**ECR President predicts record numbers of participants**

By Mélisande Rouger

As many as 18,000 participants and guests are expected at ECR 2008, an all-time high in the long history of the European Congress of Radiology. ECR President Prof. Maximilian Reiser told a packed and enthusiastic audience at Friday’s opening ceremony.

European radiology has developed in tandem with Europe’s political unification, enabling people to travel freely from one country to another. This has occurred in spite of some obstacles, he stressed.

“People are allowed to travel without restriction from Poland to Portugal, from Sweden to Malta. Although the bureaucracy of European institutions is often criticised and the process of unification has met with some difficulties, it has still brought about many advantages to the people,” he insisted.

The European idea has been successfully realised within radiology, and the foundation of the ESR as a common house for the discipline signifies an important landmark, according to Reiser. Yet he conceded that radiological care is still completely unsatisfactory in many countries. Through initiatives such as ESOR – the European School of Radiology – ESR must expand the scope of its social responsibility by improving training and education, both within and outside of Europe.

continued on page 5

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**Fibroid embolisation: case proven?**

By Paula Gould

Uterine artery embolisation (UAE) was put on trial at yesterday’s ECR. Evidence in favour of this minimally invasive procedure for women with symptomatic fibroids is mounting, but the case against ‘UAE for all’ remains equally strong. What interventional radiologists must now decide is how this qualified support for UAE can be translated into clinical practice.

Over 150,000 women have undergone UAE since 1995, Dr. Anthony Nicholson told delegates at the special focus session. Most evidence on the efficacy of UAE has only just appeared, though. Before 2005, it would have been impossible to weigh up the procedure’s validity, but the evidence base is now much more robust and secure, giving interventional radiologists the green light to discuss the therapy with patients, he noted.

“We still don’t know absolutely about long-term efficacy,” said Nicholson, consultant radiologist at Leeds General Infirmary, UK. “But since June 2007, we have had three very fine trials that have been published. They have still brought some difficulties, it has still brought about many advantages to the people,” he insisted.

Speakers agreed that UAE should not be considered for women with asymptomatic fibroids. The most common indication is multiple, intramural fibroids – the dominant mass being smaller than 10 cm in diameter, said Dr. Jean-Pierre Pelage, associate professor of radiology at the Université Paris Ouest. Large, pedunculated subserosal fibroids should not be treated by UAE.

It is important to consider if the patient wants to become pregnant in the future, said Dr. Willem Anskum, gynaecologist at the Academic Medical Centre, Amsterdam, The Netherlands. Clinical trial data revealed a lower post-therapy pregnancy rate in patients who underwent UAE (50%) compared with those receiving myomectomy (78%).

The myomectomy group also experienced fewer miscarriages.

“It is quite clear from these results that you should not embolise women who still want to get pregnant,” he said.

Data also showed that UAE lets women get back to work far quicker than if they had undergone hysterectomy. They will also spend less time in hospital as inpatients. Approximately 20% of UAE patients will need to have a subsequent hysterectomy. Comparisons of post-procedural pain and minor complications remain inconclusive.

Whatever the theoretical arguments for and against UAE, the opinions of prospective patients should not be overlooked, according to Victoria Norton, founder of Forum Myome, a web-based support group for women with symptomatic uterine fibroids. Her views are based on personal experience. Norton suffered from heavy menstrual periods for eight years before fibroids were diagnosed. Seven years later – and after much campaigning – she became one of the first women in Germany to undergo UAE.

She acknowledged that hysterectomy is rated highly by many women as an effective way of combating fibroid pain or easing menstrual problems. The question is: could that same symptomatic relief be achieved with a far less drastic solution?

“I imagine you had suffered with a terrible toothache for 16 years, and someone took that tooth out. Wouldn’t you be happy?” she remarked. “But what would you do if someone else offered to take that pain away and leave you with the tooth?”

Opting for UAE over hysterectomy allows women to resume an active lifestyle more speedily, Norton said. Physicians should also be aware that childless women in their early 40s might still want to start a family, she added. Then there is the question of recreational sex – an issue that is seldom raised at scientific conferences, but one that has to be considered by prospective hysterectomy candidates.

Norton called on interventional radiologists who offer UAE to provide good post-procedural care. She recalled pacing the corridor in considerable discomfort after undergoing UAE. On-duty nursing staff were unable to provide adequate pain relief drugs and unwilling to call out a doctor. Panelists agreed that duty of care to UAE patients was a paramount concern. This can be difficult to achieve in practice, though. Interventional radiologists may not even have their own offices in which to see patients, said Prof. Jim Reekers, professor of interventional radiology at the Amsterdam Medical Centre. The most successful practices are those where gynaecologists have been brought on-board.

“It is a great worry for many interventional radiologists. We are not seen as primary carers in Europe. We have a very weak position,” he said. “We are not full-time clinicians, so we could end up with a situation where a patient has an infection, but there is no gynaecologist willing to help them out.”

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**GE Healthcare Satellite Symposium at ECR 2008**

**Facing the Challenges of the Increasing Population of High-risk Patients in CT Practice: Recognising the Problem, Improving Outcomes and Reducing the Risks**

**GE Healthcare**

**Sunday 9 March 2008**

12:30 – 13:45

**Room C, Austria Center**

**Speakers**

Dr. Elliot K Fishman, USA

Dr. Fujiko Sato, Italy

Dr. Mark Downes, UK

**Lunch will be provided**

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Experts outline pros and cons of functional MR and PET in clinical arena

By Philip Ward

Some tantalizing glimpses into the future clinical applications of functional MR and PET imaging were provided at Friday’s New Horizons session.

Using innovative sequence design and modern contrast media, most functional methods such as perfusion and diffusion MRI can now be easily integrated into standard protocols, facilitating a combined assessment in a single exam, explained the moderator, Dr. Marco Essig of the department of radiology at the German Cancer Research Center, Heidelberg, Germany. Although MR is still less sensitive than PET, functional MRI tools are often used as a comparator for some assessments.

“The problem with MRI is that conventional imaging is not able to fulfill all the requirements,” he said. “Functional MRI combines morphology and physiology/pathophysiology, and is a possible solution.”

He listed the indications for perfusion as stroke, oncology (whole body), and inflammatory and neurodegenerative diseases. Among the indications for diffusion MRI are neuromaging research, neuurosurgical planning, neurodegenerative diseases, oncology, and stroke.

The main requirements are rapid and reproducible quantification of the functional datasets, comprehensible presentation of the results in an interdisciplinary experimental or clinical context, comparison of the acquired data with established methods and building of normal collective, and transfer of the results from functional imaging techniques into established or new therapeutic concepts and monitoring strategies, he said.

