are witnessing a real increase in skills."

On an operational and organizational level, the RIS has enabled time savings and increased availability for the radiologists and their secretaries, which results in better diagnoses. "Agfa's CR (Computed Radiography) and IMPAX PACS make the images highly available, which means we can improve the quality of diagnoses. It's a huge qualitative leap; the clinicians' confidence has increased, and they are making very positive comments," says Dr. de Mûelenaere. "With the digital archiving offered by IMPAX, the images from previous examinations are always available. As you can go further back and compare images, the quality of the diagnosis is better."

Preliminary research and knowledgeable project team streamline implementation process

A team was formed to manage the project, headed jointly by an Agfa project leader, an operational leader from the CHRT representing radiologists, and a technical project leader representing the IT department; project deployment commenced in 2004. According to the project team, the process of defining the image production workflow, prior to the installation of an end-to-end digital solution, wouldn't have succeeded without the in-depth involvement of the IT department in the management of the project. "Agfa was very flexible in adapting to our methods in terms of information technology," emphasizes Jean-Louis Mapessa, Director of IT.

The CHRT digitized its image production in less than one year. With the exception of mammography and surgery, which still use film, the CHRT has become a filmless, paperless facility, and patients are given a CD-ROM of their study if required.

A transformation in hospital information technology

The CHRT switched to digital radiography with Agfa's CR system, before connecting all modalities to an IMPAX solution. Now, studies are interpreted on seven DS3000 diagnostic display stations distributed throughout the Radiology departments at the two sites, and consultation by clinicians takes place using the IMPAX WEB1000 web server, which makes images and information available via web browser.

A storage and archiving network was installed to hold the digital archives and make them accessible online. "Before, information technology was secondary, confined to niche administrative use, now, information technology is part of the hospital's work," says Jean-Louis Mapessa.

Integrated approach delivers increased throughput

On a quantitative level, the Radiology department's throughput has increased by 20% in two years. "Because of the time saved with Agfa's RIS and PACS, we can carry out more examinations and are therefore more cost-effective," says Dr. de Mûelenaere. As for future developments, Jean-Louis Mapessa has plans: "We're going to embark on a new project next year – telemedicine – opening the PACS and RIS up to the outside." ■

Agfa's contribution

- Strong project management skills streamline system design and implementation
- Focus on workflow and in-house processes results in truly customized solution
- Consensus approach ties together needs of all hospital groups
- Expert local staff with in-depth understanding of technology and needs of healthcare environment
- Able to transfer knowledge and expertise at all levels of training, through all project stages
- Proven technology and solutions thanks to long history supporting healthcare
- Enhanced image access improves diagnoses and clinicians' confidence

Sint Maartens Hospital aims at growth in orthopaedics with support of Agfa's IMPAX solution

Sint Maartens Hospital in Nijmegen is widely considered one of Europe's leading orthopaedic centers. Its radiology and clinical staff, who are specialists in the musculoskeletal system, can now quickly and easily access images throughout the hospital, thanks to IMPAX, Agfa's Picture Archiving and Communications Systems (PACS). Orthopaedic surgeons have also found a new way to achieve exceptional precision and patient trust in restoring movement to their patients with IMPAX for Orthopaedics.

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With IMPAX, it is far easier for our orthopaedic specialists to consult us from their offices. We can share images on-screen, and discuss how to interpret certain aspects of the images and the therapeutic path.

Dr. Marina Obradov,
Chief Radiologist,
Sint Maartens Hospital

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Sint Maartens Hospital has three primary specialties: orthopaedics, rheumatology and rehabilitation techniques. The hospital has over 300 beds, capacity for 400 outpatients and an extensive outpatient clinic. The clinic has its own research department; research findings are used to develop new treatment methods. The hospital also serves as a teaching center.

Going digital with Agfa's expertise

“We don't think radiology, we think musculoskeletal radiology,” says Dr. Marina Obradov, Chief Radiologist at Sint Maartens Hospital. “To take radiology digital meant taking the hospital digital. When we wanted to take radiology digital, we created a steering committee with representatives from all functional departments and management to study all aspects of the plan.”

