Prof. Martine Rémy-Jardin from Lille in acute pulmonary embolism are still left wondering how best to manage patients who are clot-free, but have a positive diagnosis of acute pulmonary embolism (PE), or assert a negative result for PE. In fact, the quality of data generated from the PIOPED II study, published in 2006, reported a high specificity for PE should go straight to MDCT, without D-dimer testing. Any clots picked up on the scan should be treated. But if no emboli are found on CT, then another diagnostic test will be needed. Which test that should be used remains a matter for debate.

The quality of data generated from latest-generation CT scanners poses another dilemma, noted Prof. Martine Rémy-Jardin, head of the thoracic imaging department at the Hopital Calmette, University Center of Lille, France. Exactly what should radiologists do with all of this information? Some patients with acute PE who also have right ventricular dysfunction may benefit from more aggressive treatments, such as fibrinolysis or embolectomy. It may therefore be helpful to evaluate cardiac function as well as the morphology of pulmonary arteries. Both should be assessed now, the radiation burden is probably unjustified, she said.

Prof. Arnaud Perrier, head of general interventional cardiology in the Netherlands told attendees at Friday's multidetector CT course. “Keep in mind that cardiac perfusion technology are advancing fast, but the rest is stable.”

Prokop advised purchasers of CT scanners to ask themselves four questions: What are my main indications? Do I need full cardiac capabilities now? When will I be able to acquire my next scanner? Is upgrading an option? The answers to these questions will determine the best acquisition.

Choosing the right CT unit

Sixty-four-slice CT is a wise choice for radiology departments with a substantial volume of cardiac examinations, but still represents only an intermediate solution to a ‘one-shot cardiac CT’, according to a leading European expert.

“IVA massive technology race lies ahead, and today’s scanners will be outdated tomorrow,” Prof. Matthias Prokop from Ulm University Medical Center in the Netherlands told attendees at Friday’s multidetector CT course. “Keep in mind that cardiac perfusion technology are advancing fast, but the rest is stable.”

Prokop advised purchasers of CT scanners to ask themselves four questions: What are my main indications? Do I need full cardiac capabilities now? When will I be able to acquire my next scanner? Is upgrading an option? The answers to these questions will determine the best acquisition.

Prof. Matthias Prokop from Ulm University

Satellite Symposium ECR 2007

Practical and clinical aspects of MRI without contrast

Saturday, March 10, 2007

Venue: Vienna Austria Center

Room E1, Level OE

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Inside Today

- Now body tackles MRI nightmare
- Detection of prostate cancer
- Gold Medalists and Honorary Members
- EPOS proves popular

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By Paula Gould

Could legislation designed to protect workers’ health and safety put a stop to MR? That’s the nightmare scenario that radiologists working in the European Union are waking up to right now.

EU countries have until April 2008 to implement the Physical Agents Directive 2004/40/EC (EMF), which places limits on workers’ short-term exposure to electromagnetic fields. Those that turn the Directive into law may inadvertently make it illegal to perform an MRI examination.

Faced with this threat, the European Society of Radiology (ESR) has joined with European parliamentarians, patient groups, and leading European scientists and medical specialists to try to avert this looming threat to radiology. The result – the Alliance for MRI – was unveiled yesterday at the ECR.

Enforcement of the limits set out in the Directive could affect up to eight million MRI examinations performed annually in the EU, said Prof. Gabriel Kersten, professor of radiology and Erasmus MC, University Medical Centre Rotterdam, the Netherlands. Action taken in good faith to protect Europe’s workforce could end up harming EU citizens who might otherwise benefit from MRI.

“None of us really realised that something so crazy could actually happen. We just could not believe it,” he said.

The Directive imposes strict maximum values on workers’ exposure to electromagnetic radiation at frequencies up to 300 GHz. The values are based on data that the Alliance believes to be ‘hypothetical and incomplete’.

Thresholds set for exposure to gamma radiation have been set so low that interventional MRI procedures, where personnel lean inside the scanner bore, would become illegal outright. No maximum limits have been set on exposure to static fields. However, individuals moving within the stray field of a strong magnet could still breach the limits on exposure to time-varying fields, Kersten said.

“Every worker who accompanies the patient to the scanner, places the patient on the table, or injects contrast during an examination will be exposed to changing magnetic fields that exceed the limits described in the Directive. So in effect, all MRI examinations will be affected,” he said.

MRI can be the difference between life and death, said Inge Meulenbergs, representative of the European Federation of Neurological Associations (EFNA). Meulenbergs was herself diagnosed as having a brain tumour three years ago. MRI and functional MRI showed surgeons how to remove the tumour safely.

“If I had known how valuable MRI could be, I would never have used anything else,” she said.

MRI was one of the main treatments she received.

Meulenbergs was Became the EFNA’s first published member in 1995. Since then, MRI has increased its importance in the treatment of neurological diseases. As a result, the use of MRI has increased significantly.

The European Parliament, however, will not allow MRI to be used to treat neurological diseases. Instead, it will allow MRI to be used only for the diagnosis of neurological diseases.

“This is a threat to the health of all Europeans,” said Dr. Hannes Swoboda, MEP.

The Alliance wants the European Commission to inform member states how the Directive will affect MRI services, and to request that they delay implementation until the Commission’s impact assessment is complete (due in October 2007). Alliances members are also lobbying for a last-minute derogation for MRI.

Achieving these aims may not be easy, but doing so will be essential, said Dr. Hannes Swoboda, Member of the European Parliament.

“The lives of vulnerable patients, such as children and the elderly, should not be put at risk due to heavy-handed EU legislation. We do not want to find ourselves in a situation where, as the result of legislation, the medical profession is forced to revert to the use of x-rays,” he said.

By Frances Rylands-Monk

New ultrasound techniques are improving prostate cancer detection, grading, and staging, and are useful in men presenting with an elevated PSA. They offer therapeutic strategies and may avoid the need for prostatectomy, and in the future surgery may not be the only treatment choice, according to speakers at Friday’s special focus session about imaging in patients with elevated prostate specific antigen (PSA) levels.

Using real-time elastography, tissues can be compressed by a probe to measure their stiffness. Studies reveal that real-time-sonoelastography-targeted biopsy in a patient with cancer in 2.8 times more likely to reveal prostate cancer than traditional ultrasound-guided biopsy.

Elastography is not only a detector of prostate cancer, but also shows potential as a stage of the disease. While some questions remain about its limitations in terms of cost, training, and potential delivery of false-positive results related to medication or prostatectomy, the technique looks set to become another standard technique requested of the radiologist by the clinician.

Part of the battle is detection of the cancer, according to Dr. Ferdinand Frauscher from the Medical University of Innsbruck, Austria. Grey-scale ultrasound provides useful information on the anatomy and morphology of the prostate, and high differentiation between the peripheral zone and the inner gland. In the early 1980s, hypoechoic nodules were seen as the main presentation of prostate cancer, but up to 30% of all prostate cancers are isoechoic.

He estimates that hypoechoic nodules have a 17% to 37% chance of being identified as prostate cancer, though since the discovery of PSA this percentage is reported to be as low as 9%. Grey-scale US remains a key tool for guiding biopsies (the current standard of care for prostate cancer detection) and other interventions, but misses a number of clinically relevant cancers due to its relatively low sensitivity and specificity. New methods, however, can dramatically improve diagnosis and grading, according to Frauscher. Besides elastography, contrast-enhanced colour Doppler lends weight to staging due to its ability to demonstrate vascularity.

While vascular pattern demonstrated by colour Doppler flow detects advanced disease, a considerable number of cancers are missed even with high-end Doppler units. Contrast enhancement shows increased sensitivity and specificity in studies carried out at the university hospital and increases identification of malignant lesions with higher Gleason scores.

Prostate cancer has one of the highest incidence rates, accounting in 2003 for one in three cancers detected in the United States and one in five in the Netherlands. Despite an increase in prostate cancer detection rate since the discovery of PSA in 1994, a flat mortality rate suggests that most patients have a good chance of survival if the cancer is caught and followed up through prostatectomy, radiation therapy, active surveillance, or watchful waiting.

In T1 tumours treated locally and T4s requiring radiation therapy, the tumour’s exact location and size are pivotal to accurate staging and choice of therapy. Removal of a T1 is followed by an average 70–80% ten-year survival rate, according to Dr. Jeroen van Moorselaar, urologist at the VUMc in Amsterdam. These days, though, patients demand more than simply survival.

New methods detect prostate cancer

“Side effects such as incontinence and impotence, if the neurovascular bundles are cut, are no longer acceptable to many patients. The radiologist can tell the surgeon the location of the tumour in the peripheral zone, which is important for prognosis of side effects after surgery,” Moorselaar said.
Guerbet Satellite Symposium

Sunday, March 11, 2007 10:30 - 12:00
Austria Center F1 Room Entrance Level

MR imaging for your at-risk patients: from the newborn to the elderly

Prof. G. Sebag, chairman (Paris, France)

- Diagnoses of osteo-articular pathology of children
  Prof. G. Sebag (Paris, France)

- MR angiography procedures: benefits of an extra-cellular gadolinium complex
  Dr. D. Bilecen (Basel, Switzerland)

- MR procedures for elderly patients: how can we evaluate the risks and address them?
  Prof. A. Giovagnoni (Ancona, Italy)

- MR imaging: Results of a most comprehensive multicentric study
  Dr. Ch. U. Herborn (Hamburg-Eppendorf, Germany)

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Harry’s highlights from opening day of ECR 2007

ECR Today’s hard-working and keen-eyed photographer, Harry Schiffer, was kept busy during the first day of the congress. On this page is a selection of his work. You can enjoy more photos from Harry in the next two editions of the daily newspaper.

Musicians from the Wiener Virtuosen entertained ECR delegates during Friday’s opening ceremony.

Prof. Robert Steiner from London and Prof. Philippe Grenier from Paris received their Gold Medals at Friday’s opening ceremony. Honorary Memberships were bestowed upon Prof. Kaori Togashi from Kyoto and Dr. Robert Hattery from Tucson. Dr. Elias Zerhouni from Bethesda was presented with a Special Presidential Award.

Joe Zawinul and The Zawinul Syndicate put on a sparkling musical display at last night’s opening concert.

Bayer Schering Pharma is awarded this year’s Exhibit Europe Award in recognition of its commitment to innovation and the advancement of patient care, as well as its outstanding support for ECR. Prof. C.J. Herold hands over the award to B. Baldus, Head of the European Unit Diagnostics of Bayer Schering Pharma.

Dr. Stephen Swensen from the Mayo Clinic in Rochester, US, enthralled the large crowd at Friday evening’s inaugural lecture. He explained how the U.S. has benefitted from the diverse melting pot of European immigrants.

Prof. Roberto Passariello from Rome, president of ECR 1999, launched the new mini course on molecular imaging in cardiovascular diseases. Sunday morning’s session will focus on molecular imaging in cancer.

The national societies’ booths in the registration area on the ground floor of the Austria Center always provide plenty of colour, life, and interest. This representative from the Korean Radiological Society certainly got into the swing of things on the opening day of the congress.

Thousands of attendees signed up for membership of the European Society of Radiology on the opening day of the congress. For only 10 euros, you can get an online subscription to European Radiology, reduced admission to ECR, and access to educational resources such as EPOS, Eurorad, EDEP, eECR, and ePACS. ESR will represent the views of radiology in the European Union and raise public awareness of radiology. Visit myESR.org for more details.
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*Based on the number of systems sold worldwide.
Electronic poster area proves a popular place to hang out

By Frances Bylands-Monk

It’s hushed but far from still. In the bowels of the Austria Center, many delegates took time out from the hustle and bustle of Friday’s congress to peruse the 827 electronic exhibits (183 educational, 444 scientific) at their leisure, take part in the image interpretation quiz, and look up their medal-winning mentors.

“I like sitting down at a screen instead of walking round and round,” said Dr. Patrick Muller, a radiologist at Jolimont Hospital, La Louvière, Belgium, looking at a thoracic exhibit. “I can access what I want directly and e-mail it to my account. Last year it was not so easy to e-mail material, which I found frustrating, but this seems to have been worked out.”

Dr. Tomoko Kan, radiologist at Tottori University Hospital, Yonago, Japan, also e-mails posters of choice, enjoying the sense of control gained from reading rather than listening to poster authors.

“English isn’t my mother tongue, but I can spend as long as I like over the text,” said Kan, as she launched a general search for head and neck posters. “A larger print option would be ideal for those with impaired vision.”

The quiz section seems a focal point for the younger delegates, particularly the Japanese.