Dr. Frank Berger, a clinical researcher at the University of Munich, explained that angiogenesis is the process by which new blood vessels are formed, and is the hallmark in the pathophysiology of tumour growth and metastases, as well as being the target for many new treatments. In tumours with a diameter of more than 2 mm, passive diffusion is no longer sufficient to reveal the viability of malignant cells, and neovascularisation is a necessity. Tumours beyond the occlude stage can activate the “angiogenic switch,” he added.

There are several vascular treatments of cancer. Antiangiogenic agents block or inhibit the growth of new blood vessels, while vascular disrupting agents destroy or compromise the function of existing blood vessels by targeting more mature vessels and the vessel wall. They are generally cytotoxic to endothelial cells. Vascular modifying agents, on the other hand, change the vasculature in a way that is favourable for the use of other treatments.

“A considerable number of new vascular treatments continue to fail at Phase III and beyond,” he said. “There is a need for biomarkers that can improve the selection of candidate therapies. Not every treatment is effective in every person. Also, there is a need for predictive tests that can aid selection of treatment in everyday clinical practice.”

Angiogenesis is a complex process involving many steps, defining a single-method approach, he continued. Studying the individual molecular process requires very sensitive methods, but there is no gold standard and many imaging tests are in the early stages of validation.

He noted that although CT perfusion is widely available, quantification is straightforward, and it is faster and easier to perform than MRI, it suffers from poor anatomical coverage, low sensitivity for detecting current contrast agents, and additional radiation exposure.

PET and PET/CT, however, can provide essential information in staging and grading of various tumours, treatment monitoring, and detection of recurrences. The acquisition of a whole-body PET/CT from the head to the pelvic floor can be obtained in less than 10 minutes, and soon the resolution of PET will increase to 3–4 mm, according to Prof. Hans Steinert, senior physician at the Clinic for Nuclear Medicine, Zurich University Hospital.

An exciting area for PET researchers is the development of molecular imaging probes, including specific tracers that can be used to detect hypoxia (“18F-fluorodeoxyglucose) and proliferative activity (“18F-thymidine). Hypoxia and tumour cell prolife- ration contribute to resistance to radiotherapy in head and neck tumour cells. Currently assessment of these two tumour characteristics is performed in biopsies using immunohistochemical staining and subsequent analysis.

Evaluating new cytotonic drugs is another emerging field, and early identification of inactive compounds and non-responding tumours may become feasible.

“Many more ligands are under development for imaging of angiogenesis, apoptosis, and reporter gene expression,” he concluded.

ESR builds on its strategy to boost awareness of women’s health

By Mélisaude Rouger

Women who neglect their health face even more severe consequences than men who do the same, according to experts speaking during Women’s Health Days, a public awareness event held from March 7 to 9 and organised by the European Society of Radiology alongside ECR 2008.

The event coincides with International Women’s Day on 8 March, and it targets women from Vienna by offering 24 lectures focusing on nutritional advice, breast health, heart attack prevention, and lung diseases.

A yearly mammogram is recommended for women over 40, but there has been a decrease in the number of examinations performed in Austria over the last few years, noted Dr. Andrea Küblsky, the Austrian Federal Minister of Health, Family and Youth Affairs.

“Many women tend to take more care of their family members’ health than their own, and they don’t invest enough time in the latter,” she explained.

To stress the importance of early detection, a mobile mammography unit, provided by Siemens Medical Solutions, will be located at the main entrance hall until March 10. The aim is to let visitors see how mammograms are conducted and to address fears related to the procedure, although no examinations will be carried out.

Some of the daily lectures will focus on the diagnosis and treatment of heart pathologies and lung cancer. Coronary heart disease is responsible for 25% of deaths in Europe, according to 2005 data, and this percentage is already higher for women than for men in this cat- egory, explained Prof. Christian Löwe, a radiologist at the University of Vienna.

Smoking, on the rise among women since the 1980s, seems to have more serious consequences for women than for men. Sedentary lifestyle and obesity, two other important risk fac-

tors, are also more frequent among middle-aged women than in men the same age. To top it all, women show different symptoms of acute heart infarction than men, and they suffer a delay in therapy, he said. “Being a woman, being elderly and belonging to a minority are independent factors that might lead to a delay in therapy for acute heart infarction,” Löwe added.

Early and precise diagnosis is the first step towards successful treat-

ment, whether aggressive drug ther-
apy or a change in lifestyle habits is required. But here again, diagnosing heart-related diseases is challenging in women, and traditional methods such as endurance testing tend to fail. On the other hand, CT angiogra-
phy of coronary arteries can have benefits, and can play an important role in the diagnostic algorithm of patients potentially suffering from a heart-related disease, he concluded.

Lectures are held from 11–12:30 and 15:30–17:00 until Sunday in a facil-

ity adjacent to the ECR venue. The event is free.
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Radiation worries must not inhibit cardiac CT

By Paula Gould

Concerned about the level of radiation associated with cardiac CT? Fear not. The risk of patients developing a radiation-induced cancer is actually far lower than reports suggest, ECR delegates were told yesterday.

The good news came courtesy of Dr. Joseph Schoepf, associate professor of radiology at the Medical University of Charleston, South Carolina, US. It follows a study of 104 consecutive patients (64 men, 40 women) scheduled for cardiac CT on a 64-slice scanner.

Organ doses were calculated using the ImPACT dosimetry spread-sheet and then corrected for patient weight. The risk of patients developing radiation-induced cancers was then determined using the BEIR VII approach, a method that draws on data from Japanese atomic bomb survivors.

"It is sometimes forgotten that weight is an important factor in radiation risk. The heavier the patient, the lower the risk from radiation," he said.

Researchers found that the risk of an average patient in their group developing cancer was 0.12%. The risk of mortality was put at 0.1%, with lung cancer forecast to be the biggest killer (85% of radiation-induced cancers).

These figures differ markedly with reports claiming a 1 in 114 risk of contracting cancer from cardiac CT, said Schoepf, speaking in the scientific session "Advances in cardiac CT." This alarming statistic, taken from a study published in the Journal of the American Medical Association, was calculated using prescanned scan protocols for a 20-year-old female patient.

In contrast, the calculations made by Schoepf and colleagues are based on actual scan parameters for a real life, patient population. Their cohort was predominately male, median age 59 years old, median weight 91 kg.

"It is always the most sensationalist numbers that get repeated over and over again," he explained. "The vast majority of patients who undergo cardiac CT are in their fifth to seventh decade of life. That goes along with a significantly reduced risk of seeing a radiation-induced cancer in their lifetime. Also, our patient population was pretty heavy, again a factor that significantly reduces the risk of radiation-induced cancer."

The cancer risk doubled for the most sensitive patients in the study group. These patients were younger than average, lighter than average and scanned with a particularly high dose of radiation. The 1 in 50 risk of contracting cancer faced by these patients is still far lower than the baseline grabbin 1 in 114 figure, though.

"If appropriately indicated, the gain in diagnostic information obtained non-invasively almost always outweighs radiation risk," Schoepf said. "Appropriate patient selection and indication are the most powerful tools for radiation protection."