The hospital's plan included the installation of IMPAX, IMPAX for Orthopaedics (which features preoperative planning using digital implant templates in addition to image management), IMPAX for web-based distribution of images, Agfa's RIS (Radiology Information System) with integrated speech recognition, and investment in new digital modalities (a Computed Radiography X-ray room and a Digital Radiography X-ray room). Today, IMPAX stores images from conventional radiology, MRI, CT, ultrasound, invasive and therapeutic radiological procedures such as NACD (Needle Aspiration of Calcific Deposit), N.E.P. (Percutaneous Nettoyage Epicondylitis) and different arthrographies.

Well-planned rollout focuses on clinicians' needs

J. van Aalten, Coordinator I-Cluster at Sint Maartens Hospital, managed the IT side of the digitization process. Meeting the clinicians' needs was a major focus during the program's rollout. “The network serves some 830 workplaces and we didn't want bottlenecks anywhere. So we upgraded the existing network with a fiber backbone and Fast Ethernet to the desktop,” she says. “The Orthopaedics department wanted patients to get results the same day, so we ensured that images transferred over the network took only seconds to appear on the orthopaedic surgeon's

screen. The report is released only when it has been authorized by Radiology. And referring physicians receive their patients' reports within 24 hours after the exam.”

The Sint Maartens Hospital elected to go with standards-based solutions, anticipating that this would simplify coordination and optimize control. According to J. van Aalten, Agfa's tradition of standards-based solutions, delivered on a hospital-wide basis, made the company a strong partner for Sint Maartens Hospital.

IMPAX delivers speed and efficiency benefits hospital-wide

With IMPAX in place, Dr. Obradov sees many advantages in terms of efficiency, quality of service and above all, speed. “It is far easier for our orthopaedic specialists to consult us from their offices. We can share images on-screen, and discuss how to interpret certain aspects of the images and the therapeutic path.”

Orthopaedic surgeon Dr. M. Spruit, Chief, department of Orthopaedics, agrees. “With the reduced waiting times at Radiology, patients are helped quickly and the time lapse between the examination and availability of examination results has been drastically reduced. I can access images through the IMPAX even before the patient returns to me.”

IMPAX has eliminated significant administrative effort and patient records

are easily retrieved, says Dr. Spruit. “We can work smoothly in the outpatient clinic with direct access to images on the IMPAX server. We can walk into the office of a colleague and quickly discuss a patient, retrieving the images on the desktop PC,” he says.

Orthopaedic surgeons particularly like the features in IMPAX for Orthopaedics that help them plan operations. IMPAX for Orthopaedics offers specific tools for the different sub-specialties within the Orthopaedic department: osteotomy, hip, knee, foot, shoulder, elbow and hand. The system easily completes complex measurements, calculations and drawings with minimal user interaction. With the advanced templating function, digital templates selected from a wide range of vendor offerings can be overlaid on the digital image, allowing surgeons to choose the implant that best fits the patient.

Streamlined workflow leads to increased staff efficiency

The availability of images throughout the hospital has resulted in a more effective way of working. In part, this is because all patient information can be accessed at any time. Every Monday morning, Dr. Spruit reviews the weekend activities of his department. “In the analog world, I used to get a book with all the images inside, as soon as the staff could provide me with it. Now, I come early to the office and have a quick overview of all weekend events without anyone's assistance. It takes me 5 to 10 minutes to get updated,” he says. ■

Agfa's contribution

- Broad range of technology solutions address needs of various departments
- Workflow experts understand workflow from both enterprise and department point-of-view
- Strong project management team ensures smooth implementation process
- In-depth knowledge of IT needs and environment supports in-hospital IT objectives and teams
- Knowledgeable local personnel backed by global network of expertise

We are a single vendor for Radiology IT...

Who isn't?

Many companies claim to be a single source for healthcare IT. But are they the solutions you want? The ones you need? At Agfa, we own all of the underlying technology driving Radiology. RIS. PACS. Speech. And, our solutions integrate into one seamless workflow, from the referring physician's office to the hospital IT infrastructure, and back again. What are the benefits? Single sign-on. One user interface. Persona-Based Workflow. Automated Worklists. One source of support. And hey, only one phone number to remember.