“I like the quiz cases because we can suggest many diseases without the responsibility of telling the clinicians the next step!” said Kan, whose colleague, Dr. Ayami Ohno, a radiologist at Kyoto University Hospital, hadn’t yet looked at the posters.

“As soon as I finish this interview, I’ll be looking up a colleague who hadn’t yet looked at the posters.”

The sheer volume of multimedia content and the speed at which delegates can dip in and out of posters make for an interactive and stimulating break from the routine hike between sessions.

Dr. Janneke Vette, general radiologist at the Meander Medical Centre in Amersfoort, the Netherlands, appreciates the chance to commu- nicate with the editor of the poster, without either of them needing to meet face-to-face.

“This is the second time I’ve used EPOS. It’s fast and very user-friendly and means that the author doesn’t need to hang around their poster all the time.”

EPOS will be open today, and on Sunday and Monday, from 07.00 to 19.00 hours. It is located in Expo D on the lower level.
Capture what you couldn’t capture before.

Introducing Signa HDx technology from GE Healthcare. Parkinson’s disease patients. Poor vascularity in patients with diabetes. Women who need bilateral breast scanning in a single visit. Jittery kids. Once they were considered hard to scan patients. Now they’re simply patients. With high definition imaging and motion correction technology you can view all your patients exactly how you want. The same. **MR Re-imagined.**

To see Radiology Re-imagined, come visit us at **Booth 202/Expo B**, or visit **www.gehealthcare.com/re-imagine**

Smart applications make MRI more user-friendly and patient-focused

By John Bonner

"Time is the essence" is a phrase that is relevant in any radiology department. So it is little wonder that MR vendors at the ECR technical exhibition will be demonstrating approaches to speeding up data acquisition and accelerating workflow.

Siemens Medical Solutions will be presenting technology that the company insists will fundamentally change MRI, similar to the effect that spiral scanning had on CT. The company’s syngo TimCT Continuous Table Move gives radiologists their first opportunity to carry out head-to-toe MRI in a single, uninterrupted scan.

Unlike conventional MRI systems, the table in the new unit is not fixed during image acquisition. Instead it moves continuously, just as in a CT examination. The technology will be particularly useful in carrying out pelvic/leg angiography, which would normally be performed step-by-step. Any similar MR procedure, where different body regions are imaged, generally requires individual sections to be combined through data processing. Multiple scans are not only time consuming and inconvenient for the patient, but they may also produce less accurate results.

"The greater the number of individual work steps, the more intricate and error-prone the examination. But our technology reduces the number of work steps for a pelvic/leg angiography by 50%. This saves time and also reduces costs while increasing diagnostic safety," Siemens states.

Image quality is also improved because the body region being scanned is always in the centre of the magnet where the best measurements are obtained.

Moving from multiple procedures to single scans is a challenge that GE Healthcare has also cracked with the latest clinical application for its Signa HD MRI platform. GE similarly maintains that this new technology offers fast scanning with enhanced image quality and significant clinical benefits.

The new VIBRANT-XV application is a noninvasive MR procedure that delivers high-quality images of both breasts in a single examination. The dynamics of the gadolinium contrast agent used in breast imaging means that rapid data acquisition is essential. VIBRANT-XV provides the capability for obtaining high-resolution images quickly, providing both superb anatomical detail and critical kinetic information.

"This new application helps the radiologist to examine the breast without compromising either spatial or temporal resolution," said Pia Perino, product manager for GE Healthcare’s MR business in Europe.

The higher signal-to-noise ratio achievable with the latest 3T hardware also helps identify lesions that would be less well seen on lower field-strength scanners.

GE feels that there is considerable scope for expanding the role of MRI in breast oncology and the company has been investing heavily in developing the necessary technology, according to Stefano Vaglini, general manager for GE Healthcare’s European MRI unit. He points out that VIBRANT forms only part of a suite of new MRI technologies which the company has recently launched. These include the proton pump interaction power of Siemens’ Tim (Total Imaging Experience) technology.

"MRI has better sensitivity and specificity than conventional radiology and many experts now consider it should be the first choice in those women with a genetic predisposition to cancer. We have had many examples of pathologies that were detected by MRI and missed by radiography. So breast MRI is definitely becoming a very serious alternative," he said.

The flagship MRI technology to be seen on the Philips Medical Systems stand is the latest addition to its Achieva range. The new Achieva 1.5T X-series system combines advances in magnet, gradient, and radio-frequency technology to produce enhanced performance and a larger field-of-view.

"The new system allows clinicians to conduct routine to advanced imaging across all clinical applications on a system that is as comfortable, compact and easy to use as a 1.5T. Furthermore, the new Achieva 3T X-series will be available in a mobile configuration, the first and only one of its kind in the industry," the company stated.

The Achieva system incorporates a number of technical features intended to improve speed, efficiency, and diagnostic accuracy.

Philips Medical Systems is unveiling an extension to its Achieva range at ECR 2007.

The Signa HDI, a new premium 3T MRI scanner from GE Healthcare.

These include 2k Imaging, 4D-TRAK, SENSE, FiberTrak, SENSE Spectroscopy, and DWIBS (diffusion-weighted whole body imaging with background body signal suppression). It also features SmartExam, allowing newer users to get expert results with one-click planning, scanning, and processing.

Offering new technology based on the same dimensions and format as the existing range has advantages for the company’s established client base. Philips notes that its Achieva 1.5T XR system will be upgradeable to a 3T unit by simply replacing the coil.

Toshiba Medical Systems has meanwhile revealed a complete redesign of its Vantage Atlas 1.5T MRI system. The company states that its new 128-channel system will help meet clinical demand for an MR unit that delivers high-resolution, whole-body images with faster imaging times, facilitating quick and accurate diagnoses.

The new technology is based on an integrated coil concept that will allow clinicians to perform multiple examinations without repositioning the patient. This will mean more comfortable examinations, resulting in enhanced workflow and better productivity from technical staff. The redesign also addresses one of the main causes of patient discomfort during MRI, that is, acoustic noise.

Incorporation of Toshiba’s patented Pianissimo technology promises to cut noise dramatically during scanner operation, enabling clinicians to make better use of the systems high-field MRI capabilities.

The technical exhibition opens today from 10:00 to 18:00, and at the same time on Sunday and Monday.

Byline: myESR.org

Mercury Computer Systems

Mercury Computer Systems will present its entire Visage™ product line at ECR 2007. Mercury’s 3D to the Core solution empowers the transformation of the medical imaging workflow, from acquisition, reconstruction, and visualization, to distribution and management.

Mercury will demonstrate image quality and performance breakthroughs now required to cope with the increasing range of data generated from devices like multi-slice CT, MRI and CT/PET scanners, along with new clinical applications that are being introduced to the diagnostic workflow.

myESR.org
Radiologists at the University of Brescia, Italy, receive regular requests for CT or MRI from maxillofacial surgeons and dentists, said Prof. Roberto Maroldi. His team use cone-beam CT to provide extra clarity in complex cases, where patients present with unexplained pain and swelling, these new techniques can be of great value," Lindh said.

"Conventional panoramic and intraoral x-rays are very useful in most cases, but when you come to the more difficult cases, where patients present with unexplained pain and swelling, these new techniques can be of great value," Lindh said.

"Dental trauma, which is quite prevalent, is another area where cone-beam CT is very useful. We take one image, and then we can see the teeth from all directions, so it is practically impossible to miss a root fracture," Gröndahl said.

The radiation dose associated with cone-beam CT is generally higher than a single x-ray exposure, but lower than a conventional CT study. Patients scheduled for cone-beam CT instead of conventional CT will consequently benefit from the lower dose. Switching to cone-beam CT for applications that would otherwise involve multiple x-rays could also be dose-saving.

"With just one exposure we can get so much information," he said. "We would have to take lots of conventional x-rays to get a fraction of that information. So many times we can make an examination that is lower in dose than had we used conventional radiography."

Radiology staff at University Hospital in Vienna’s dental clinic performed 2,800 dental CT examinations in 2006. Approximately half of these were related to pathological conditions, and the remainder to visualising jaw anatomy prior to implant surgery. Surgeons are increasingly likely to request a CT scan before inserting a dental implant, he said.

The situation is somewhat different in countries where doctors train specifically in dentomaxillofacial radiology, but here too specialists are learning how different cross-sectional imaging modalities can benefit their clinical practice. One technique attracting particular interest is cone-beam CT. This modality, as the name suggests, uses a cone-shaped x-ray beam rather than a collimated fan beam. Image data are recorded in a single 360° or 180° gantry rotation.

Cone-beam CT systems are smaller and cheaper than conventional CT units, and relatively easy to operate, said Dr. Christina Lindh, who works at the department of oral radiology, Malmö University, Sweden. Dentomaxillofacial radiology teams may consequently choose to purchase one for themselves. This is the case at Malmö, where specialists working with cone-beam CT have identified sizeable cysts and malignant lesions that could not be seen with standard dental x-ray methods.

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In countries where dentomaxillofacial radiology is not a specialty in its own right, general radiologists are picking up requests for dental CT and MRI. Both modalities can produce high-quality images of the jaw and surrounding areas. The comparatively high cost of MRI, however, means that CT is taking the bulk of this work at present, said Prof. Dr. André Gahleitner, professor of radiology at the Medical University of Vienna.

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Radiologists taking on dentomaxillofacial requests need to be prepared to discuss the pros and cons of different imaging options with their clinical colleagues, he said. Answering a specific clinical problem may mean switching to an alternative technique.

The use of cone-beam CT prior to treating patients whose teeth have not erupted properly. Canine teeth that remain beneath the palate can cause root resorption problems that need to be assessed before surgery. Similarly, the proximity of lower third molars (wisdom teeth) to nearby nerves should be determined if tooth extraction is planned.

ECR speakers encourage general radiologists to take closer interest in dental imaging

By Paula Gould

Panoramic and intra-oral x-rays have become central to dentomaxillofacial work, highlighting the causes of pain, revealing the effects of trauma, and providing valuable information for surgical planning. But dental radiology is not just about taking x-rays any more. Cross-sectional imaging technologies are helping provide a better view of complex dental anatomy, pathologies, and injuries.

ECR speakers encourage general radiologists to take closer interest in dental imaging
Discover how you can help shape the future of biomedical imaging research

By Brenda Tilke

This afternoon offers radiologists an excellent opportunity to help build the framework for the rapidly advancing field of biomedical imaging and to gain insight into the impact biomedical imaging will have in both research and clinical practice.

Biomedical imaging has the potential to change significantly clinical trial development and assessment, not just in radiology but in almost every medical specialty. Indeed, some experts believe biomedical imaging will emerge as the new ‘common denominator’ for all types of imaging.

“Most studies have primary endpoints that have a clinical basis, but biomedical imaging will change how the primary and secondary endpoints will be determined,” said Prof. Dr. Andreas Jacobs, director of the laboratory for gene therapy and molecular imaging in Cologne, Germany.

At present, European policy for biomedical imaging is highly fragmented, making it difficult for researchers in one country to have a clear idea of what their colleagues are doing in another. Moreover, some of the advanced research is being conducted by biomedical engineers and physicists who do not ordinarily attend congresses and other educational events designed for the radiology community.

Leaders in the field realised the need for a multidisciplinary, multinational approach that brought together researchers, clinicians, healthcare policy makers, and industry. They formed the European Institute for Biomedical Imaging Research (EIBIR, www.eibir.org), which in January 2006 became a non-profit, limited-liability company, based in Vienna. One of EIBIR’s main goals is to develop a Europe-wide base for joint research that would be equal to the National Institute of Biomedical Imaging and Biomedical Engineering (NIBIB; http://www.nibib.nih.gov/), which is overseen by the National Institutes of Health in the US.

Among EIBIR’s activities to achieve this goal is identifying the calls related to imaging of the Co-operation Work Programmes Health and Information and Communication Technologies for the EU’s Seventh Framework Programme (FP7). It bundles all research-related EU initiatives together under a common entity, and plays a crucial role in reaching the goals of growth, competitiveness and employment. Along with a new Competitiveness and Innovation Framework Programme (CIP), Education and Training programmes, and Structural and Cohesion Funds for regional convergence and competitiveness.

Attendees at ER 826 will be able to query EIBIR representatives about FP7.