The theme of radiation reduction was continued by Dr. Vicky Goh, a radiologist at the Paul Strickland Scanner Centre, Mount Vernon Hospital, London. The evolution of CT technology means that coronary artery anatomy, myocardial perfusion, and left ventricular function can theoretically be performed in a single, combined assessment. The added dose required to quantify myocardial perfusion, however, would take the patient's radiation burden well above acceptable limits.

The solution may be to use the test bolus performed during routine coronary CT angiography to carry out the desired quantification. A small-scale trial has confirmed that the strategy is feasible.

The prospective study involved 14 patients (mean age 66.5 years, eight male, six female) with suspected coronary artery disease. All underwent a retrospectively ECG-gated dynamic test bolus acquisition at the mid-ventricular level prior to combined coronary CTA and 82-rubidium perfusion PET. The effective dose for the modified test bolus acquisition was 1.4 mSv.

"Compare this to the 12 to 15 mSv for a standard perfusion study," Goh said.

The test bolus acquisition revealed normal resting perfusion levels in 13 out of the 14 patients, and evidence of an infarct in one patient. Interobserver agreement was good. The CT perfusion data tallied well with that from 82-Ru PET, also from previously published perfusion studies using a range of modalities.

"We have been able to show that the quantification of perfusion is actually as good as possible as part of a gated CTA test bolus study. It is certainly useful in a general setting, and it bodes well for combined studies in the future in coronary artery anatomy and myocardial perfusion," Goh said. "Particularly with the onset of prospective gated techniques and greater cardiac acquisition, we now should see greater integration of these techniques together."

Ireland prepare to battle it out with Wales in Dublin rugby clash

Don't be surprised if you fail to spot a single Irish or Welsh delegate in the Austria Center this afternoon. The chances are high that representatives from these two great rugby-loving countries will be glued to a TV screen in the Flanagan Irish Pub near Schwarzenberg Strasse, sipping eagerly at a large glass of "the black stuff".

Kick-off for the encounter between Ireland and Wales will be at 14:15 Central European Time, and the result is likely to have a big impact on the outcome of the Six Nations Championship, which concludes next weekend. The Welsh have won all their three matches, while the Irish have only lost narrowly to the French in Paris. Home advantage may prove a decisive factor, and defeat for Wales would throw the title race wide open.

England travel to Murrayfield in Edinburgh to face a deflated Scottish team in desperate need of a victory. The game kicks off at 16:15 today, France and Italy meet in Paris at 16:00 on Sunday.

In soccer, former Chelsea boss Jose Mourinho may soon be appointed manager of Real Madrid after the Spanish side were knocked out of the Champions League by Roma earlier this week, although club officials denied press reports on Friday.

At the half-way point in golf’s Malaysian Open in Kuala Lumpur, the joint leaders are local man Danny Chia and England’s Nick Dougherty. Denmark’s Soren Kjeldsen and India’s Jyoti Randhawa are sharing second place.

Finally, champion jockey Tony McCoy has been passed fit for next week’s four-day horse-racing festival at Cheltenham. He fractured two vertebrae in a fall at Warwick on 12 January.
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Harry’s Hot Shots from Day One

ECR Today’s intrepid and multi-talented photographer Harry Schiffer arrived in Vienna on Thursday evening from his home town of Graz. On this page is a selection of what he saw through the lens of his swanky Canon EOS-1 Ds Mark II camera during the opening day of the congress...

Mild temperatures and light winds on Friday meant that attendees could venture outside during the breaks between sessions.

On a bright, crisp spring morning in Vienna, thousands of delegates registered for ECR 2008 in the entrance hall of the revamped and modernised Austria Center.

These distinctive yellow bands are most definitely this year’s must-have fashion accessory. Will they soon be on sale in the chic boutiques of Kärntner Strasse?

A dynamic performance by Mnozil Brass brought added life and colour to the opening ceremony.

Jazz vocalist Dorretta Carter entertained ECR delegates during the opening concert. If you missed her stunning performance or if you want to see more, you can view her moving tribute to James Brown at http://www.youtube.com/watch?v=k0n0xNXE9w8M&feature=related

Carestream Health has received this year’s Exhibit Europe Award in recognition of its commitment to innovation in science and technology, its efforts in the advancement of patient care and research, and its support for ECR. In this photo, ECR President Maxime Reiser presents the award to Chief Technology Officer Holly M. Hillberg.

Don’t forget to visit the European School of Radiology’s booth in the entrance hall of the Austria Center. A wide range of GALEN foundation and advanced courses are being offered between May and November 2008. Information is also available on the ESOR website at www.myESR.org/esor

Prof. Ernst Pöppel, head of the Institute of Medical Psychology and of the Human Science Centre at Munich University, delivered the Inaugural Lecture for ECR 2008 on Friday evening.

Congratulations to the hard-working and creative graphics department on doing an excellent job with the signs throughout the Austria Center.
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To learn more visit www.gehealthcare.com/re-imagine

\textsuperscript{*} LightSpeed VCT XT is a premium LightSpeed VCT configuration.
CT vendors put renewed emphasis on safety and speed

By John Bonner

Safety first is the watchword for all those developing and using CT technology. While the imaging power and range of clinical applications for this equipment continues to expand, so too does the ingenuity applied by vendors in finding new methods for reducing patient exposure to potentially harmful radiation.

Most research into cutting the radiation dose for each scanning procedure has focused on enhancements to the imaging hardware. Considerable effort has gone into improving the design of the x-ray tube and improving the speed and efficiency of data capture.

But an emerging Swedish company appearing for the first time in the ECR exhibition hall has devised a different approach to minimising risk to the patient. SharpView was established in May 2007 as a spin-off from the Linköping-based digital imaging company ContextVision. It has developed software technology that allows radiologists to set a lower x-ray dose while preserving image quality.

At ECR 2008, Toshiba Medical Systems is demonstrating the Aquilion ONE dynamic volume CT scanner, which enables physicians to scan an entire organ – heart, brain or liver – in a single rotation lasting 0.35 seconds. The company expects the new data will allow physicians to reduce the risk to the patient and costs to the hospital, according to the vendor.

Siemens Medical Solutions has addressed the need to improve efficiency in a radiology unit by introducing Somatom Definition AS, an adaptive system providing different functions depending on the patient's needs. This reduces both the radiation exposure and the need for duplicate tests, reducing both risks to the patient and costs to the hospital, according to the vendor.

Aquilion ONE offers 16 cm of anatomical coverage using 320 ultra high resolution 0.5 mm detector elements. This gives the ability to carry out a complete examination in a single scan, and eliminates the need to reconstruct data from several points in time, thereby increasing diagnostic confidence. By allowing both a comprehensive scan and functional imaging, the technology should limit the need for follow-up tests, reducing both costs to the patient and savings to the hospital, according to the vendor.