To see the benefits of Integrated Technology and Integrated Workflow, visit Agfa at RSNA 2005, Hall A, Booth 2729

Ausl 2 hospital group, Umbria, Italy

Agfa's healthcare IT solutions meet teleradiology needs of Umbrian hospitals

In June 2005, the Ausl 2 hospital group in Umbria, Italy, launched a teleradiology network in collaboration with Agfa, which supplied all of the technologies for the digital acquisition of images and the management of images on the network. The network, based on Agfa's RIS/PACS (Radiology Information System/Picture Archiving Communications System) and CR (Computed Radiography) solution, uses local Umbrian networks for telecommunications, and mammography systems in place at the hospital sites.

The Ausl 2 hospital group serves a population of about 340,000 inhabitants in the largest area of the Umbria region. It has a total staff of about 2,000 employees with over 500 doctors operating within the service. The area served, equivalent to 2,500 square kilometers (1,500 square miles), includes the Perugia hospital and five other hospitals functionally grouped under the Unified Hospital Facilities, where 175 doctors work and an average of about 20,000 patients are admitted every year. The Second-Level Rehabilitation Center in Passignano and two outpatient radiology services, one of which is entirely dedicated to breast diagnosis, work in close collaboration with these sites.

Perfectly integrated with Umbrian telecommunications networks

The wide area networks of Umbria AsNet and ComNet, which connect the hospital facilities in the area with the diagnostic neuroradiology center operating in the hospital of Terni, act as a backbone for Agfa's Elefante.Net RIS and IMPAX WEB1000 applications, which carry diagnostic images and data throughout the network. "Agfa's RIS and PACS have integrated perfectly with our telecommunications tools," explains Alfiero Ortali, Information and Data Communications Technologies Staff Manager, Ausl 2.

Reliability and efficiency give users full confidence in system

Agfa's solutions ensure efficiency along the digital channel as well as absolute reliability as to the quality of the images sent. "We have carried out numerous tests on the conformance of the quality of the radiological image on departure and on arrival at the DS3000 diagnostic display stations," explains Dr. Fausto Chionne, Manager of the Physical Health Staff Unit at Ausl 2. "The solution has been found to be extremely reliable."

In a maximum time of thirty minutes, the radiological images travel from the network to the neuroradiology center in Terni, where reports are drawn up and sent back to the local doctors, without having to move the patient until the correct diagnosis has been made. General practitioners, connected in VPN mode over the Internet to the central

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What I have appreciated most of all is Agfa's willingness to move in new directions, sharing the difficulties and solutions developed with us, step by step.

Dr. Amedeo Antoniella,

Head of the Diagnostic Imaging Department, Ausl 2

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server, may also consult the digital radiological reports and images of their patients on the screens of their office PCs.

The entire workflow of this major system is digital. The five hospitals of Assisi, Marsciano, Todi, Città della Pieve, Castiglione del Lago and the Rehabilitation Center of Passignano have, in all, two DR Mammography systems for direct computerized mammography, five Agfa CR solutions and three CT scanners. Each site connected to the network has an independent IMPAX solution with a server that saves the scans in DICOM format and sends a copy of them, when required, to the neuroradiology center in Terni. Image review takes place on IMPAX DS3000 diagnostic display stations, and images can be accessed via a web browser in the IMPAX WEB1000 web server.

Project team developed digital signature to give reports legal value

In Italy, there is currently no legislation in place governing the use of remote diagnostic imaging tools. The Ausl 2 project team had to identify and resolve the related legal challenges as they moved forward. "Due to the flexibility

of the solution offered by Agfa, our specialists can use the digital signature, to give the reports legal value," says Dr. Chionne. All radiologists who log on to the network have a Smart Card, the size of a credit card, containing a microchip, which matches the identity of the radiologist with the report sent on the network.

Benefits to expand

In its first four months of activity, from June to September 2005, the Ausl 2 teleradiology service has been used to successfully report on over 200 CT scans of the head and more than 50 traditional radiological examinations. These numbers are bound to increase with the introduction of an assistance service throughout the weekends, which will be provided through a more efficient use of the professional resources distributed across the area served by the network. The health managers of Umbria also intend to develop mammographic screening across the area for the prevention of breast cancer, by connecting the Agfa mammography systems in place at the hospitals to the digital radiodiagnosis unit in Perugia where four mammographic specialists work full time. ■