Today’s session will explain how EIBIR works with its partner organisations, including the European Association of Nuclear Medicine (EANM), the European Federation of Organizations for Medical Physics (EFPOMP), the European Society for Magnetic Resonance in Medicine and Biology (ESMMR), the European Coordination Committee of the Radiological, Electromedical and Healthcare IT Industry (COCIR), EuroPACS, the European Alliance for Medical and Biological Engineering and Science (EAMBS), as well as the European Society for Molecular Imaging (ESMI). Nearly 200 European institutions are represented in EIBIR, noted Prof. Gabriel Kerstin of Erasmus Medical Center in Rotterdam, the Netherlands. Kerstin is chairperson of the ESR Research Committee and moderator of session ER 826.

“One of the reasons attendees should come to this session is to understand how these important organisations, which are not for the large part built up of radiologists, will play a role in biomedical imaging,” he said. “There is something here for anyone interested in science policy, young researchers who want to know about the future of their research area, and even hospital administrators in charge of funding for research.”

Industry cooperation and involvement is vital to the growth of biomedical imaging, and EIBIR has established an industry panel. At last year’s ECR, the decision was made to ensure strong industry participation in EIBIR, with the possibility to offer research grants and co-operate with fundamental and clinical research institutions on new scientific developments. This year’s session will touch on the current and anticipated future role of industry support.

Although the scope of ER 826 extends beyond molecular imaging, the presenters recognise the importance of the modality. Outcomes of research on SPECT-CT and PET-CT play a strong role in showing that molecular imaging can provide cost-effective diagnosis and treatment evaluation without compromising patient care, noted Prof. Alberto Cuocolo, professor of diagnostic imaging and director of cardiac imaging at University Federico II, Naples, Italy.

“We will be looking at how to interpret this image data and come up with pragmatic endpoints to show how nuclear medicine can achieve clinical effectiveness in patient care and management,” he said.
Slovak Radiological Society

The history of Slovak radiology dates back to 1897, when the first x-ray machine was brought to the small town of Kezmarok in east Slovakia by physician Dr. Vojtech Adalbert Alexander. Later, he founded the first radiological clinic and became its first professor at the University of Budapest. He worked together with Bratislava native physicist Prof. Philip Eduard von Lenard, who won the Nobel Prize for physics in 1905.

From 1918 to 1993 Slovak Radiology was part of Czechoslovak Radiology. Since 1993 Slovak Radiology has been established as an independent organisation. There are three medical schools in Slovakia, from which around 500 students of medicine graduate every year. The radiological society is relatively small, and there are in the region of 150 qualified radiologists working in the public sector and around 250 preparing for specialisation. There are also a small number of radiologists working in the private sector.

The standard of radiological equipment in use is relatively good. Serving 5.5 million inhabitants, there are 30 MRI machines (1 machine/180,000 citizens), 65 CT machines (1/85,000 citizens) and more than 80 mammography units (1/70,000 citizens). There are effective mammographic programmes on a national level.

In 2007 our society accepted the system of postgraduate education recommended by the EAR. The complete curriculum was then translated and the process of practical implementation was started. For as long as 14 years the society has been organising regular educational courses. In winter there is a regular week-long course called Winter Forum, for around 200 radiologists, and in summer there is a Summer Forum for 100 radiologists. Sport-related activities such as skiing and golf are a regular part of the programme. Radiologists from other European countries regularly take part in these events. Many of these guests are members of the Czech Radiological Society, with which we cooperate very closely.

A national congress is held every two years, and every 4 years we organise a congress with international participation. The Slovak Radiological Society also publishes the journal Slovak Radiology twice yearly.

Our website address is www.slovakradiology.sk

Royal Belgian Radiological Society

The Royal Belgian Radiological Society was founded in 1906 and is one of the oldest radiological societies in Europe. It is a society of medical doctors and physicists that aims to promote the study and dissemination of scientific knowledge directly or indirectly related to radiology.

The Society's main objectives are:
1) the promotion of basic and clinical research in the field of radiology
2) the collection, evaluation and dissemination of scientific knowledge
3) the encouragement and support of continuous education.

The Society has 9 sections dedicated to the different subspecialties within radiology.

Every year, a major symposium is organised by the president of the society, while several smaller meetings are organised by the sections. This year the Symposium of the President will take place on November 10 at the University of Antwerp, Campus Drie Eiken. Theme: ‘Update on abdominal imaging’.

A bi-monthly, peer-reviewed journal, The Belgian Journal of Radiology, is distributed among the members.

Membership
Corresponding membership: open to radiologists and training radiologists who have graduated from a Belgian University and have applied for membership to the Board of Directors. Application should be supported by 2 full members of the Society.

Full membership: open to radiology and training radiologists who are corresponding members and who have performed and presented a scientific work with success.

Associate membership: open to non-radiologists interested in the activities of the Society. Associate members have no voting rights.

Honorary membership: all those appointed because of special merits to Radiology and to the Society.

Membership fee: € 87.00 (covers the calendar year)

Trainees: € 25.00 (attestation of training needed)

Membership includes a subscription to The Belgian Journal of Radiology.

For more information on the RBRS: www.rbrs.org

katrin.lorent@uzleuven.be

Societies

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Swissray
By Karen Sandrick

Functional magnetic resonance imaging (fMRI) is increasingly being used preoperatively to improve the safety of surgery that will remove brain tumours or locate epileptogenic foci by imaging somatosensory, language, and motor functions, at least in larger teaching or university hospitals.

The technique is being applied clinically in about 60 academic medical centres throughout Europe, estimates Dr. Christoph Stippich from the University of Heidelberg, Germany. The procedure has not yet become a standard diagnostic routine, however. It is not widely used in smaller community hospitals, and because there are no medically approved software tools for the procedure, fMRI is performed largely in the framework of scientific trials.

A role for fMRI nevertheless is emerging to fill a void in the assessment of patients destined for brain surgery. Although electroencephalography (EEG) and magnetoencephalography (MEG) do measure somatosensory or language function, the examinations are not easy to complete in a clinical setting, and data modeling is complicated, he said. Only a few MEG centres exist worldwide, and they tend to be research centres that are not bound to hospitals. The fMRI technique, meanwhile, is highly robust and simple to perform. As a result, fMRI is becoming the primary modality for investigating brain function and plasticity, he added.

Stippich believes, in fact, that there is no other option for visualising somatosensory and language functions. Although anatomical landmarks can help to identify the gyrus in the brain that govern motor function, morphological imaging is difficult because there are only a few reliable landmarks. Functional imaging therefore is a valuable adjunct.

One of the clinical indications for fMRI is to help clinicians select the safest treatment approach for removing a brain tumour. He explained that when a patient comes to the hospital with a brain tumour anywhere near a critical functional area, an fMRI study can assess the risk for operative damage to that functional system.

“You have to determine whether you can achieve a complete cure and how much deficit an operation may bring to a patient. You have to determine when operating on a patient will not work because a cure is not possible or the patient will have a deficit for the rest of his or her life. All this information you can assess very precisely using fMRI. Then you can discuss with the patient what he can expect from the operation,” Stippich said.

Another possible indication is to determine the extent of surgery.

“You may have to decide how much of the tumour should be removed,” he said. “But this indication is still under investigation because there are not a lot of studies that relate the radicality of a tumour resection according to functional deficits and distance to functional areas. It will take another three to five years of prospective controlled trials using standardised protocols to get this information.”

At present, radiologists at least can tell surgeons to be careful with certain gyri or to avoid removing too much tissue from a specific location as part of preoperative planning, Stippich said.

The Royal College of Radiologists (RCR) has approximately 7,000 Fellows and members worldwide in the disciplines of clinical radiology and clinical oncology. All members and Fellows of the College are registered medical or dental practitioners. The College’s role is to advance the science and practice of radiology and oncology, further public education and promote study and research through setting professional standards of practice.

The College published its first Forward Plan in the summer of 2005. This contains an ambitious programme of work and is supported by agreed principal aims for 2006–2007. The Plan and the Principal Aims may be viewed on the College’s website www.rcr.ac.uk — follow the links to ‘About the College/Forward Plan’.

One of the College’s most exciting projects is the development of a comprehensive e-learning programme, the Radiology Integrated Training Initiative (R-ITI), to support training in Clinical Radiology. R-ITI is a collaboration between the RCR and the Department of Health in England. The e-learning content has been developed by subject specialists — chiefly Fellows and members of the College — to support the first three years of the five-year Radiology Training Programme. This amounts to some 460–800 hours of e-learning, accessible over the web, requiring only basic IT facilities and supported by a Learning Management System (LMS). The LMS enables the trainer radiologist to track his or her progress, which can be monitored by the supervising trainer, and allows learning to be conducted at the pace of the learner or indeed enable the trainer to direct the trainer to specific topics or areas of study.

R-ITI complements, rather than replaces, the crucial learning in the clinical workplace. The e-learning sessions effectively underpin the knowledge that trainees need to prepare for clinical practice and to reach the standards for entry into specialty practice. R-ITI is now available to all UK training schemes, thus offering a consistent and comprehensive set of learning materials across the whole of radiology training in the UK.

Delegates at ECR 2007 will be able to attend an educational session on R-ITI and visit a demonstration throughout the whole of ECR at the Austria Center. Considerable interest has been expressed in using the programme outside the UK and discussions are in hand with other countries to support their training programmes.

The Royal College of Radiologists

Refresher Course

Saturday, March 10, 16:00–17:30, Room E2
RC 811 Functional MRI imaging
Moderator: A. Jackson; Manchester/UK
• A. Technique, protocols and stimulation equipment
• S. Durand; Louvain/BE
• B. Clinical applications of fMRI imaging for intracranial tumors and epilepsy
• C. Stippich; Heidelberg/DE
• D. fMRI imaging for evaluation of brain plasticity in multiple sclerosis and stroke
• A. Blaz; Milan/IT

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ESR BOOTH

REGISTRATION BAGS

BAGS - OF-THE-DAY / QUIZ

CASES - OF-THE-DAY / QUIZ

SATURN TOWER

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Bone marrow oedema (BMO) produces characteristic alterations in signal (low on T1- and high on T2-weighted MR images), but its pattern of presentation is highly non-specific, posing serious challenges for radiologists. Oedema-like bone marrow patterns generally are reflected by ill-defined increased signal changes on fluid-sensitive sequences such as short tau inversion recovery (STIR) or fat-suppressed T2-weighted sequences. The presence of BMO changes may not even be clinically relevant. Signs of bone marrow oedema are often adjacent to obvious degenerative disc disease. However, even incidental findings of BMO should drive further investigation if they suggest underlying infection, inflammation, or a fracture.

When part of the spectrum of the abnormalities is associated with a suspected disease in the vertebrae, bone mineral density changes should be classified by their distribution, shape, and relationship to other local or distant abnormalities, said Prof. Frederic Lecouvet from Saint-Luc University Hospital in Brussels.

"The major features that will be helpful for this categorisation are the distribution of the signal intensity changes within the vertebrae, their extension, their association with alterations of adjacent discs, vertebral endplates, or soft tissues, and the presence of similar changes of other more suggestive abnormalities, such as tumour foci, at other levels," he explained.

For example, BMO associated with a degenerative disc will have a band-like appearance next to the endplate and occur predominantly near the anterior corners of the vertebrae on both sides of the disc space. On the other hand, BMO related to traumatic or osteoporotic vertebral fractures will be linked with vertebral contour deformities and a normal marrow signal distant from the compressed endplate. In infarction, BMO pattern will be on both aspects of the disc space and in combination with interruption of the vertebral endplate, loss of height or an abnormal signal from the disc, as well as nearby paraspinal or epidural soft tissue alterations.

Distinguishing between necrosis, fracture, and oedema is especially difficult, Zanetti said. In one case, a 64-year-old woman with a painful hip had BMO-like changes in the femoral head and neck on coronal T1-weighted images on the left side and fat-suppressed T2-weighted images on the right side. The images could be classified by radiologists as signs of the initial phase of femoral head necrosis based on the circumscribed low signal intensity on the T1-weighted image or as insufficiency fracture based on a subchondral linear abnormality in the femoral head.

BMO patterns typically are investigated with fluid-sensitive MRI techniques, as well as additional T1-weighted sequences to look for linear signal abnormalities that indicate the presence of an initial stress fracture, he explained.

The MRI examination may be adapted to increase its sensitivity by incorporating gradient echo sequences or by injecting contrast material, which can reveal necrotic areas within the disc or soft tissue infection, detect subtle tumour foci in disseminated metastatic disease, distinguish true BMO from foci of normal hyperplastic bone marrow, and find abnormalities in the posterior elements of traumatic spinal fractures, according to Lecouvet.