With conventional CT, low dose will normally result in poor images, but the company has created an adaptive non-linear filter based on mathematical algorithms that detect and eliminate noise during processing. The inspiration for these ideas came from a possible source – studies of the human brain in a continuous, cycle, with a variety of dedicated cells, identifying, defining, and classifying image structures. The methodology within SharpView CT evolved from computer simulations produced in this research. Since its development and refinement, the technology has been utilised and integrated into a wide range of medical equipment, he explains.

In tests using the technology, radiologists have been able to cut the dose used in head examinations by about 30% and by up to 70% in chest imaging. For high-risk abdominal scans, the dose reduction achieved is somewhere between 40% and 50%, Aurell continued.

The image processing software is integrated within the hospital's existing image flow between the CT and the PACS, and is DICOM-compatible. It can be used with all types of CT scanner and can be tailored to fit the particular preferences of the hospital in handling its imaging data.

Meanwhile, the global giants of the CT industry have also been busy opening up new approaches to dealing with the safety issue.

Software is now commercially available that allows radiologists to set a lower x-ray dose while preserving image quality. A: Chest CT at full dose of 120 mA. B: Chest CT at half the dose, 60 mA, enhanced with SharpView CT.

A two-year-old Alexandre is reassured by staff at Linköping University Hospital before a CT examination.

Toshiba's Aquilion ONE dynamic volume CT scanner enables physicians to scan an entire organ in a single rotation lasting 0.35 seconds.

CT continues to make rapid progress in the pelvic, head and neck, and chest. (Images provided by Philips Healthcare)
This product’s adaptive 4D spiral facility enables the clinician to carry out functional imaging (or perfusion images of blood flow over time) specific to the particular organ being imaged. This offers information beyond those of perfusion studies and into the area of phase-contrast CT. So, in the case of a stroke, for example, physicians can use perfusion imaging not only for a small part of the brain but the whole organ.

The equipment also benefits from the company’s adaptive dose shield technology. This addresses concerns that as detector size and slice counts grow, the problem of unnecessary radiation before and after the spiral scan is becoming more acute. This is particularly so in facilities where older gantry designs have been updated with newer detector designs to save costs. This technology blocks unnecessary exposure to radiation before and after the spiral scan, ensuring that any dose received is clinically relevant.

Improvements to gantry design are a significant feature of the latest product in Philips Healthcare’s range of CT devices. The Brilliance iCT machine is a 256-slice scanner that allows the capture of highly detailed 3D images of the entire heart within the duration of two beats. The gantry rotates four times a second or 22% faster than most current systems, and in trials has been shown to reduce a patient’s radiation dose by up to 80%. These developments bring direct benefits to both doctors and patients, according to company’s CEO Steve Rusckowski. “The new Brilliance iCT scanner was specifically designed by Philips Healthcare to make the job of the clinicians easier and improve the experience of the patient,” he said. “Our innovations demonstrate Philips’ commitment to enable healthcare providers to devote attention to their patients, not just the technology.”

Continued from page 9
Leading researchers continue to explore the future viability of 7T MR imaging

By Paula Gould

3T MRI has evolved into a viable, robust technology. Five years ago, few sites were using a 3T scanner for anything other than research. Today most, if not all, university-affiliated centres in the United States have access to at least one 3T system for clinical work. The number of European hospitals and clinics offering routine MRI examinations at 3T is growing steadily too. The challenge of improving image quality by doubling the field strength has effectively been realised in the clinical arena.

So with high-field MRI conquered, researchers are turning their attention to very high-field MRI. If stepping up from 1.5T to 3T has produced such impressive results, then why not boost the signal further? Reduced such impressive results, then why not boost the signal further? The potential gains from 7T are undoubtedly tempting: faster scans, reduced acquisition time, improved spatial resolution, artefacts related to field inhomogeneity are less of a problem. With so many obstacles to tackle, many radiologists may well ask whether it is worth the effort. What clinical benefits are realised by generating slightly sharper images? Do seeing that extra detail really add value to a diagnosis or improve patient outcomes? These are two important questions that need to be addressed.

One area where 7T could add real value is the imaging of neurodegenerative disease. At very high field strengths, it becomes possible to map the distribution of magnetic materials using a technique known as magnetic susceptibility imaging. Application of this method to the brain could reveal important information about the progression of conditions such as Alzheimer’s disease.

“This is not completely understood yet. It is really a work in progress in terms of getting any quantification from the images you can generate, but it looks very promising,” said Prof. Richard Bowtell, professor of physics at the Sir Peter Mansfield MR Centre, University of Nottingham, UK. “People are getting to a much, much higher spatial resolution than was possible with lower field systems.”

If a clear, clinical application could be found for 7T MRI, then manufacturers would have more incentive to improve the user-friendliness of their systems, he explained. One possibility would be for vendors to focus on head-only scanners. Not only would the magnets be much smaller, but they could also be actively shielded. This would remove the need for costly iron cladding.

“The majority of systems that have been installed are whole-body magnets, though they usually only have coils for imaging the head,” Bowtell said. “The cost of the magnet and the screening are significantly higher when you go to a system with sufficient volume to accommodate the body.”

Manufacturers may, at some point, develop actively shielded 7T MRI systems, but there are no signs of this in the near future, Speck said. This does not mean that 7T will never leave the research laboratory, though.

“If you go back 10 years, when the first 3T systems were installed for human use, there were exactly the same arguments. ‘You are never going to get decent images,’ ‘This is just going to be a toy for researchers,’ ‘It will never be used in a hospital.’ This has changed dramatically,” he said. “Never say never.”
News from the Turkish Society of Radiology

By Muzaffer Basak, Istanbul/TR, President of the Turkish Society of Radiology

The Turkish Society of Radiology is an apolitical, non-profit organisation, dedicated to promoting radiological education and cooperation among its members with regard to professional, social and legal issues. Accordingly, the main radiological issues that our society handles are related to education.

Radiology education in Turkey is currently provided predominantly by university hospitals and government education and training hospitals. There are 42 state university hospitals, six private university hospitals, and 14 government education and training hospitals in Turkey. Radiology residency training and training hospitals in government education and training hospitals, and 14 government education and training hospitals in Turkey. Radiology residency training and training hospitals in government education and training hospitals, and 14 government education and training hospitals in Turkey. Radiology residency training and training hospitals in government education and training hospitals, and 14 government education and training hospitals in Turkey.

The training period is 5 years, and the Turkish Society of Radiology is actively collaborating with the Ministry of Health in planning education and cooperation in radiology residency programmes. Radiology board exams have been administered since 2004 by the education council of the Turkish Society of Radiology. The board exams are composed of two parts: one theoretical exam and one practical exam. Only the participants who succeed the theoretical exam can attend the practical exam. In November 2007, the theoretical part of the 4th board exam was performed by the Turkish Society of Radiology in Ankara.