Agfa's contribution

- Answering hospital challenges with new technological approaches, such as supporting digital signatures to address legal issues, or managing VPN connections for GPs
- Provide a completely digital radiology workflow with integrated CR/RIS/PACS solutions
- Integrate healthcare IT solutions with existing IT and telecom infrastructure
- Test reliability in the field and assure conformity with hospital standards
- Project management strengths ensure success of large-scale, high-profile project

Offering large healthcare IT knowledge – technical experience

Turkish opinion
leader in radiology
and mammography
chooses Agfa for
“best in class”
solutions

Professor Dr. Çelik has his eye on radiology standards in Turkey

Professor Dr. Levent Çelik of the department of Radiology at the Turkish Maltepe University School of Medicine in Istanbul, is convinced that Computed Radiography (CR)-based mammography is the key to bringing Turkish mammography practices in line with European standards. As a consultant and a professor in radiology, he advises Turkey's hospitals on their approaches to going digital. His particular focus is digital mammography, for which he relies on Agfa's CR Mammography solution.

Professor Dr. Çelik is recognized for his thorough approach to radiology issues in a developing country with a fast-growing healthcare economy. Along with his forthright views on the needs of the Turkish economy, and the development requirements of his hometown, Istanbul, he's candid about his business ambitions. After he obtained his medical degree at the Istanbul University School of Medicine, he also acquired a degree in Business Administration. In his approach, Professor Dr. Çelik focuses on both business and healthcare. He has become one of the foremost radiology consultants within the Turkish hospital world, and his private practice has been recognized as a leading competence center for mammography and breast MRI by hospitals as well as the Turkish authorities.

Shortly after obtaining his BA 15 years ago, Professor Dr. Çelik took over the Euromed imaging center, and expanded the business with another imaging site on Bagdad Street. A new imaging center, focusing on maternity, also opened recently. Combined, Professor Dr. Çelik's imaging sites conduct some 15,000 MRI exams, 7,000 CR mammography exams and 9,000 CT scan examinations per year, and he employs seven radiologists.

CR offers technical, clinical and business advantages

Professor Dr. Çelik advocates CR as the best way to leverage the breast care needs of Turkish women with the need for higher mammography quality standards. In his capacity as a consultant to hospitals, he unfailingly recommends CR solutions. Conducting his own field research, Professor Dr. Çelik has compared examinations carried out with conventional film/screen technology, CR and Direct Radiography (DR). “I make phantom comparisons between analog film/screen and CR, and usually CR scores better. When I buy a new system, or advise a hospital, I check out phantoms first. CR is usually better in normal conditions, with the same dose.”

The results of Professor Dr. Çelik's research show the quality improvements related to the use of CR technology compared to film/screen imaging.

“Aside from all technical and clinical observations, I see the main business advantage of CR compared to DR is its low implementation threshold,” says Professor Dr. Çelik. “Small imaging centers can go to CR in one day. As a radiologist, it is my belief that CR is inevitable, but you have to be able to change all modalities and work environments to digital at once: mammography, dental, thorax, ER, as well as bedside radiology. It also eliminates the need for space to store image files. Further savings on time and film cost are gained with much lower retake or rejection rates.”

Agfa Mammography solution delivers impressive results

At the Euromed clinic, Professor Dr. Çelik has installed Agfa's complete CR solution and the Agfa CR Mammography solution, including the CR 25.0 digitizer and the DRYSTAR 4500M imager, along with the QS mammography software. The Agfa CR Mammography solution, says Professor Dr. Çelik, provides significant enhancements to conventional film/screen solutions. “Particularly in the areas of detection of masses, lesion detail of masses, tissue visibility at skin line and the overall density impression, the solution is impressive. Even looking at microcalcifications, I feel that the solution is sufficiently elaborate, if you work on a completely balanced system.”

From his experiences with his own practice and consulting with hospitals moving from analog to digital, Professor Dr. Çelik sees some key success factors on the path to digital radiology. He views the digital dimension as a step from evidence-based to patient-information-based healthcare, which requires a strong archiving policy. Once the archiving is in place, the hospital can start fine-tuning its workflow. The growth path to digital radiology or mammography requires a two-tiered approach, explains Professor Dr. Çelik. “In Turkey, with a strong tradition of classic film/screen technology, we first need to encourage softcopy comparing of exams, because comparing digital images is part of the essential learning curve to improve the radiologist's confidence level. Only after this step can softcopy reporting as such be promoted.” ■

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In the past, vendors were box movers, now they want to be IT companies, offering a consultant-like approach. Agfa leads the field in this positioning effort.