Although MRI is the procedure of choice for diagnosing the cause of BMO, other imaging modalities are sometimes useful. When the differential diagnosis of degenerative disc disease and infectious spondylodiscitis is difficult to make on MRI, x-rays and CT may reveal erosive and osteosclerotic changes that are typical for inflammatory disease in the thoracolumbar junction and in the sacroiliac joints.

CT can clearly identify an osseous osteoma with a distinctive nidus when MRI shows only an uncharacteristic BMO pattern, said Zanetti. CT also may help distinguish between benign osteoporotic and malignant vertebral fractures when patterns of BMO within the vertebrae are diffuse and confusing, and both x-rays and CT recognise benign conditions, such as Paget’s disease of the bone, acute intravertebral disc herniation, and angiomas that are nonspecific on MRI, said Lecouvet.
**Attention all trainees – and those young at heart!**

By Anagha P. Parkar, Bergen, NO

**RTF Chairperson**

The Radiology Trainees Forum (RTF) invites you to attend our events during the ECR.

The forum, which was established in 1993, is alive and kicking! We survived a total makeover last year and are ready to meet new challenges in the recently created European Society of Radiology (ESR). The ESR represents a single house of radiology in Europe, and the RTF represents the trainees' views in this organisation. Currently 36 countries are represented in the RTF.

The Invest in Youth programme, sponsored so generously by the companies, has brought more than 200 trainees to Vienna. Please do come by our booth in the entrance hall and those young at heart!

How are you enjoying it so far? The first day busy and overwhelming? Too many interesting sessions to choose from? We know the feeling, which is exactly why you should visit the RTF booth in the entrance hall for more information about our events and to meet other trainees! We have arranged scientific and social events for you. This afternoon the RTF highlighted lecture session will be held in Room K, from 16:00–17:30. These are two lectures arranged especially for trainees. The first lecture will be about something as rare as (roughly rephrased) 'simple MRI – I wonder – is there such a thing?'

The second lecture is about PET/CT, which is entering radiology departments everywhere and which young trainees will encounter in their daily practice in the future – for sure. A few years ago, great expectations were attached to PET/CT, so we ask now: has it kept its promises? Well, our excellent lecturers Dr. T. Hany and Prof. A. Dixon have promised to answer all your questions later today. There will also be a book raffle – all attendees will have the chance to win free radiology textbooks!

The lecture session will be followed by cocktails for trainees, in downtown Vienna. It is the perfect opportunity to enjoy drinks and food with trainees from all across Europe. It’s free for trainees, but you have to register – so please come by the RTF booth for information (no later than noon today).

On Sunday the RTF general assembly will be held 16:30–18:00, room V, 3rd level, and it is open to all trainees. RTF activities from the past year will be presented and new projects launched. This year is especially exciting, as elections to a new RTF executive board are on the agenda.

On Tuesday afternoon we have the final RTF events – the Junior Image Interpretation session. It is always very entertaining as well as educational.

The Radiology Trainees Forum is extremely pleased to see you here in Vienna. Please do come by our booth in the entrance hall.

**European Society of Paediatric Radiology**

The ESPR is proud to announce the launch of its brand new website (www.espr.org).

On this site, you will find details of all of our forthcoming meetings and courses, as well as important links to our sister societies. Also on the ESPR website, you can find a forum for discussion and details of various working groups organised under the auspices of the Society.

If you have an interest in paediatric radiology, we urge you to join us and to become an active member of our Society.

The aims of the ESPR are to promote and develop paediatric radiology all over Europe and even further afield. If we can help you to do so in your country, please do not hesitate to contact us.

Our next ECPR will take place in Mainz, Germany, and this year’s hot topic is Musculoskeletal Radiology. The meeting will be organised by Dr. R. Schumacher.

At this ECR you will find high quality courses and scientific presentations devoted specifically to paediatric radiology. The themes and lecturers have been carefully selected for you, with coordination between the ECR and the ESPR. Please attend them; you won’t regret it!

We wish you a fruitful meeting and a very productive and happy 2007!

F Avni, General Secretary
C. M. Owens, Treasurer
Reports must combine accurate descriptions with foresight for suitable treatment plans

By Frances Rylands-Monk

Because of the complications that can arise from treating an underlying problem in the head and neck, potential complications need to be identified and graded in the radiologist’s report for correct follow-up. While radiologists can solve a clinical problem directly with a single approach such as ultrasound, other modalities must be used when ultrasound fails due to the depth of a lesion or air within the lumen, making evaluation of the head and neck complex, according to speakers at this afternoon’s refresher course.

Some retropharyngeal abscesses in deep spaces can be drained or removed with a transnasal endoscopic technique due to the accuracy of MR or CT in depicting location and disease extent. The advantages of the endoscopic techniques include reduced risk of morbidity compared to external surgical approach, absence of cervical or palatal scars, and a shorter hospitalisation time. Since 2006, diffusion-weighted MRI has been able to discriminate between cellu- litis and abscess at an earlier stage than was possible with a standard CT or MRI examination for earlier diagnosis and treatment.

“The clinician is far less interested in minute description of varying signal intensities on fancy MR-sequences or precise Hounsfield unit measurement after contrast administration in CT, unless a clinical aspect can clearly be deduced from it such as haemorrhage, calcification, or protein rich cyst,” said Dr. Soroush Robinson, consultant radiologist at Vienna Urania Diagnostic Centre, who will be speaking about diagnos- ing and reporting tumoral lesions at the session. “They need to know instead, for example, a lesion’s most likely point of origin.”

For traumatic lesions to the head and neck, the radiologist needs to identify cases requiring immediate attention, such as those impacting the optic nerve or a vascular lesion, and those patients who can wait. For this, the most complete imaging for maximum diagnosis needs to be performed as soon as possible.

One imaging protocol should answer all the relevant questions for immediate and later management of emergency polytrauma patients, said Dr. Minerva Becker, associate professor and chief of head and neck radiology at the University Hospital of Geneva, who will be focusing on the role of the radiologist’s report in a life-threatening situation. In Geneva, a contrast-enhanced whole body CT scan is usually carried out, but this is only possible with very rapid multidetector CT units.

If the patient has sustained a specific soft-tissue injury, such as to the nerves of the brachial plexus, new MR techniques to visualise haematomata or fractures leading to nerve root compression would be used immediately, added with 3D acquisitions and 3D contrast-enhanced MR to follow nerve roots. Fiber tracking to see nerve fibres in the brachial plexus is a novel tech- nique that is starting to be used to plan surgery and minimise func- tional impairment by surgery.

Five years ago, surgeons would have treated the initial lesion or trauma, and functional impairment would have been rectified later. Now sur- geons aim to prevent complications, necessitating additional treatment later. The radiologist’s report should tell surgeons everything they need to know to achieve this.

“In a case of trauma involving the middle face and an orbital fracture, we need to know what displacement is in the fracture. Are there fragments? Is there compression of the optic nerve? Is there displacement or incarceration of extrinsic muscles? Is there involvement of the apex of the orbit? In a fracture of the mandible, is there associated involvement of tooth roots? If so, this is a potentially infectious frac- ture with the potential to be treated immedi- ately” said Becker.

As the relationship between the radiologist and clinician evolves, imag- ing advances and improvements in surgical procedures seem to act as catalysts, spurring the other forward to more precise diagnosis and minimal- ively invasive techniques, such as mini-surgery for fractures and more endoscopic surgery to treat face and neck lesions.

Surgeons taking into account aes- thetics, as well as function, routinely use 3D reconstructions of displaced face fractures to plan surgery to minimise scars.

“Many young people are involved in car and sports accidents and have to live with the result of facial surgery for decades. There are new ways to repair fractures without external scars, but this is only possible with precise descriptions – and 3D imag- ing – of the trauma,” Becker said.

Iceland is not a member of the European Union but has been a member of the European Economic Area since 1994. As a consequence, collaboration with other radiological societies in Europe, through EARS and now ESR, is increasing. The Radiological Society of Iceland is a full member of ESR and we consider this link with Europe and the Nordic Countries to be very important indeed and of growing importance in the future.
The 4th Hospital Manager Symposium is organised in cooperation with

**Business intelligence in healthcare – Turning strategy into action**

By Jan Schillebeeckx,
Bôneheiden, BE

Business Intelligence is a process that enables hospital management to understand and formulate their business strategy together with the objectives and measurements that support it. While the term ‘Business Intelligence’ is often confused with IT software, it is a management process that uses IT.

This presentation will show how managers can make best use of IT investments by following the business intelligence process. The aim thereof is to define and valorise the existing business strategy and to attach the right objectives and Key Performance Indicators (KPIs) to it. Through data mining of existing IT systems, followed by a data validation procedure, management can gain much better transparency of their actual business processes, such as handling of scheduling, waiting times, billing etc.

The speech will demonstrate how continuous Business Intelligence has helped Imelda Hospital, in Bonheiden, Belgium, to keep its yearly productivity increase high, along with patient and staff satisfaction. This will be complemented with a comparison of operational data in another hospital (in a different country and with a different scale).

The aim of this comparison is to show how hospitals can differ substantially when it comes to processes and business ramifications.

Privately-owned hospitals give an impressive example of how this should work - their investments are profit-oriented, free from governmental and political regulations, and meet with remarkable success. They often use leasing as an external financing source for their investments.

Leasing for medical equipment and IT includes a variety of contract models, each should be evaluated to find the one that best fits a hospital’s individual needs. The classic well-known method of public bidding can be transformed to a catalogue of financing solutions tailored to a hospital’s needs. In particular, the exchange of medical equipment at several stages of the planned amortisation period must be considered – normally at the end of the assumed period of usage, but earlier exit scenarios should also be taken into account. In this field, leasing is advantageous compared with a loan, because the VAT in leasing is only applied on the effective wear and tear.

Modern instruments of leasing resolve the hold up of investments in a combination of classic loan financing for buildings and floating capital and leasing to finance tangible goods. An advanced financing strategy will enable hospitals to shift from traditional institutions that present treatments to patients, to modern companies that meet the demands of their customers.

Mrs. Sabine Eidmann will speak at the Finance Session of today’s symposium.

Presently Director of the Healthcare Business Unit at Compendium Leasing (Germany) GmbH, Sabine Eidmann Dipl. Soz. has worked for or headed departments in finance firms, such as Deutsche Leasing AG, for 25 years, 15 of these in specialising in risk management. From May 2005–2006 she was area sales manager at Philips Medical Capital GmbH, then took on the new challenge to build up the healthcare department for Compendium, a role in which she mainly deals with customers in the clinical sector and medical practices specialising in structured business finance.

Sabine Eidmann points out that Compendium Leasing, which has a track record of 25 years in Germany for individual leasing offers, belongs neither to a bank nor to a manufacturer. Its refinancing is conducted through capital markets, an independence that, she says, enables creative and new ‘off the beaten track’ concepts.

Solutions Group, Erlangen, Germany

Both income and expenses adversely affect profitability for German hospitals. In combination, they reduce the scope of investments, although these are necessary to cut costs and increase revenues. The actual hold up of investments is said to amount to €50 billion. In many hospitals expenses exceed revenues because treatment costs are far too high due to a lack of modern equipment and processes. There is a clear trend: On a long-term basis, the government will only provide the political framework in which an increasingly market-oriented hospital system will develop.

A recent study by BMI/admed showed that a fifth of all hospitals face closure if necessary reforms are not undertaken. All professionals in a hospital must participate in that decision-making process. The hospital that survives is the one that uses intelligent strategies for both internal and external situations, drawn from modern management theories, marketing, cost structuring, and revenue generation.

It is of minor importance whether the hospital is public or private, or a charity organisation.

To keep up competitively, sufficient financing for necessary investments will be a fundamental requirement for future hospitals.

Two major trends are obvious: Hospital financing will change fundamentally, shifting from public subsidy financing to classic credit financing. In the future hospital, the decision of whether to invest, or not, will have to be calculated by its professional managers, following fundamental and objective cost advantage evaluations. In all aspects of business economics, including the costs of interest and amortisation, whenever a result is positive, investment should be seriously considered. All professionals in a hospital must participate in that decision-making process.

Leasing for medical equipment and IT includes a variety of contract models, each should be evaluated to find the one that best fits a hospital’s individual needs. The classic well-known method of public bidding can be transformed to a catalogue of financing solutions tailored to a hospital’s needs. In particular, the exchange of medical equipment at several stages of the planned amortisation period must be considered – normally at the end of the assumed period of usage, but earlier exit scenarios should also be taken into account. In this field, leasing is advantageous compared with a loan, because the VAT in leasing is only applied on the effective wear and tear.