The Turkish Congress of Radiology (www.turkrad2007.org) was held October 27–31 in Antalya, with 931 radiologists attending the meeting. Every year, the number of attending radiologists is growing. At the Turkish Congress of Radiology 2007, sessions were held by 141 Turkish lecturers and 10 lecturers from Europe and the United States. A total of 173 oral presentations and 950 electronic exhibits were presented. The main hot topics of the congress were: digital mammography; cardiac CT and MRI; PET-CT; and PACS-RIS systems.

In addition to the Turkish Society of Radiology, several other societies exist in Turkey, including the Society of Medical Ultrasonography, the Turkish Magnetic Resonance Society, the Turkish Society of Interventional Radiology, the Turkish Society of Neuroradiology, and the Turkish Society of Thoracic Radiology, all of which organise national and international meetings and courses.

The Turkish Society of Radiology publishes the quarterly peer-reviewed publication Diagnostic and Interventional Radiology. This journal, which has been published since 1994, has the highest standards of peer-review, editorial content and publication quality. It is one of the best medical journals published in the Middle East. This journal is also available free to all readers on the web (www.dirjournal.org). In 2007 Diagnostic and Interventional Radiology was accepted for indexing in Science Citation Index Expanded®.


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Computer-assisted image-based diagnosis and therapy

By Dr. Guido Prause, Bremen/DE

At this year’s IMAGINE exhibition, MeVis Research, the non-profit R&D centre for medical image computing in Bremen, Germany, presents software assistants for image-based diagnosis and therapy. The software has been developed and evaluated in close cooperation with a worldwide network of more than 100 clinicians from diagnostic and interventional radiology, oncology, cardiology, and surgery. The software applications demonstrated by MeVis Research at ECR cover a wide range of medical disciplines: from tumour analysis, to cardiac and neuroimaging, to surgery and intervention planning.

Visitors to the IMAGINE exhibition are invited to hands-on presentations to experience the capabilities and usefulness of modern image analysis software that is increasingly integrated into the clinical workflow. Important take-home messages are:

- **Multimodal diagnostic imaging**: Modern diagnostic imaging requires a combination of various modalities. Novel software tools facilitate risk assessment and longitudinal analysis of the human brain based on MRI with applications in neurology, neurosurgery, neuropyschology, radiation therapy, and oncology. In particular, it is possible to combine automated intersequence registration, lesion and vessel analysis, quantitative DTI, visualisation of tractography based uncertainty, IMR, and workflow-optimised rendering.

- **Oncological staging and response evaluation**: Staging and response evaluation in cancer diagnosis and therapy is a main task in radiologic routine. This requires new workflow concepts and methods for automatic classification of body regions to enable predefined diagnostic views as well as preprocessing of automated analysis tools. Software assistants allow for the volumetric monitoring of chemothermy, which enables the radiologist to measure volume and growth of metastases and primary tumours in lung, liver, and brain as well as enlarged lymph nodes with high reproducibility and accuracy.

- **Spectroscopic and dynamic tumour imaging**: Software tools facilitate the analysis of dynamic contrast-enhanced MR images of different tumour entities as well as the analysis of MR spectroscopic data of suspicious tissue. For the former, one-click segmentation allows for the computation of morphological parameters and the distribution of kinetic properties. Two models (Brix and Tofts) are integrated to extract physiological quantities. In spectroscopic data analysis, fast automatic preprocessing, intuitive visualisation and accurate metabolite quantitation are the basis of diagnostic support.

- **Cardiac perfusion imaging**: The classification of myocardial tissue into scarred, hypoperfused, and healthy regions yields valuable information for therapy decisions in coronary heart disease. Software tools allow for a combined voxel-based analysis of MR delayed enhancement, stress, and rest perfusion. After compensation of the motion-induced misalignment in the different data sets and the segmentation of suspicious tissue regions, the software offers visual as well as quantitative comparisons of scarred and hypoperfused tissue. The combination with the coronary artery analysis provides additional valuable information.

- **Risk analysis for surgery and intervention planning**: Advanced software applications provide support for risk analysis and planning of surgeries and interventions in brain, lung, and liver. Patient-individual anatomical and functional information is extracted from CT or MRI data and enables the surgeon or interventional radiologist to preoperatively plan, quantify, and evaluate the risk of a procedure. This includes the assessment of postoperative functional volume and the risk of incomplete tumour destruction. The application and modification of a surgery or intervention plan during the procedure is supported by intraoperative imaging (e.g. ultrasound, CT) and tracking of instruments (navigation).

The clinical impact of the image-based software assistants developed by MeVis Research is manifold. Changes in tumour volumes can be measured earlier and more precisely compared to the diameter-based standard RECIST criteria, thus allowing an improved monitoring of chemotherapies. Clinicians can identify ineffective treatments earlier and therefore avoid unnecessary adverse effects in patients and reduce costs. The software assistants for liver surgery planning have been used worldwide in more than 2,800 clinical cases for oncologic resection and transplantation.

**Combined rendering of separated brains and skull, perfusion maps, and reconstructions of the pyramidal tracts.**

**Planned local resection of a metastasis in the left medial section of the liver. The hepatic veins are shown in blue, the portal vein in orange.**
The importance of strategic partnerships in the healthcare market

By Harald W. Bachleitner, Hamburg/DE

The healthcare system is in a phase of transition – from planned economy to free market economy. Competition is becoming a challenge. Only entrepreneurs and enterprises that develop creative strategies will stay on top – or get made it to the top. Establishing and maintaining strategic partnerships is a crucial component of any viable strategy for future business.

The healthcare market may not be a wild and crazy one, nevertheless it deserves close attention as more and more information about medical services is available on the internet or in quality reports. The patients have an increasingly clear idea about their needs and they know how to look after their own interests. They spend a lot of time and energy to find the right partner for their particular health issue. Over supply leads to competition for the client – the patient. Incomes stagnate and require cost-saving measures such as product standardisation.

The competition and the market are rather problematic. The services offered are difficult to compare; the service providers offer not clearly differentiated products and the prices bear little relation to quality; volumes and product ranges are strictly regulated; approvals and in general tight state regulations are market barriers that are difficult to overcome.

Healthcare is in many countries the largest industry – and among the few ones that are growing! This means healthcare is a highly dynamic market.

The current situation nevertheless has enormous potential for service providers who manage to sharpen their profile on this dynamic market by offering products with unique selling points or at least points that differentiate their products from those of other companies.

Strategic partnerships are long-term cooperations between owners of complementary know-how and joint corporate objectives – both factors ensure a level of quality which cannot be reached by one of the partners alone and they offer optimised cost efficiency. Moreover, strategic partners enable the parties to enter into large projects and they open perspectives and create views.