Professor Dr. Levent Çelik,
department of Radiology,
School of Medicine
Maltepe University

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Agfa's contribution

- Understand business and operational implications of technologies as well as impact on patient outcomes
- In-depth understanding of mammography requirements and processes
- Industry-leading CR solutions
- Experience helping customers enter digital world at right pace
- Extensive knowledge of storage and workflow issues
- Strong local team provides comprehensive support

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The Evangelische
Diakoniewerk
Friederikenstift in
Hanover meets
challenges with
ORBIS Hospital
Information System
(HIS) from Agfa

A global IT solution means greater transparency and efficiency for busy German hospital

As the legal framework in Germany changes and the European health market becomes more integrated, German hospitals have to find new ways to achieve and consolidate their medical and financial objectives. For the Friederikenstift hospital in Hanover, the answer was the implementation of an innovative IT solution from Agfa that streamlined processes and maximized resources hospital-wide.

The Friederikenstift hospital, with 600 beds and more than 1,200 employees, decided to integrate the ORBIS HIS from Agfa to streamline day-to-day activities throughout the hospital, with software modules for all parts of the institution. Additionally, the impending implementation of Germany's new DRG legislation (Diagnosis-Related Group system for calculating hospital reimbursement) meant that the hospital needed a comprehensive information system that would allow processes to be planned and controlled.

Integration and customization key to satisfied users

The system was deployed in June 2001, following intensive preparation by the hospital's project team in collaboration with Agfa's project team. Four years later, the Friederikenstift hospital is more than happy with the result: 900 users now benefit from a range of individual applications, customized by department and integrated with the global ORBIS IT solution.

Faster workflow and online access to images

The aim of hospital management was to convert all findings into electronic form, so that all departments could be moved to the new system. This has already happened in Radiology. Once radiology reports were available on a distributed basis, processes became significantly faster. The opportunity for interdepartmental reviews of all findings represents a further quality improvement. In future, speech recognition will simplify and accelerate processes even further.

In Endoscopy, records can also be filed online. This has long-term benefits in terms of integrated image processing: the report is much more useful to the treating doctor and the process also saves a great deal of time.

Optimized appointment planning – benefits for operating theater and patients

The electronic appointment calendar for operating theater planning provides

vastly improved transparency for the Friederikenstift hospital. All operating theater bookings, which are coordinated by the consultant anaesthetist, are constantly updated and can be viewed by relevant employees online at any time.

Hans-Ulrich Graf, IT Manager at the hospital, explains: "We've been particularly pleased with one benefit: we can now perform all operations during normal working hours. Our staff no longer need to work overtime." He adds: "But we don't just use the appointment calendar for the operating theater. We also manage appointments electronically on an interdepartmental basis. The patient's appointment calendar can be viewed and edited by 15 departments, from admission to discharge. The resulting transparency improves the efficiency of the processes and enhances the experience of our patients."

From the start, the planning process took account of the fact that the Friederikenstift hospital treats a large number of patients insured under occupational programs. "That is why we developed a special module for managing external assessors, allowing us to handle the issues in a transparent and efficient way. Today, these complex matters are handled electronically, and the users are particularly appreciative," says Hans-Ulrich Graf.

The software-supported solution in controlling has been a similar success, especially now that cost center accounting is in operation. In financial accounting, materials management and purchasing, all data is instantly accessible, and forms the basis of dedicated analyses for monitoring and further planning.

Next step: adding mobile applications

The Friederikenstift hospital is combining its ORBIS HIS with a wireless network. This means that a VPN (Virtual Private Network) can be used, for example, to integrate external typing pools

for doctor's letters. In nursing, activities are entered using the ORBIS Nursing Documentation module, and the installed wireless network is used for mobile data capture. "We want to increase our use of the wireless network to make processes more and more mobile. This year we have signed our first contracts relating to integrated care. We want to use the contracts to involve external service providers, such as non-hospital doctors," says Hans-Ulrich Graf. ■

Agfa's contribution

- Optimize existing processes
- Careful preparation for a smooth, seamless implementation
- Employees benefit from individual applications, customized by department and integrated with the global IT solution
- Long-term benefits in terms of integrated image processing
- Transparency of the solution improves the efficiency of hospital processes and enhances the experience of patients

Leading German hospital group supports growing complexity with Agfa's best-of-breed healthcare IT solutions

IMPAX PACS and ORBIS EPR play central role in large-scale digitization project

January 1, 1994 marked the establishment of one of the largest joint hospital associations in Germany: the Kliniken Ludwigsburg-Bietigheim gGmbH.