Modern instruments of leasing resolve the hold up of investments in a combination of classic loan financing for buildings and floating capital and leasing to finance tangible goods. An advanced financing strategy will enable hospitals to shift from traditional institutions that present treatments to patients, to modern companies that meet the demands of their customers.

**Programme**

**Welcome address and introduction by Professor Christian J. Herold, President of ECR 2007**

Moderation by Dr. Wolfgang Brandstätter, Austria

**Session 1 – Management**

**Consumerism – impact on business models and processes in healthcare**

Hartog Pfitz, MD, Vice President Industry Business Unit Healthcare, Higher Education & Research, SAP AG, Wallraf, Germany

**Business intelligence in healthcare – Turning strategy into action**

Jan Schillebeeckx, MD, Head of Radiology at Imelda Hospital in Bonheiden, Belgium. In addition, from 1996-1999, he also served as Chairman of the Belgian Professional Society of Radiology.

His Board Certifications include the KBVR (Belgian Society of Radiology), RSN (Radiological Society of North America), ECR (European Congress of Radiology), EHR/PACS Society (of which he has been a Board member), SCAR (Society of Computer Assisted Radiology), and the ACR (American College of Radiology).

**Session 2 – IT**

**Key trends in medical archive systems**

Barbara Aliguray, EANET Business Manager, Eastman Kodak’s Health Group, Herts, UK

**Local and national IT-concepts in hospitals**

e.g. MIS/RIS/PACS

Rainer Braunschweig, MD, Director of the clinic for diagnostic imaging and interventional radiology, BG-Kliniken Bergedorf, Hamburg, Germany

**New approach to hospital management – look in the crystal ball and shape reality with suppliers**

Hartog Jaeger, MD, PhD, Director for Corporate Development, Vivantes GmbH Berlin

**Business intelligence in healthcare – Turning strategy into action**

Jan Schillebeeckx, MD, Head of Radiology at Imelda Hospital in Bonheiden, Belgium.

**Efficiency and ethics in hospitals – a contradiction?**

Stephan Feldhaus, MD, Head Corporate Communications Department, Siemens Medical Solutions Group, Erlangen, Germany

**Business intelligence in healthcare – Turning strategy into action**

Jan Schillebeeckx, speaker at the Management Session.
Diagnostic imaging and financing of private diagnostic facilities in Poland

By Jacek Brzeziński, Katowice, PL

Over the past few years, a steady growth in the number of private diagnostic facilities has been evident. Observation reveals a few dominant trends in this process.

Let’s focus first on the origin of such facilities. Despite the involve- ment of some major multinational companies, the majority of the market share is in the possession of companies based on local Polish capital. Large or small, these companies represent two different philosophies in terms of operation: one being limitation of costs to maximise profit, the other being combating promising quality, even at some cost of profit margin. In between, there is some balance between the two attitudes, but this is in a minority of cases. So far, the ‘ultimate quality’ approach seems to have the upper hand. In some cases, with such successful results that even medical universities decide not to purchase their own equipment, but to outsource diagnostic imaging altogether.

Refunds for services from the National Health Fund remain a burning issue. At the moment, the NHF is refunding the costs of exams of hospitalised patients and co-funded exams, where primary health care facilities are sharing the cost of the exams for outpatients. In the past, private diagnostic imaging in the efficiency of the medical process has been underestimated. In some cases to such an extent that some diagnostic exams were not refunded unless referral was after admission to a hospital. This was far from efficient. Nowadays, the awareness of the importance of diagnostic imaging is growing, which is reflected by the growing interest in screening studies sponsored by the local authorities. Of course there are issues to be resolved. One is the inadequate number of procedures, limited by contract, leading to long waiting lists. Another important issue remains the case of procedures performed over the contract. Private and public diagnostic entities are required to stay within the limits of the contract, but on the other hand they are obliged to perform every procedure where the circumstances are life threatening. Obviously, this can result in the number of exams being exceeded, leading to vigorous disputes with the NHF, sometimes ending in court.

Fortunately, these are not the only sources of finance for diagnostic procedures. Over the years, there is a more or less constant percentage of patients, around the level of 10%, who have had exams financed either by private insurance companies or by using their own funds. Also worth mentioning, is the ever expanding involvement of private diagnostic centres in the growing number of pharmaceutical trials.

What about the outlook for the future? It is extremely optimistic. More and more projects for the expansion of private diagnostic centres are being financed with European funds. At the moment, the number of such beneficiaries is already quite substantial. Also, the growing awareness of the importance of early diagnosis as a result of timely performed diagnostic procedure, even at the lowest levels of local authorities, is highly beneficial. We can look to the future with confidence and expect a steadily growing market share of private companies in the diagnostic imaging business.

Dr. Jacek Brzeziński, M.D., PhD, is Clinical Research Director at Helmed Diagnostic Imaging in Katowice, Poland and President of the University General Hospital of Warsaw. He specialised in Cardiac and Biology (ESMRMB). He will speak at the Finance Session at today’s symposium.

Brzeziński graduated from Warsaw Medical University in 1987 and in 1990 he started to work right from the beginning at the very first private unit in Poland, at the imaging department of the Central Railway Hospital in Warsaw. He specialised in radiology in 1994 when he earned his PhD at the Center of Medical Postgraduate Education. Since 2005, Brzeziński has been Director of Clinical Research at Helmed Diagnostic Imaging in Katowice. He is a member of numerous professional organisations, including the European Society of Cardio Radiology (ESCR), the American Society of Cardio Radiology (ESCR) and the European Society of Cardiology (ESC). As well as being a member of the European Society for Magnetic Resonance in Medicine and Biology (ESMRMB).
**ECR 2007 Special Exhibition – Travel, Transport, Terrorism**

By Julia Patuzzi, ESR Office

A notably popular feature at the European Congress of Radiology is the special exhibition initiated and compiled by Prof. Hermann Vogel from Hamburg, Germany, in cooperation with the Deutsches Röntgenmuseum, which has for years been part of the annual meeting. Thus, ECR 2007 is glad and proud that Prof. Vogel again presents his fascinating findings and his very particular view of imaging techniques.

This year's exhibit is entitled ‘Travel, Transport, Terrorism. X-Rays Serving Security.’ As Prof. Vogel states in his accompanying text, travel and transport can both be targets of terror attacks, and they play important parts in terrorists’ preparations. Travel, transport and terrorism have become part of our daily lives and elements of globalisation.

X-rays make hand luggage, parcels and containers transparent. Everybody knows that the airport examines these items and that dangerous objects hidden inside them will become visible. X-ray technology is employed to impede terrorist attacks by searching for weapons and explosives. If explosives are suspected, then the controller will search for an ignition device – the radiograph may show and document details, which may indicate the culprit. X-ray technology allows for the identification of items which have induced suspicion, without opening cases, baskets and containers. It also shows the location and permits identification of objects hidden about the person, without the need for personal searches. Firearms can be recognised by their form, size and absorption of x-rays, while explosives and drugs are identified by dual energy imaging and x-ray spectroscopy. Even people can be found, hiding within the contents of a truck.

The exhibition shows how x-ray technology can perform today and what the results are. Conventional fluoroscopy with transmission images, backscatter technique, dual energy technology, computed tomography and spectroscopy are all used. Images of the whole body, produced by a scan with a pencil or fan beam, show the body and its contents. Backscatter technology produces images of the body without clothing that are similar to photographs. One can foresee that in the near future the different methods will be employed in combination, not only successively, but simultaneously. In combination, computed tomography and spectroscopy are able to localise and identify explosives and drugs in pieces of luggage. One can suppose that the use of x-ray technology in security is at the beginning of a new stage of development, which is influenced by the political situation and by society’s perception of the threat of terrorism. It becomes clear that x-ray technology has a potential which surpasses the possibilities of diagnostic imaging in medical care.

Prof. Hermann Vogel is head physician at the Albers-Schönberg-Institute, the department of radiology at St. Georg Hospital in Hamburg. During a stay as visiting professor in Monterrey, Mexico, he noticed that violence in South America somewhat differs from violence as experienced in Central Europe. His methodical collecting led to findings of victims of war, torture and other crimes (A Radiologic Atlas of Abuse, Torture, Terrorism, and Inflicted Trauma, CRC Press 2003). A request for images from amnesty international launched his first exhibition. Today there are four exhibits available, with legends in German, English, French, Polish and Arabic, which have been shown more than 50 times throughout the world.

The new exhibition, which is shown for the first time at ECR 2007, features again more than 20 posters with partly provocative images that illustrate the increasing role of imaging techniques in terror prevention and combat. It is presented on the first level of the congress venue.
In quest of quietude and peacefulness – a contrast to a busy life

By Julia Patuzzi, ESR Office

In our series about radiologists with unusual leisure activities, we present to you today an eminent Italian physician who has not only a truly uncommon hobby, but also pursues it with an uncommon energy, excelling in it in the same way as in his profession. Dr. Tito Livraghi ranks among the better known European radiologists due to his outstanding achievements in percutaneous ablation therapies. And he is an acknowledged expert on cemeteries!

Dr. Livraghi names various among his leisure activities, particularly travelling (Milan – Kuthmandu, Asunciòn – Usuaia, New York – Guatemala City by public services, Doula – Mombasa through the equatorial line, Tunis – Lome across the Sahara desert), trekking and photography. During his travels he collected thousands of pictures of local cemeteries and in 1990 published the book ‘Sheol’. The Hebrew term ‘Sheol’ is from the Old Testament and means ‘land of darkness’ or ‘place of silence’, similar to the classical concept of Hades. It connotes the place where those who had died were believed to be congregated, a comfortless place beneath the earth, beyond gates, where both the bad and the good, slave and king, pious and wicked must go after death to sleep in silence and oblivion in the dust. Thus, it is the perfect title for a marvellous book conveying the beauty and peacefulness of cemeteries around the world. Currently Dr. Livraghi is preparing a book concerning the historical sites of Milan and a catalogue on the wine routes.

ECR Today had the pleasure of asking Dr. Livraghi a few questions on his favourite leisure activity and got some quite personal remarks.

ECR Today: When did you start to develop your interest in graveyards?
Dr. Tito Livraghi: The first picture was taken when I was fourteen years old, but the original idea was conceived when in 1979 I visited the so-called ‘cheerful cemetery’ in the Maramures area in Romania.

ECRT: What is it exactly you like about these places?
TL: In almost everyone cemeteries cause repulsion, attraction or curiosity; I instinctively chose curiosity for visiting beyond my local cemetery.

ECRT: Are you interested in the architecture of places or is it more the atmosphere?
TL: I am interested in everything: local habits, inscriptions, grave materials and shape, atmosphere according to the different religions and histories.

ECRT: Are you ‘specialised’ in Italian graveyards or do you also visit them while travelling abroad?
TL: I started from my ‘own’ cemetery, then went on to other Italian ones, then moved on to visit graveyards all over the world (I visited more than one hundred countries).

ECRT: Since it seems you have seen them all, or at least a great many different ones, what are in your opinion the main contrasts between various countries?
TL: This answer needs a full text. The main differences are caused by religion. However, it is possible to find everywhere the so called ‘unique cemetery’, completely different from its neighbours for strange reasons.

ECRT: Is there a type of graveyard you are especially fond of?
TL: I especially like small ones in Tyrol, but I also remember a truly ‘unique’ one, along the Nile.

ECRT: In Austria, most cemeteries tend to be rather ‘crowded’, all graves have tombstones, some with statues. So I was somewhat overwhelmed when I first visited the cemeteries of Hamburg and Chicago, the largest ‘park cemeteries’ in the world. Would you care to share any similar experience?
TL: I agree. You have to visit some Italian ones! After the Tyrolean cemeteries, which are my favourites, my preferred ones are in Scandinavia.

ECRT: Do you usually visit the graveyards by yourself or with company?
TL: I prefer to be alone, but it is also nice to be a guide for friends.

ECRT: Are you also interested in graves of famous people? If so, are there any in particular you like?
TL: I prefer common people.

ECR Today: By strange reasons.

Dr. Livraghi has personally treated more than 2,000 patients and most patients with small HCC are currently cured with percutaneous therapies. In addition, he is the editor of numerous books, attended hundreds of congresses, and he is a renowned reviewer for several journals.

Prof. Tito Livraghi from Milan, Italy on one of his innumerable trips.