In the high-tech medical technology sector, strategic partnerships help to secure funding to cover increasing investment costs. If, for example, the manufacturers of CT or MRI equipment offer their customers – that is the users – to provide the required know-how to operate this equipment, implementation and operating costs remain affordable. Consequently, the use of the equipment is efficient in the long run. Moreover, the manufacturers’ corporate co-responsibility ensures product development which is based on actual need in the field.

The result is a win-win situation for all players: the provider receives verifiable quality and profits from the realisation of technological potential. The user also realises his potential and at the same time minimises risks, he gains less implementa- tion and operating costs, and he increases customer loyalty, number of cases, efficiency and employer satisfaction. And the manufacturer has satisfied customers and generates demand by offering his customers an added-value.

In short, a strategic partnership gives you an edge over the competition. It’s worth the effort!

Harald W. Bachleitner, Managing Director of Initiative Gesundheits- wirtschaft, Berlin/DE, of Bachleitner Contract GmbH and Bachleitner Retail Service GmbH as well as consultant with focus on the healthcare market, will speak at the Management Session of the symposium. Having studied law at Ludwig-Maxi- milians-Universität, Munich/DE, he started to work as honorary assessor at the district court Munich. Since 1994 he has worked in different healthcare management positions, as consultant at the Hospital Munich-Schwabing and as Managing Director of SRH Zen- tralklinikum Suhl GmbH.

How to manage medical services in the Russian healthcare system

By Prof. Eugene Vladimirovich Shlyakhto, St. Petersburg/RU

Healthcare in Russia is currently undergoing a comprehensive reform process. In the early 1990s, a new source of funding for the public health system was established: mandatory medical insurance and general practitioners’ offices as well as private medical practices. Thus, the rules of the game changed while the total financial burden that had to be carried by the state did not increase. Soon, a paradox emerged: physicians had to go through years of education before being allowed to treat a patient, whereas a healthcare manager could be appointed to lead a huge hospital caring for thousands of patients without having had any special training. Experienced physicians were ‘demoted’ to mere team leaders and we lost many good clinicians only to receive payment from practi- tioners. The situation became even more difficult when the market economy hit Russia. Private medical clinics were actively organised by former dentists, gynaecologists and surgeons, who were bravely diving into the depths of the free market knowing almost nothing about business laws and regulations. Consequently, such training is financial manage- ment, because the Russian healthcare system has three funding sources; state and municipal budgets, statu- tory medical insurance and patient’s direct payments. A national top-pri- ority project on healthcare is mak- ing high-tech medical technologies widely available in Russia – three of fourteen federal medical centres (Astrakan, Pensa and Tchekboks- sary) have been launched recently. The centres are fully equipped with up-to-date medical technologies and they require profound postgraduate training for their staff, including healthcare managers.

Prof. Eugene Vladimirovich Shlyakhto is head of the department of internal medicine and Director of Cardiovascu- lar Institute Pavlov Medical State University, St. Petersburg, as well as Director of Almazov Federal Heart, Blood and Endocrinology Centre, and will speak at the Management Session of the symposium. His scientific interests are arterial hypertension, heart failure, unstable angina, clinical pharmacology of antihypertensive drugs, cardio-pro- tections, and molecular cardiology. Prof. Shlyakhto is Vice President of the Russian Society of Cardiology, and the Hypertensive League named after acad. G.F Langme and of the Russian Medical Association – St. Petersburg Branch Office.

Outsourcing as part of hospital IT optimisation: Doing it the right way

By Dr. Thomas Geisinger, Bonn/DE

The trend towards consolidation of healthcare services across the hospi- tal and across hospital groups, leads to the segmentation between core competences and those services that may be handled more efficiently by a third party. This analysis will uncover opportunities for more efficiency even with improved service levels. However, the execution needs to be carefully planned and prepared.

This presentation will show the opportunities and challenges that such segmentation offers. It will

cover how to best select the right competences, how to prepare and execute the change and how to man- age the providers.

The model shown in this presenta- tion starts with a classification of all diagnostic activities (such as Diagnosis Related Groups). This includes the procedures for medi- cal documentation and the cost measurements based on the activities performed. The author will then show which DRG models are available and could be used to per- form such activity/cost correlations. The second part will focus on the execution. What are the parameters to manage the vendor and what are available definitions for the service levels?

Dr. Thomas Geisinger, Global Man- ager for E-Health integration with Agfa HealthCare, is a medical doc- tor and graduate of hospital business administration (VWA), University of Maastricht/DE, and will be speaking in the Information Technology Session of the symposium. He has been working for 3 years as the head of medical controlling at Frankfurt/Main University Hospital. In 2003 he became a hospital busi- ness advisor and director for DRG Product Management at GWI in Bonn, which was later acquired by Agfa HealthCare. After acquisition he joined a specialist team to build up the international roll-out of the Agfa HICIS business with a focus on market evaluation and strategy.

Hospita financing based on business plans: The launch planning of a hospital begins the same day its construction ends

By Luis Barcia Albacar, General Manager of Torrejón Salud Hospital, Torrejón/ES

A brand new hospital with 1,200 beds, 220 beds, 11 operating thea- tres, a comprehensive range of clini- cal services, and an entirely new IT infrastructure – all fully operational from day one: Impossible! Abso- lutely possible – just look at Hospita- dital de Torrejón near Valencia in Spain. But not only did day one go off without a hitch, this new medical facility, which recently celebrated its first anniversary, has already set one record after another. Within twelve months, 15,000 surgical interven- tions were performed, emergency waiting time is a mere 40 minutes, the average stay is 4.1 days – the lowest in the country – and patient satisfaction was rated 9.1 on a scale of 1 to 10. Not to mention the fact
The Finnish patient data archive: Countrywide data and resource sharing to save money for hospitals

By Dr. Hanna Kaarina Pohjonen, Espoo/PT

The EU eHealth initiative and action plan is the driver for sharing of patient information and networking of expertise across different institutions and countries. It was launched in 2004 and will be applied in its current form until 2010. Besides organisational eHealth profiles for cross-enterprise document and image sharing are being applied in several eHealth projects in Europe and Canada. In this architecture IT systems like PACS act as a source and an information pool at the same time. The data stored in a repository and published in the metadata registry: this is how we separate IT systems from data, and data from metadata. Consolidation of patient-centric data in a common archiving solution is a growing trend in the healthcare IT market. The new solutions allow any type of fixed content data including images, laboratory results, EPR summaries etc. to be stored in one architecture.

The traditional image-only archives are being replaced by new generation enterprise archives, which are configured as network-attached systems. But at the same time to eHealth platforms: the core is still archiving, but there are data privacy and security services, messaging services, patients’ informed consent, coding services etc. as well. The same platform can also be used for teaching and research.

An example of such a project in Finland will be described in the talk.