The organization includes the Ludwigsburg hospital center, the hospitals of Bietigheim, Marbach and Vaihingen, and the Clinic for Geriatric Rehabilitation in Ludwigsburg. These institutions combined have over 1,770 beds and care for almost 57,000 inpatients and approximately 60,000 outpatients each year. This gGmbH (a non-profit corporation with limited liability) has almost 4,000 employees.

The largest hospital in the group is the Ludwigsburg hospital center, with 1,100 beds. It's a center for full-level care, composed of 12 clinics, five departments and four institutes, and covers about 500,000 people in the Ludwigsburg administrative district. One of its main focus areas is neurology, and it has neurosurgery and neuroradiology units. The stroke unit, with eight beds, provides care for stroke patients, from initial diagnosis and emergency treatment to rehabilitation.

Digitization only way to meet growing requirements

"An economic analysis contracted in 1996 showed that Radiology at the Ludwigsburg hospital center had to be modernized with respect to design and technology, and also had to be digitized," says Edwin Beckert, CEO of Kliniken Ludwigsburg-Bietigheim gGmbH. "This was the only way that our growing requirements could be met."

To ensure the smooth progression of this large-scale digitization effort, the hospital initiated the 'Radiology 2000' project, which involved a total investment of 7.6 million euros/\$9 million USD. Of this, 2.2 million euros/\$2.6 million USD were allocated to a PACS (Picture Archiving and Communications Systems). "From the start, we did not see PACS as a project just for Radiology, but as a hospital wide project that would replace all X-ray images," says Jürgen Gramatzki, Director of the hospital's Electronic Data Processing (EDP) department and Planning.

Agfa solutions selected for central role in 'Radiology 2000'

All stakeholders were represented on the project committee, including management, EDP, Radiology and the clinical areas. This team was responsible for vendor selection and other key decisions. In addition to the cost of the system, the stability and experience of the vendor were decisive factors in the selection. In November 2000, the committee made the decision to go with Agfa. The implementation took

four months, and was followed by intensive staff training. By spring 2001, 85% of X-ray images taken were being digitally processed and managed. This is a significant number, given the approximately 100,000 radiological examinations conducted at the hospital each year. The hospital has been working without X-ray film since 2002.

Increased efficiency and reduction in costs

Waiting times have decreased and therapeutic measures can now be introduced more rapidly. "Since we can access the entire case history of a patient at any time, diagnosis becomes more accurate and the quality of patient care is increased," says Assistant Professor Dr. Wilhelm Kersjes, Chief Consultant of the Institute for Diagnostic and Interventional Radiology. Additionally, the elimination of film development and conventional archiving also means cost savings.

ORBIS EPR streamlines workflow further

At an early stage in the project the committee decided to proceed to further digitization and move to an Electronic Patient Record (EPR). "There was no future in having a large number of unconsolidated administrative and clinical subsystems," says Olav Jans, Project Manager. Today, all doctors, nurses and members of the administration can access all information about a patient at any time. With the help of the patient pathways in ORBIS, Agfa's Electronic Patient Record solution, the entire course of treatment – from admission through investigation, diagnosis and treatment up to the discharge report – is transparent. The clinicians in particular benefit from the integration of IMPAX into the communication of work orders within ORBIS. This means that patient-specific X-ray images can be called up from the EPR directly into the PACS.

Specialized workflow benefits of IMPAX extended to Orthopaedics

The digitization of the Ludwigsburg hospital center included the implementation of IMPAX for

Orthopaedics, which gives Orthopaedics departments improved access to digital images, flexibility in sharing information and an optimized office workflow. The Clinic for Accident, Hand and Restorative Surgery at the Ludwigsburg hospital center carries out approximately 2,700 operations each year. Endoprosthetics is another focus of the Clinic's work. In total, the Clinic for Accident, Hand and Restorative Surgery treats almost 20,000 outpatient accidents and approximately 8,000 returning outpatients annually.