Dr. Tito Livraghi was born in Milan in 1942. He worked as an assistant at the National Cancer Institute of Milan and was head of the radiology department at the Civil Hospital of Vincenata (Milan), where he is currently a consultant. He has published one hundred articles on interventional radiology. In 1986, in Radiology, he first reported a new procedure for treating hepatic cancer, using percutaneous ethanol injection (PEI) under ultrasound guidance. Starting from this study, more than 3,000 other articles on ablation therapies were published. In 1990, again in Radiology, he proposed single-session PEI for treating thyroid nodules. In 1993, in the American Journal of Radiology, he proposed single-session PEI under general anaesthesia for treating advanced hepatocellular carcinoma (HCC). In 1995, in the Journal of Hepatology, he demonstrated the comparable survival after PEI or surgery for cirrhotic patients with small HCC. Since 1997 he has published several studies concerning thermalisation with radiofrequency. The paper ‘Small hepatocellular carcinoma: treatment with radiofrequency versus ethanol injection’ was recently scored by Radiology as the number one clinical study in regard to the number of citations.

Dr. Livraghi has personally treated more than 2,000 patients and most patients with small HCC are currently cured with percutaneous therapies. In addition, he is the editor of numerous books, attended hundreds of congresses, and he is a renowned reviewer for several journals.
Breast specialists put added emphasis on functional, physical and chemical aspects

By Paula Gould

The dominance of x-ray mammography in breast screening seems unlikely to change before ECR 2008, or even ECR 2018. But when it comes to clarifying a ‘positive’ read, or assessing the cause of symptomatic breast pain, a whole host of alternative diagnostic approaches are waiting in the wings. Delegates attending this afternoon’s session, ‘Elaborate Breast Imaging’ will get a sneak preview of those that are closest to implementation.

Prof. Dr Christiane Kuhl will speak on new diagnostic approaches in breast MR imaging this afternoon’s session. “It is the future in reach,” said Dr. Ralph Sinkus, researcher at the ESPCI, Paris, describing the new horizon section: “These are the techniques that are very near to clinical reality.”

Elastography is one such approach, on the brink of clinical application. The technique is based on the age-old practice of palpatating tissue to detect abnormalities as lumps. As healthy tissue becomes malignant, its viscoelastic properties change. But deep-seated tumours, or small growths, may still be missed by even the most experienced practitioner.

Elastography provides an objective way of highlighting differences in tissue elasticity, according to Sinkus. Because elasticity itself cannot be imaged, a two-step approach is required. The tissue is first vibrated to set up a series of acoustic waves. These waves will travel slowly through soft, elastic tissue and more quickly through stiffer tissue. A modality sensitive to motion, such as MRI or ultrasound, is then used to image the waves, so gaining information on the tissue’s elastic properties.

“The basic concept is very simple,” he said. “The MRI unit or the ultrasound machine is nothing but a digital camera to us. Making an image out of these waves is where the physics comes in. Clinicians will never need to see those equations. To them, it is just software.”

EPSCl researchers, working with the Institute Curie in Paris, now plan to study the clinical potential of ultrasound elastography. The data derived from ultrasound is not as precise as that acquired with MRI, but the modality is considerably cheaper and more widely available, and the accuracy of its results may improve over time. This means that MR elastography can be ruled out as a first-line breast screening tool, but the same is not necessarily true for ultrasound elastography. Sinkus envisages MR elastography becoming a valuable adjunct to contrast-enhanced MR mammography for the work-up of suspicious breast lesions. This could improve the specificity of breast MRI by up to 20%.

Elastography is not the only method that promises to improve the accuracy of breast MRI. The addition of perfusion imaging, and/or MR proton and phosphorus spectroscopy, could similarly help differentiate benign masses from malignancies, according to Prof. Dr Christiane Kuhl, professor of radiology at the University of Bonn in Germany. Switching to blood-pool contrast agents could also have diagnostic advantages for breast MRI. These agents have not yet received regulatory approval for clinical breast imaging work.

She hopes that the emergence of functional techniques in breast MR examinations will additionally prevent over-treatment. Some ductal carcinoma in situ (DCIS) findings flagged up on x-ray mammography may never become invasive, but without knowing which these are, patients could still be referred for inappropriate aggressive therapy.

“We desperately need more information regarding the biological prognostic behaviour of cancers. I would hope that with the more functional techniques that breast MRI is able to provide, we will be able to get some surrogate markers for biological aggressiveness too,” Kuhl said.

Optical imaging is another promising technology that is hovering on the near horizon, according to Prof. Dr. Christoph Bremer from the Institute of Clinical Radiology at the University of Münster, Germany. Techniques are sufficiently accurate that optical imaging can reveal just a few receptors on a tumour cell.

Most fluorochromes under investigation for breast imaging fluorescence in the near-infrared region of the electromagnetic spectrum. This type of light can travel significant distances through tissue, unlike visible light, which is absorbed strongly.

The advent of whole-body tomographic optical imaging systems, equivalent to CT or MR scanners, is unlikely, Bremer said. Surface imaging techniques, where practitioners essentially take a photograph at a wavelength specific to an injected fluorochrome, appear more promising. The combination of this approach with laparoscopic devices could still enable imaging within the breast. This may, for example, be a real help to breast surgeons when it comes to excising suspicious masses.

“You could potentially inject a fluorochrome that attaches to the breast tumour to see where the margins are, and then apply simple intraoperative technology.” he said. “It is cheap, rapid, and basically online. That’s a scenario that is really not far away from clinical application.”

myESR.org

New Horizons Session

Saturday, March 10, 16:00–17:00, Room C

NH B Latest advances in breast imaging

• Chairman’s Introduction
  • C. Kuhl, Bonn/DE
• New diagnostic approaches in breast MRI imaging
  • C. Kuhl, Bonn/DE
• Molecular assessment of breast cancer using magnetic resonance spectroscopy
  • M. Gänzler; Minneapolis, MN/US
• US and MR elastography of breast tumors: Technical groundwork and clinical value
  • R. Sinkus; Paris/FR
• Optical imaging of breast tumors: Are we at the verge of molecular breast cancer imaging?
  • C. Bremer; Münster/DE

Prof. Dr. Christine Kuhl will speak on new diagnostic approaches in breast MR imaging this afternoon's session. "It is the future in reach," said Dr. Ralph Sinkus, researcher at the ESPCI, Paris, describing the new horizon section: "These are the techniques that are very near to clinical reality."
President of the Johns Hopkins University to give honorary lecture

William R. Brody, M.D., Ph.D., was born in 1944 in Stockton, California. He received his B.S. and M.S. degrees in electrical engineering from the Massachusetts Institute of Technology, and his M.D. and Ph.D., also in electrical engineering, from Stanford University. Following postgraduate training in cardiovascular surgery and radiology at the Stanford University School of Medicine, the National Institutes of Health in Bethesda, Maryland, and the University of California, San Francisco, Dr. Brody was professor of radiology and electrical engineering at Stanford University from 1977 to 1996. From 1987 to 1994, he was the Martin Donner Professor and director of the Department of Radiology, professor of electrical and computer engineering, and professor of biomedical engineering at Johns Hopkins, and radiologist-in-chief of the Johns Hopkins Hospital in Baltimore, Maryland/US. From 1994 to 1996 Dr. Brody served as provost of the Academic Health Center at the University of Minnesota. And on September 1, 1996, he became the 13th president of The Johns Hopkins University, a most prestigious position, which he still holds today.

He has been a co-founder of three medical device companies, and served as the president and chief executive officer of Resonant, Inc. from 1984 to 1987. He has over 100 publications and one US patent in the field of medical imaging and has made contributions in medical acoustics, computed tomography, digital radiography and magnetic resonance imaging.

Dr. Brody serves as a trustee of The Commonwealth Fund and of the Hopkins Foundation, and sits on the governing committee of the Whitaker Foundation. He serves on the Board of Directors of Medtronic Inc. and Merck & Co., Inc.

Dr. Brody is a member of the following organisations:

- The Johns Hopkins Hospital in Baltimore, Maryland, and the University of California, San Francisco.
- The National Institutes of Health in Bethesda, Maryland, and the University of California, San Francisco.
- The Martin Donner Professor and director of the Department of Radiology, professor of electrical and computer engineering, and professor of biomedical engineering at Stanford University from 1977 to 1996.

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**EFOMP**

EFOMP is the Federation of Organisations for Medical Physics in Europe. Founded in 1980, it now involves more than 35 national organisations in the field of Medical Physics. On the European level it is linked with other specialty organisations like EAR/ECR, ESTRO, EANN, EAMG, EMSM/MB etc. making it the centre of a widespread network for Medical Physics. On the international level it is connected to IOMP as a regional chapter.

EFOMP's five committees are:

- **Education, Training and Professional Committee**
- **Scientific Committee**
- **Standing Committee on Registration Matters**
- **Committee on European Union Affairs**
- **Communications and Publications Committee**

They consist of core and corresponding members. Their chairs, as well as the President, Vice-President, Treasurer and Secretary General, are elected by the Council of EFOMP which meets once a year. Each national member organisation may send up to two representatives to the council having 1–3 votes per organisation depending on their size.

Dr. William R. Brody is invited as Honorary Lecturer of the European Congress of Radiology and the European Association of Radiology. He will present the Wilhem Conrad Röntgen – Honorary Lecture, entitled ‘Healthcare and the Ford Model T: Unsafe at any speed: How to make hospitals safer places for patients’.

**ESHR – European Society of Head and Neck Radiology**

The European Society of Head and Neck Radiology (ESHRN), Europe’s premier head and neck imaging society, welcomes anyone with a substantial interest in head and neck imaging.

The ESHNR co-operates closely with the American Society of Head and Neck Radiology (ASHNHR) and the Asian and Oceanian Society of Neuroradiology and Head & Neck Radiology (AOSNHR).

**The purpose of the Society is:**

1. To advance knowledge in the field of head and neck diagnostic radiology, interventional radiology and diagnostic imaging
2. To stimulate interest in the field of head and neck radiology
3. To promote research in head and neck radiology
4. To improve methods of teaching radiological diagnosis of diseases in the head and neck area
5. To provide meetings for the presentation of papers and the dissemination of knowledge
6. To foster the continuing development of head and neck radiology as a science

**Seven good reasons why you should join the ESHNR**

- 1. Friendly, active society
- 2. Multidisciplinary exchanges
- 3. Educational programmes (including guidance for National Societies and dedicated sessions for junior members)
- 4. Access to experts across Europe, for your difficult cases
- 5. Advice on optimum imaging strategies for a variety of presenting scenarios
- 6. Recognition of excellence
- 7. Lively and informative annual meetings that discuss novel approaches

Next Meeting of the ESHNR

The next annual meeting of the European Society of Head and Neck Radiology will be in Oslo, Norway from September 6–8, 2007. For further information visit the congress website http://www.eshrn2007.org/
Austria benefits from hosting annual ECR meeting

With its first Austrian presidency ever, the Congress, annually set in Vienna, is likely to have an additional Austrian flavour this year. The lectures offered by the Austrian delegation for the ECR meets Austria sessions are already humbly only playing around this theme: from obesity and coronary arteries diseases spawned by local delicacies, to mountain sport injuries. Everything evokes the Austrian lustful, close to nature lifestyle … and how successfully Austrian radiologists tackle these specific problems.

A leading country in radiology research and practice before 1938, Austria has regained its place on the international scene over the last two decades, partly thanks to its hosting of ECR each year. Grateful for that opportunity, Prof. Gerhard Mostbeck, the new president of the Austrian Society of Radiology, urges his colleagues to multiply contacts abroad, especially with other European countries. He tells us more about Austrian technical achievements and why radiology and nuclear medicine should come back together …

ECR Today: How is Austrian radiology changing? Prof. Gerhard Mostbeck: It is doing very well! Austria is a wealthy country with a medical system based on the solidarity system for almost everybody. In addition, Austria has a good installed base and a healthy distribution of imaging equipment. I think we are well prepared for today’s diagnostic and therapeutic needs.

ECRT: How many radiologists are working in Austria today? GM: We currently have 850 to 900 radiologists in Austria. Half of them are working in private practices and institutions, including the Federal Ministry and MR whereas the other half are based in hospital radiology departments. Interestingly enough, 60 to 70% of radiology departments are female. The gender proportion of medical student has changed dramatically. This influences the gender distribution of radiologists as well. In my department, more than 50% of board-certified radiologists are female.

ECRT: How do you see the demographic evolving within, let’s say, the next twenty years? GM: The number of radiologists is constantly increasing because of new demands in our field, especially regarding high tech equipment like MR. New facilities and new indications need more people. There is actually more demand than supply. Thanks to ECR, it makes no sense to have exclusive Austrian meetings. We are working directly on the international basis.