The future of hospital financing in Germany

By Jürgen Abshoff, Hamburg/DE

In all European countries that subscribe to the aim of granting every citizen the right to extensive health-care services, financing of health-care is going to become even more challenging. Advances in medicine, although allowing for savings in individual cases, generally lead to a rise in healthcare expenses. Increasing life expectancy leads to a higher number of patients and more expensive treatments and finally to constantly rising healthcare costs. Although these developments have become clearly evident, politicians in Germany and other countries foster the illusion that everybody will have the opportunity to enjoy all the possibilities opened up by modern medicine in the future. However, in the long run it will be impossible to finance this claim. This certainly holds true for the current statutory health insurance system. The ‘healthcare lie’ is added to the so-called ‘pension lie’. The Diagnosis Related Groups system, introduced in German clinics as a pricing system but in practice still used as a budget system, has led in combination with the rigorous control of the budget to considerable changes in the hospital sector. The health service reform has further aggravated this process for the entire healthcare sector. The Knapp die analyse krise of the German system of the German pension remains unexplained what they mean by this. In the past they sometimes threatened to lay the dead body of the German system hospital financing that have been in effect since 1971 (hospital budgeting, dual financing, hospital per diem charge / price system). In particular, the current dual financing system is challenged and shall be replaced by an overall financing by means of fixed, maximum or guiding prices (FBKG).

Today, the dual financing system in Germany has effectively failed – and shall now be abolished completely in a long changeover phase. The means raised by the federal states for the financing of investment in hospitals have decreased on the basis of the pressing situation of the public budgets. Nevertheless hospitals are forced to invest more due to increasing com- petition and considerable cost pressure. They have to facilitate more efficient treatment processes. But they also have to provide modern equipment to be able to appeal to potential patients and offer effective medical treatment.

But where does the money they have to obtain for their investment come from? Needless to say, the situation of national/communal hospitals that are free and non-commercial and those of the private hospitals are quite different. Traditional credit financing will gain importance. Even so, the financial and legal base of the hospitals is changed: their traditional forms of financing. Therefore new and innovative forms of financing are needed. New possibilities of financing are required to balance the decrease of public funds and add to the often difficult credit financing. They have to meet the present legal requirements. And it is not enough to find new and imaginative names for the old forms of financing.

Considering the narrow means, hospitals have to control their administrative workflows, IT architecture, equipment, staff recruitment and training. A tightly controlled construction schedule helped the project to stay on track. And last but not least, sound financial planning and ongoing financial management and controlling ensure that public funds are used efficiently.

Further information: www.torre- virjaa-salmod

Mr. Luis Bacia Albarak has 18 years experience in health management, has been General Director of Torre- virjaa Salud LTE since 2000 and will speak at the Finance Session of the symposium. He has a low degree and a master in health management and international commerce.
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Women in Radiology Part 2

By Mélissaude Rouger

In an interview with ECR Today, Prof. Xiaowing Wang, director of the department of radiology at Peking University First Hospital, China, outlines similarities and differences between her colleagues in the western world and Asia.

ECR Today: Everywhere across Europe, radiologists notice the predominance of women in radiology and more generally medicine studies. In Austria for instance, the proportion of female radiology trainers is currently 60%. However, in most countries, women are still under-represented in the profession, and the higher the position, the rarer they are. How does this situation compare with China?

Prof. Xiaowing Wang: In my department, the number of female doctors is 15, which is equal to the male doctors. We have 5 subspecialty groups: chest, abdomen, neuro, musculoskeletal and pelvis. The female and male radiologists are distributed evenly in these groups, but the leadership is taken mainly by men.

ECR Today: In professional life and in science especially, many women observe the existence of a glass ceiling blocking their access to top positions. Do you think this is also the case in radiology?

XW: Absolutely, yes.

ECR Today: Have you ever been confronted with that situation? Likewise, have you ever experienced sexism at work?

XW: Yes. Fourteen years ago, when I was interviewed by the former chairman of our radiology department with my male competitor, the director said he would always assign priority to the male candidate. Fortunately they had two positions at that time, so I got the offer. But I believe this scene is acted out at many hospitals, and will continue to do so for a long time.

ECR Today: According to the President of the Chinese Society of Radiology (CSR), Professor Yin, you are one of the most promising radiologists in your country. Do you think your situation, as a woman, is rather unique in China? Do you represent a new generation of female radiologists in your country?

XW: I’m not special in China. More and more female radiologists are demonstrating their talents in research, taking the leadership of their radiology department, and are being admitted by the radiological association.

ECR Today: Currently, only 2 of the 49 members of the CSR National Committee are women. How do you explain this imbalance?

XW: The CSR committee were elected by the older generation. Maybe next time there will be more women elected as members.

ECR Today: For numerous working women, balancing private and professional lives is a major issue, especially when children are involved. A pragmatic solution seems to be more flexibility in working hours. Do you think China offers women the flexibility they need to efficiently manage work and home? If not, is work flexibility a debate in Chinese society?

XW: Before a baby is one year old, the mother is allowed to work 7 hours every day, so one hour less than usual. Actually, in my hospital, people are sometimes not so strict with the mothers. There is no official regulation on the flexibility in working hours for them, but colleagues are willing to help if the mother really has to go home earlier or go out for a while for the children.

I think work flexibility should be a debate in Chinese society in the future, it is not practical now.

ECR Today: How aware are your male peers of the double challenge that female radiologists face when they are mothers?

XW: In China, both male and female radiologists are responsible for their family and children. But generally, mothers take more time to cope with the daily family life. I think most male doctors understand and are supportive.

ECR Today: Do you know male radiologists who slow down their career in order to spend more time with their family?

XW: Yes, there are some of them. Personally, I agree with them.

ECR Today: Do you have children? If so, how well do you balance your life between home and work?

XW: Yes, I have a lovely daughter. It is so hard to balance life between home and work. I spend less time with her than I should. I feel sorry for my daughter.

ECR Today: Do you have any role models in the profession? Do you think this is important for women?

XW: Yes, of course. It is very important for female doctors to have female models in their profession.

ECR Today: Do you think women have a different approach to radiology, particularly involving treatments specific to female patients, such as uterine fibroid embolisation?

XW: Yes, it is true that female patients will feel more comfortable being examined and discussing breast and gynaecological diseases.

ECR Today: As far as you know, are there any official or unofficial networks of female radiologists/physicians in China or elsewhere in Asia? If not, do you think such an organisation would be necessary or useful?

XW: I remember that CSR unofficially established a female radiologist association several years ago. But I don’t know of any action they took. As for the usefulness of this type of network, it depends on the practical actions that will be taken.
The main aim of the society is to advance the study of gastrointestinal and abdominal imaging and intervention by encouraging radiological and clinical excellence, teaching and research. The growing number of abstract submissions each year (new record high of 730 abstracts in 2008) clearly underlines the growing interest in presenting new and innovative topics at the meeting, thus accounting for the latest developments in the field of gastrointestinal and abdominal radiology.