Dr. Scriba, a Senior Physician at the Clinic for Accident, Hand and Restorative Surgery, is an enthusiastic advocate of the digital solution for orthopaedics. "When we were selecting the system, ease-of-use and an intuitive user interface were the decisive criteria. The IMPAX solution from Agfa met these requirements most precisely." Other systems with various function ranges existed, but they were considerably more expensive to run. "The more unnecessary functions that are at the surgeon's disposal, the more the surgeon is distracted

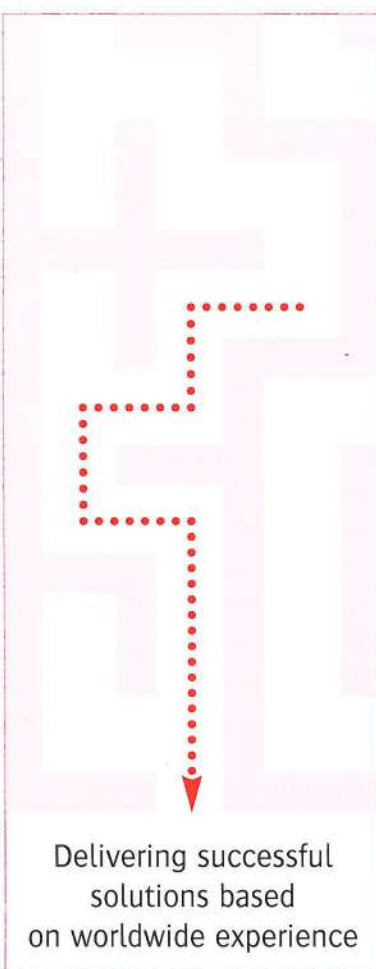
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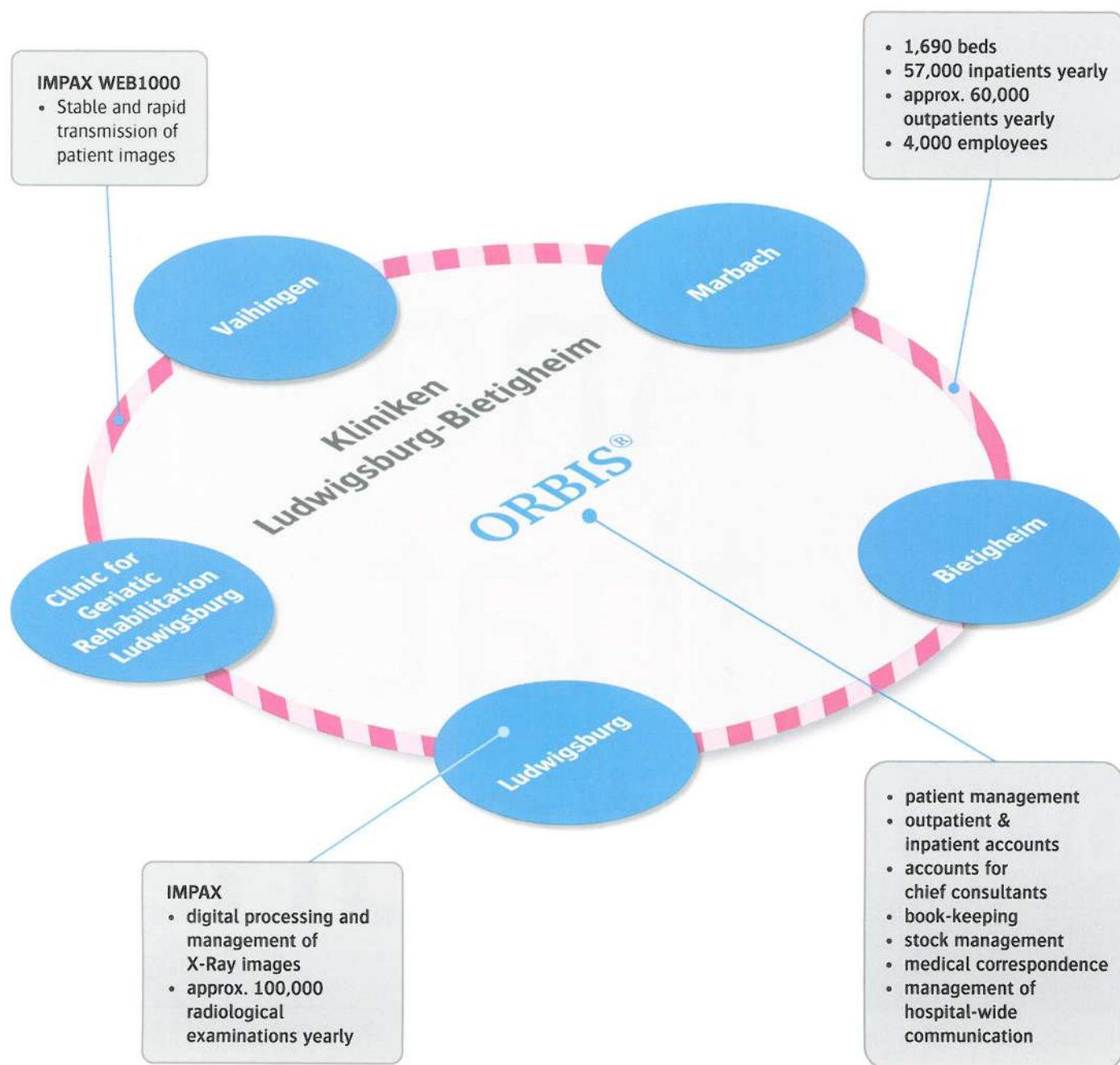
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Kliniken Ludwigsburg-Bietigheim