There are four university departments of radiology in Austria: Vienna, Graz, Innsbruck, and the private University of Salzburg. They are trying, and actually should try harder, to attract people from abroad to participate in their training and research. For instance, many radiologists from Turkey and India trained here. Besides, more exchanges between European countries and not only with the United States would be beneficial. Radiology in Europe improved very much in the last 20 years, thanks to ECR and EAR and now ESR, which are trying to build a community in radiology quite similar to RSNA.

ECRT: Are there any turf battles with other specialties? And if so, how are Austrian radiologists developing a pragmatic, collaborative model to improve the situation? GM: Conflicts happen within the techniques are pushing each other, it is fascinating to witness. Then, we will have to further improve our minimal invasive therapeutic techniques in interventional radiology. Finally, we have to set the basis for molecular imaging.

ECRT: How is Austrian radiology encountering the growing need for a multidisciplinary approach in radiology? GM: There is close communication between nuclear medicine and radiology departments, e.g. at my hospital for the image fusion or case discussions. We have to get closer to nuclear medicine and develop our own functional imaging techniques in the screening and staging of patients.

A closer cooperation between nuclear medicine and CT/MR is absolutely crucial because of the technical developments in PET/CT and PET/MR. We must create some kind of education to use these techniques in an optimal way. In the past, radiology and nuclear medicine worked together, then they split and I think they should somehow come back together again – not in the not too distant future. But we also have to ensure that we improve communication with politicians and healthcare providers to convince them to invest in state-of-the-art technologies that in the long run allow savings in healthcare expenditures.

ECRT: Skilled staff are a main premise for the implementation and maintenance of high-quality radiological services – what do you do to promote postgraduate education and training in modern imaging methods? GM: Every radiologist in Austria has, now on the voluntary but probably soon on the mandatory basis, to prove that he/she has had 150 hours of postgraduate training within three years. This guarantees that radiologists are using post-promotional training. This can be done either by writing articles in different journals or by presenting at meetings and conferences like ECR.

Austrian attendance to the Congress is by the way very high: 350 to 600, so 2 out of 3 Austrian radiologists are participating each year in ECR. Something similar should be introduced for radiology technicians, especially those who are working at the edge of medical equipment like CT and MR.

ECRT: Is there a kind of Radiologist Training Forum on the Austrian level? GM: Yes, it is called the Junior Radiology Forum and is organised by the Austrian Society of Radiology. It ensures that the specific needs of the radiologists in training regarding their education are taken care of.

ECRT: What do you wish to achieve during the ‘ECR meets Austria’ sessions? GM: Austria is proud to host ECR in Vienna. It represents a kick off, a big push for many Austrian radiologists. People who used to fly to RSNA now stay in Vienna. We will try to host it as long as possible! We want to thank ECR for giving us this opportunity. Actually, more than 60% of Austrian radiologists participate in this congress and the abstract submission by Austrian radiologists is very high. On that occasion, Austrian radiologists will try to improve their international communications with European radiologists worldwide.

ECRT: What was your main motivation for choosing your profession? GM: I actually started as a cardiologist, I was an intern from 1982 to 1985. In 1985, I switched to radiology: I hated it in the beginning! But it turned out to be, for me, the optimal way of providing healthcare to patients.

ECR meets Austria
Saturday, March 10, 10:30–12:00, Room A
EM 1 Imaging of Lifestyle induced disorders

Presiding C. Schön, Vienne/AT
D. H. Musteck, Vienne/AT
• Introduction: Austria between extremes
H. Imhof, Vienne/AT
• Swallowing and Wiener Schnitzel: What do you do to promote postgraduate education and training in modern imaging methods?
5. F. Gianotti, Graz/AT
• Subtlety with whipped cream. The difficult life of Austrian coronary arteries
H. Imhof, Vienne/AT
• Overweight/diabetes/obese heroes F. Kanterberg, Vienne/AT
• Moving in the mountains - Rock climbing injuries A. Klauser, Innsbruck/AT
• Mountain biking injuries Mountain biking injuries E. von Schœnrock, Graz/AT
• Wine and Styrian lifestyle The 4D liver dilemma E. Sorantin, Graz/AT

ECR 2007 MEETS AUSTRIA
SATEURDAY, MARCH 10, 2007
Tremendous advancements in diagnostic imaging call for corresponding progress in processing of medical images and translating the results into clinical practice. Despite the remarkable research efforts in medical imaging, their impact on clinical practice is insufficient. Though the goals of clinicians and medical imaging researchers are generally aligned aiming to provide better healthcare solutions, there are considerable differences between these two communities, not only in terms of responsibilities and mutual expectations, but also in algorithms applied, data used, and approaches to problem solving. These differences result, in our opinion, in a gap between the clinicians and researchers. To address this problem and to bridge the gap in neuroimaging, we propose the Efficient Cerebral Routines (ECR) concept, an intelligent neuroradiology environment, where R&D solutions validated on clinical data are integrated into clinical practices and medical education (see Figure 1).

The computer exhibits developed in our lab illustrate our attempt at implementing this concept. Two groups of exhibits are presented: one for clinical and the other for educational applications. Our solutions are assisted by brain atlases of anatomy, blood supply territories, cerebrovasculature, and central nervous system anomalies (in foetus).

The key messages communicated are:

- Despite remarkable advances in imaging, there is a substantial gap between the clinical and medical imaging communities, and efforts on both ends are necessary to cross this gap. A more efficient transfer of R&D results to clinical practice as well as a better utilisation of clinical data for R&D are necessary.

- To bridge the research-clinical gap in neuroimaging we require neuroimage processing to be rapid, robust, accurate, and automatic. To meet these requirements our solutions apply a combination of image processing and analysis techniques, domain knowledge including brain atlases, radiological properties, and variability.

- The use of brain atlases speeds up scan interpretation, facilitates efficient communication of clinical information, increases clinical confidence, makes radiology more quantitative, and enables knowledge discovery and aggregation.

- The proposed stroke CAD system for rapid and quantitative management of acute ischaemic stroke images shifts the paradigm from 2D visual inspection of individual multiple scans to atlas-assisted quantification and visualisation of multimodal images in 2D and 3D (see Figure 2). It facilitates and speeds up data analysis, supports decision making, and is potentially useful in research (clinical trials) and diagnosis.

- User-friendly navigators with data-derived atlases along with the labelled and annotated content capturing spatial relationships, variability, and anomalies, are powerful tools for medical education.
**Genomics puts targeted treatment on the healthcare agenda**

By John Baner

The Human Genome Project has been described by biologists' equivalent to NASA's Apollo programme. In other words, the task is as complex, expensive, and technically daunting as that US physicists faced in the 1960s when they attempted to put a man on the Moon. Its findings will not only be of great scientific interest, but also promise to provide the impetus for a revolution in human healthcare.

The goal of the Human Genome Project was to understand the basis of all that makes us human by deciphering the complete sequence of Homo sapiens DNA. This was no mean feat, given that approximately three million pairs of nucleotide base pairs are found in the nucleus of nearly every human cell. The genome of any given individual (except for identical twins and clones) is unique. Mapping the 'human genome' involves sequencing multiple variations of each gene.

The project was launched in 1990, and initially expected to last 13 years. It became a magnificent example of the power of international collaboration, with contributions from laboratory groups worldwide. Increasingly sophisticated automation enabled researchers to finish a rough draft, covering about 90% of the genome, by February 2001. This achievement was announced with great ceremony. Two competing research teams, one supported by public funding and one privately-funded, came together to share the glory.

Completing the sequence of the human genome is only the first stage of this ongoing endeavour in genomics. It is like opening a book in a language that no-one yet understands. The next – and more challenging – task will be to identify and characterise the genes contained within it. This process will take many more years.

Current estimates suggest that active genes only make up 3% of the genome. The rest is often mistakenly called 'junk DNA', though it is likely that we don't yet know what that purpose is. Some non-coding sequences of DNA (introns) are spliced out of sections of DNA that code for genes (exons). These introns may help to determine which genes are active at any particular time. They may also act as spacers, allowing DNA to be cut and re-assembled without damaging the code. Shuffling exons around allows genes to evolve more rapidly than would be possible if relying purely on mutations that affect individual bases.

**Medical implications**

Understanding the sequence, position, and role of particular genes will provide medical staff with the power to identify individuals at risk of developing specific genetic diseases. It will also help doctors to fine-tune the medication, screening tests, and lifestyle advice they offer to patients.

Going a stage further, the 4,000 different human diseases caused by a single gene defect may become curable through gene therapy. This form of treatment is currently seen as the best hope for treating common single-gene based conditions, such as muscular dystrophy and cystic fibrosis.

Gene therapy involves replacing a mutated gene that can no longer produce functional protein with a normal copy. Many different methods have been devised for introducing these endogenous genes into patients. Those showing the best results so far are also used as spacers, allowing DNA to be cut and re-assembled without damaging the code. Shuffling exons around allows genes to evolve more rapidly than would be possible if relying purely on mutations that affect individual bases.

Thousands of experimental trials into gene therapy have been performed worldwide to date. The first successful trial of an experimental gene therapy system was launched in 1990, and involved a young girl with severe combined immunodeficiency (SCID) syndrome. Treatment produced significant clinical benefits, though it had to be repeated every few months.

Public confidence in gene therapy was shaken in 1999 by the death of a teenager enrolled in a trial of a treatment for a rare liver disorder. The fatality was apparently caused by a severe immune reaction to the virus vector. Regulatory agencies were further alarmed a few years later by the unexplained incidence of leukaemia in three patients receiving an experimental SCID treatment.

No gene therapy system has yet been granted approval for routine use. There are certainly a number of safety cases to cover before introducing any foreign material into the human body carries the risks of an adverse immune reaction. Viruses used in most trials also have the potential both to cause inflammatory responses and to reignite virulence.

Treatments may need repeating when cells that have taken up the foreign genes then die. Gene therapies are also unable to target multifactorial disorders, such as cancer and heart disease, which put the biggest burden on modern healthcare systems.

None of these problems is insurmountable, and reports of positive developments persist. It may only be a matter of time before gene therapy begins to justify the hype that has surrounded its progress for the past two decades.

**Past, Present and Future of the Hungarian Society of Radiology**

The Hungarian Society of Radiology has lived through many difficult years since its foundation in 1939. The two most difficult periods were between the world wars and in the 1950s, but there have also been a chance to rebuild and develop. These difficulties have been overcome due to prominent individuals who have helped the profession to become both young and a part of the international family, thus Hungarian radiology has become noted all over Europe.

Even today, Hungarian radiology has many difficulties to face, since a total reform of Hungarian medical care is in progress, causing existential problems for the members of our Society. Leaders and senior members of our professional community are aware of these difficulties, so they have worked out a system which may help to overcome them. The training of resident doctors and medical specialists is a clear priority, so young specialists with good knowledge of laboratory tests and small scale human endogenous genes into patients. Gene therapy promises to lead to substantial improvements in patient care, but not im-

**The Croatian Society of Radiology**

The Croatian Society of Radiology (CSR) is the national professional society of Croatian radiologists and is one of the main representatives of the professional societies that constitute the Croatian Medical Association. The CSR is composed of 340 members (including residents) and is concerned with all aspects of the professional issues that are radiologists' focusing.

The society is run by a board of 12 members, a president and a vice president, all of whom are elected for a term of four years by a secret ballot of all attending members at the general assembly. All members of the CSR are eligible to be candidates for all positions in the society. The current board is elected until September 2008. The board meets every month or more frequently when necessary and the professional meeting is also held once a month in the capital, Zagreb, where lectures are provided in different areas of imaging and usual attendance is approximately 100 members per meeting. In addition, regular professional meetings are organised in the branches of the CSR in Rijeka and Split.

Our members participate regularly in the ECR/ESR assembly, ECR, and in most national professional meetings and young radiologists and residents are included in the educative programmes of the ESR. The society has harmonised its residency programme and subspecialty train-

**ECR TODAY**

**Saturday, March 10, 2007**

**The next – and more challenging – task will be to identify and characterise the genes contained within it. This process will take many more years.**

**To sum up, the Hungarian Society of Radiology is striving to ensure that conditions of which should be discernable in the near future.**

**The CSR has 340 members (including residents) and is concerned with all aspects of the professional issues that are radiologists' focusing.**

**Our members participate regularly in the EAR/ESR assembly, ECR, and in most national professional meetings and young radiologists and residents are included in the educative programmes of the ESR. The society has harmonised its residency programme and subspecialty train-
The Secession is probably one of Vienna's best known Jugendstil sights, legendary for its visual grandeur as well as its role in Austria's art history.

The Secession was founded in 1897 and presented its first exhibition in 1898, the same year the new Secession building opened. The erection of its own exhibition building was one of the guiding principles of the Association and was already discussed in the foundation principles of the Association and was decided by the members of the Association of Visual Artists Vienna Secession on a democratic basis and selected entirely according to artistic criteria. One of the basic objectives of the Association is the presentation of current developments in Austrian and international art, as well as to cultivate openness for experimentation.

Today, the Secession is the world’s oldest independent gallery devoted entirely to exhibitions of contemporary art. The exhibition programme of the Vienna Secession is decided by Gustav Klimt. Three important innovations can be observed in the Beethoven Frieze: the two-dimensional depiction and the monumental isolation of the human figure, the expressive use of line and the dominating role of ornament. Klimt’s participation in the Beethoven experiment marks the beginning of his famous golden period. Today, the monumental allegory is seen as one of the key works in the artist’s development. The theme of the frieze is based on Richard Wagner’s interpretation of the 9th Symphony by Ludwig van Beethoven.

The Vienna Secession was adapted and renovated several times in the course of its hundred year history. The entrance hall was already being altered in 1901. In 1908, part of the ornamentation and the slogan ‘Der Zeit ihre Kunst. Der Kunst ihre Freiheit!’ (For every time its art. For art its freedom.) were removed. The building was damaged by bombing during World War II and set on fire by the retreating German army. During the reconstruction in 1963 the original floor decor was renewed and a second floor inserted in the entrance hall.

Today, the Secession is the world’s oldest independent gallery devoted entirely to exhibitions of contemporary art. The exhibition programme of the Vienna Secession is decided by the members of the Association of Visual Artists Vienna Secession on a democratic basis and selected entirely according to artistic criteria. One of the basic objectives of the Association is the presentation of current developments in Austrian and international art, as well as to cultivate openness for experimentation.

The Secession building itself covers an area of 1,000 m² and has a centralised floor plan. Olbrich exploited the square as a basic motif in a number of cruciform combinations in the entrance area and exhibition wing. This scheme for the floor plan determines the entire shape of the building. Unbroken planes dominate on the exterior of the building. The massive, unbroken walls lend the exterior the appearance of being constructed from a series of solid cubes. However, this rather rigid geometry is utilised by Olbrich as a general framework, which he softens with sinuous lines, curves and overlapping surfaces.

Olbrich laid out the design so that it incorporated a ‘head’ and a ‘body’, i.e. a formal entrance area and a functional exhibition area. The entrance is flanked by heroic blocks that are dominated by four pylons that encase the dome. The exhibition hall has a basilica form with a lofty nave and a closing transept/asp. It is almost completely covered by tent-like glazed roofs which bathe the interior in a constant/even light. The famous laurel leaf is the dominant symbol in the Secession hall.

The Secession is probably one of the Viennese Jugendstil masterpieces as a key work of Viennese Jugendstil. It symbolises a three-crowned imperial crown, made of 3,000 gilt leaves which are enamelled green inside and gold plated on the outside.

The world-famous cupola of the Secession, built in 1898, is a key work of Viennese Jugendstil. It is covered by tent-like glazed roofs which bathe the interior in constant/even light. The famous laurel leaf is the dominant symbol in the Secession hall.

The QS (Quadrat-Saal) is without a doubt the Secession’s jewel. Its original form was preserved from 1970 when the retreating German army. During the reconstruction, 1963 the original floor decor was renewed and a second floor inserted in the entrance hall.

A total of about 20 exhibitions take place in the Vienna Secession (in the Main Hall, Gallery, Graphic Cabinet and Ver Sacrum Room) each year. All of the exhibitions are accompanied by a publication and often by parallel events, lectures, symposia, art discussions, etc.

**Culinary treats**

Rostbraten à la Girardi

*Ingredients*

- 1 ¾ lb. cuts of rib or short loin of beef
- 3 oz. onions
- 2 oz. smoked streaky bacon
- 3 ½ oz. white mushrooms
- 6 capsers
- 2/5 oz. plain flour
- 1/4 pint sour cream
- 14-16 oz. water or broth
- salt
- black pepper
- fresh ground lemon rind, grated parsley, chopped
- 1 hard-boiled egg, chopped
- (for dusting)

Cut the meat into 4 slices, flatten (with a tenderiser), make a few incisions around the edges. Salt and pepper; dust one side with flour. Heat the oil in a pan, add the meat and the flour on the side underneath and brown on both sides. Take out of the casserole, sweet the finely diced bacon in the same pan and then the finely chopped onions. Fry quickly, pour in broth or water, bring to the boil. Put in the meat, add the chopped capers and lemon rind, cover and stew for approx. 1 ½ hours. Trim the mushrooms, chop finely, stir in shortly before the meat is done, let boil briefly. Take the meat out of the gravy. Whisk together the sour cream and flour until smooth, stir into the gravy to blend, boil thoroughly. Season to obtain a sourish-salty taste. Put the meat back in a serving platter, sprinkle the Rostbraten with the chopped egg and parsley. Best served with dumplings in a red, pepper, lettuce, tomato or cucumber salad.

**What’s on today**

**OPERA**

*Staatstheater*

- 19:30 Manon by Jules Massenet, conductor Bertrand de Billy with Anna Netrebko, Roberto Alagna, Ani Agan, Adrian Erdő.

**CLASSICAL MUSIC**

*Musikverein*

- 19:30 Concentus Musicus Wien, conductor Nikolaus Harnoncourt
  - W. A. Mozart 20:00
  - Beethoven 20:00

**THEATRE**

*Akademietheater*

- 19:30 Bus purpurne Maternnal by René Pollesch
*Burghtheater*

- 19:30 Wei Lären um nichts by Wiliam Shakespeare
*Ensembletheater*

- 19:45 Missalienne by Werner Schwab
*Volksoper*

- 20:00 Gailanacht by Werner Schmiedy
  - stadTheater wullflichtgasse

**JAZZ**

*Ensembletheater*

- 20:00 Die Eversees by Atto Nicolai
*Teater in der Josefstadt*

- 19:30 Bus Fest by Thomas Vinterberg
*Vienna’s English Theatre*

- 19:30 A Picasso by Jeffrey Hatcher
*Volkstheater*

- 19:30 Cabaret by Masteroff / Kander / Ebb / Walker
In Middle Eastern archaeology many ancient cities are termed ‘hell sites’ that is to say they are built up over time, layer after layer, on exactly the same spot. To some extent the same can be said of Vienna’s Inner Stadt that today sits on top of a 9 metre-thick layer of cultural debris, including ancient Roman and Jewish layers with those of the medieval and later periods above them. Periodically these layers are brought to light, as during the construction of the U-Bahn (underground), when a medieval chapel was found in Stephansplatz and the old crypt of the Minoritenkirche, off Landhausgasse, was revealed and preserved for posterity. Similarly, during the excavation of the Prunksaal car park, a 12th century cobbled pavement was found and re-laid at present ground level for visitors to examine.

Excavations in 1992 in the Michaelerplatz, still visible today, revealed Roman buildings with frescoes and under floor heating (1st–3rd centuries AD), medieval houses and a deep well (13th century’s), walls of the former imperial pleasure gardens (18th–19th centuries), vaulted cellars (18th–19th centuries) and part of the Old Burgtheater, demolished in 1888 to make way for the Michaelerstr (or wing) of the Hofburg (an old doorway from the theatre, where Mozart’s ‘Le Nozze di Figaro’ and Cosi fan Tutte were premiered, can be seen inside the Michaelertor on the left-hand side). Also revealed was a finely-constructed drain made of bricks stamped with the Habsburg double-eagle motif, making up a tiny section of the Hofburg’s labyrinthine sewer system that was made famous by the film ‘The Third Man’. The city’s drainage statistics are incredible: 1,826 kilometres of channels provide a storm sewer system, with house sewers adding an extra 7,601 kilometres of which 152 kilometres are main streets. Other curious aspects of this subterranean world are the crypts and cellars punched deep into the Viennese clay to gain valuable extra space in the increasingly cramped city. The peculiarity here, of course, is that in those cellars running to several levels (up to five are known), the deepest are the most recent! Testastini’s traditional Austrian outfitters (Trachten) at the bottom of the Mollersteig near Schottenstift has a staircase leading down to an amazingly extensive cellar system that can be visited on request. Below Demel’s famous cake shop and café on Kohlgasse, a cellar was found to be connected to the Hofburg by an ancient tunnel used subsequently by thieves to break into a bank vault half way along – it has now been sealed!

Many of Austria’s baroque monasteries possessed labyrinthine, multi-levelled cellars in Vienna, where they stored wine produced from their own vineyards (e.g. the Zwölf apostelkeller at Sonnenfeldgasse 3, the Augustinerkeller at Augustinerstrasse 1 and the Mühler 360keller at Schottenlgasse 3). These old and intricately brick-vaulted wine cellars have now become uniquely Viennese taverns that are truly one of Vienna’s most unexpected discoveries. A wonderfully atmospheric example well worth visiting is the Piaristenkeller at Piaristenlgasse 45 in the 8th district of Josefstadt, its 300 year-old cellars housing an opulent restaurant as well as the Emperor Franz Joseph Hat Museum. By appointment the cellars contain cellars that housed the imperial wine collection may also be seen.

Not surprisingly, cellars also made ideal air raid shelters in the Second World War, identified by the letters LSK (Luftschutzkeller) painted on the wall outside. Tragically, a direct hit on the Philippin in Albertinaplatz, home to the exclusive hockey Club, killed hundreds when the cellars there gave way – the victims were never recovered and the site is today marked by the Monument against War and Fascism erected by Austrian sculptor Alfred Höllicka in 1988.

Places to see

Underground Vienna – follow the hidden paths

In Vienna, who has a particular connection to Vienna and is the main sponsor and supporter of the new Jewish high school.

Until his early death (he died at 56 in 1918 from pneumonia), Klimt lived and worked at various places all over Vienna. The house where he was born has vanished, as have all his studios – or so one thought. His last atelier was located in a villa of the atelier, as well the original buildings. Th e result: today Klimt’s last atelier is again available to the public, set amidst a bewitching, thickly overgrown park.

For further fascinating finds, this book emphatically recommends itself. Look for the catacombs, underground Vienna, the most unusual museums, Red Vienna, traces of Mozart, and much much more …

Translation by Julia Patuzzi, ESR Office.

Tracks of his friend Harry Lime and finally sees the presumed dead man in a doorway in the centre of Vienna. This encounter can be easily repeated (without the appearance of Harry Lime himself, of course): Enter the first district, go on the Mülkerbastei and look for No. 3 Schreyvogelgasse!

Not that hidden after all, but who would have thought to look exactly there? The handy book ‘Only in Vienna’ will tell you where to make fascinating discoveries off the beaten tourist tracks, in all 23 Viennese districts in fact. Would you like more examples? Not too long ago, a painting by the famous artist Gustav Klimt was put up for auction, ‘Adèle’, the golden Adele. It fetched the highest price ever for a work of art, more than Picasso, Van Gogh or Rubens. The painting is now in New York, purchased by Ronald Lauder, heir to the Este Lauder cosmetics empire and former US ambassador in Vienna, who has a particular connection to Vienna and is the main sponsor and supporter of the new Jewish high school.

By Nils Jensen

Literary encounters

Only in Vienna – discover some secret places

You will find this only in Vienna: streets and squares are not only paved with asphalt but with culture as well. You only need to know where these enchanted spots are hidden, remote from well known places.

One fine example: The great British author Graham Greene invented a genre for a true movie classic, ‘The Third Man’. Carol Reed filmed this story right here in the city on the street named after his friend Harry Lime himself, of course): ‘Schreyvogelgasse!’

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Until his early death (he died at 56 in 1918 from pneumonia), Klimt lived and worked at various places all over Vienna. The house where he was born has vanished, as have all his studios – or so one thought. His last atelier was located in a villa in the elegant district of Hietzing, which was totally remodelled in the 1920s. At the end of the 1990s, a few particularly committed discoverers discovered that the original sketches of the atelier, as well the original structures of the rooms, were still there, hidden within the dilapidated building. The result: today Klimt’s last atelier is again available to the public, set amidst a bewitching, thickly overgrown park.

For further fascinating finds, this book emphatically recommends itself. Look for the catacombs, underground Vienna, the most unusual museums, Red Vienna, traces of Mozart, and much much more …

Translation by Julia Patuzzi, ESR Office.
2nd LEVEL

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“DANCING WITH WORKSTATIONS”