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Dr. Scriba, Senior Physician at the Clinic for Accident, Hand and Restorative Surgery

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and planning then takes too much time,” says Dr. Scriba.

Since 2003, all 15 staff members at the Clinic for Accident, Hand and Restorative Surgery have been working with the new solution. The six IMPAX OT3000 workstations currently in operation using the orthopaedic surgical planning software that is integrated in the IMPAX OT3000 workstations, play a key role in this process. The resulting surgical plans and patient images can then be accessed over the WEB1000 web server image distribution system. MediCAD, the orthopaedic surgical planning software from Hectec integrated in the IMPAX OT3000 workstations provides all required prosthetics templates and ensures an automatic 1:1 representation of the images on the monitor.

“After one-and-a-half years, we are seeing significant benefits to orthopaedics from IMPAX. We are simply providing a higher level of quality. Planning is substantially more accurate and rapid, and sources of error are eliminated,” says Dr. Scriba. A further key factor is the time saved. “While we used to need 25 minutes for conventional template planning, the Agfa system now lets us do the same task in 10 minutes,” says Dr. Scriba.

The financial advantages for orthopaedics are evident too.

The crucial cost factor, however, is the surgical time saved. More accurate planning allows certain operations to be carried out in half the time, and the number of complications has fallen dramatically. Taken together, these benefits deliver higher levels of both patient and employee satisfaction.

Centralized archiving at Ludwigsburg hospital center

All data is stored in a central archive at the Ludwigsburg hospital center. Images are sent to the hospital in Bietigheim, about ten kilometers (six miles) away, at a transmission rate of 155 Mbit/s via a fiber optic connection. In addition, the images of patients at Bietigheim are stored for the period of their stay and for some weeks afterwards in that

hospital’s own short-term archive. Via the IMPAX WEB1000 web server system, the studies can be accessed at any time on any of 21 workstations and can also be viewed on each standard PC in the network.

Agfa’s IT solutions contribute to better patient care and more efficient management

Both IMPAX and ORBIS are now deeply integrated into the clinical routine. “Over the past few years, downtime has been continually shortened and the number of cases has been increased while numbers of beds and employees have fallen. This is only possible with highly functional software that provides optimal support to in-house processes,” says Edwin Beckert. ■

Agfa’s contribution

- Stability and experience
- Intensive staff training
- Managing complexity with strong project management and process planning
- Gradual integration of hospital-wide and departmental solutions
- Best-of-breed solutions with Agfa’s ORBIS EPR, IMPAX PACS, IMPAX for Orthopaedics
- Highly-functional solutions that provide optimal support to in-house processes

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