Frontiers in Abdominal Imaging is aimed at providing ESGAR attenders with information on cutting-edge applications that bridge the gap between basic scientific breakthroughs and their exploitation for diagnostic purposes. The ESGAR 2008 highlighted topic is “Imaging of oncogenesis”. A panel of expert colleagues will analyse the biological bases of the initial phases of the natural history of tumours and will discuss how imaging can depict cellular as well as molecular components of oncogenesis. In the next few ESGAR Annual Meetings, Frontiers in Abdominal Imaging will be repeated, focusing on other exciting scientific developments that will shape tomorrow’s abdominal imaging and interventions.

ESGAR 2008 Frontiers in Abdominal Imaging – imaging of oncogenesis
The process of oncogenesis
D.J. Lomas, Cambridge/UK
Imaging angiogenesis
A. Gilliams, London/UK
Analysis of tumour tissue and cellular components
L. Marić-Bonmati, Valencia/ES
Analysis of molecular components
B. Van Beers, Brussels/BE

The Research Corner will also be introduced in 2008. This series of seminars is designed to illustrate and promote aspects of radiological research in the field of abdominal imaging in Europe.

Research is currently performed in a broad and variable way, ranging from individual endeavors to large multi-centre trials and from non-funded to competitive large-scale grants. The main goal of the Research Corner is to provide a discussion forum to allow senior academic radiologists to interact with junior researchers at an early stage of their career development. It should also serve as a networking forum for researchers with common interests. It is hoped this will help to improve the quality of research in abdominal diagnostic and interventional radiology across Europe.

The first Research Corner will consist of four seminars. One will be on interventional radiology and the others on diagnostic radiology. They will show how research projects can be developed and presented and how results may be obtained, validated and published.

In Europe today, structured institutions and organisations are building research networks of immense importance to young researchers. These will be explored and discussed in one seminar. The evolving interface between basic sciences and clinical imaging is of crucial importance to the future of abdominal imaging. A special seminar on biomarkers will address this topic.

ESGAR 2008
Research Corner 1: Interventional Research Activities in Europe
Technical development in tumour ablation
R. Lencioni, Pisa/IT
Comparison between different energy sources for tumour ablation
D.J. Brown, Southampton/UK
How to improve the deployment of energy to enhance the effect
P.L. Pereira, Tubingen/DE

Research Corner 2: Specific Research Activities in Europe

Research Corner 3: Research Organisations, Clinical Trials and Abdominal Imaging Programmes in Europe
European Institute for Biomedical Imaging Research (EIBIR)
G.P. Kroesen, Rotterdam/NL
Spanish Radiological Research Network
L. Marić-Bonmati, Valencia/ES
Multicentre data bases and results on CTC
D. Rogge, Candiolo/IT

Research Corner 4: Abdominal Imaging Biomarkers
Biomarkers in abdominal imaging
B. Van Beers, Brussels/BE
Measuring perfusion and pharmacodynamics
A. Padhani, Northwood/UK

In order to recognise the importance of enhancing further training and education in our subspecialty, ESGAR has continuously expanded its educational courses in specific aspects of its discipline:

CT-Colonography (CTC) has been proven to be an accurate and reliable alternative to double contrast barium enema and colonoscopy in symptomatic patients, with good acceptance. It is also considered to be a potential screening technique for colorectal cancer. In 2003 ESGAR introduced hands-on workshops on CTC. The workshops are specifically aimed at providing practical skills and information; both for those considering starting CTC at their institution, as well as for experienced individuals. Those practical skills and information are provided in several formats including presentations, discussion sessions and hands-on training on workstations by international experts. Workstations of several vendors are available, providing the opportunity to obtain experience with different workstations and software. The next CTC workshops will be held in Vigo/Spain from April 10–12, 2008, and in Berlin/Germany from September 11–13, 2008.

Furthermore, ESGAR recently introduced two new workshop series. The workshop on ‘Image-Guided Ablation’ took place in Pisa/Italy and Geneva/Switzerland. The 2009 date will be announced soon. The workshop series on ‘Liver Imaging’ was initiated in 2007. The aim of the workshop is to provide comprehensive coverage of all the main liver pathologies that will be presented by means of an integrated multimodality approach. The Liver Imaging workshops in 2008 will take place in Szeged/Hungary from April 18–20 and in Munich/Germany from October 9–11.

For all information on the Society and its activities, please refer to www.esgar.org

ESGAR 2008
Liver Imaging
D.J. Brown, Southampton/UK
Abdominal Imaging Biomarkers
Biomarkers in abdominal imaging
B. Van Beers, Brussels/BE
Measuring perfusion and pharmacodynamics
A. Padhani, Northwood/UK
EIBIR – European Institute for Biomedical Imaging Research

EIBIR’s Biomedical Image Analysis Platform takes shape

By Prof. Wiro Niessen, Director of the EIBIR Biomedical Image Analysis Platform

Owing to the increasing role of imaging in clinical practice and biomedical research, the field of biomedical image analysis has become an important area of research. Several issues pose serious challenges to this field. First, the complexity of imaging data is increasing, as anatomical and functional information is being acquired in the whole range from the molecular level, via the organ level, to population-based imaging studies. Second, the sheer size of imaging studies poses enormous challenges. To address these challenges at a European level, the biomedical image analysis platform of EIBIR has recently been established.

Collaboration at the European level will be achieved through different means. First, joint European research initiatives will be coordinated and launched. For example, in the 7th European Union Framework Programme, two STREP projects were submitted, coordinated by the EIBIR biomedical image analysis platform. One of these projects, entitled HAMAM, which is aimed at improving breast cancer diagnosis, through integration of biological knowledge, novel imaging modalities, and modelling, is currently under negotiation with the European Commission. Please see below for a description of this project. In the coming years, the number of such initiatives will be increased. Collaborations are also planned with initiatives elsewhere in the world.

Second, the biomedical image analysis platform will play an active role in both education in biomedical image analysis, and dissemination of research results. The platform will actively support dissemination activities such as the IMAGINE exhibition at ECR, which shows recent developments by industry and biomedical imaging research groups in the fields of quantitative image analysis, computer-aided diagnosis, image-guided interventions and robotics. Also, dedicated Special Focus Sessions have been organised for this congress, such as a session on novel image analysis and modelling techniques to improve diagnosis and therapy in cancer. In addition, starting in 2009, a series of PhD summer schools is planned, focusing on different topics in biomedical image analysis, in which experts will train young scientists entering the field.

Third, it will be investigated whether the biomedical image analysis platform can play a role in consolidating research results. This can for example be achieved by setting up a central web location, in which image analysis software, imaging data, evaluation software, and evaluation data can be stored.

HAMAM project gets green light from EU Commission

Highly Accurate Breast Cancer Diagnosis through Integration of Biological Knowledge, Novel Imaging Modalities, and Modelling is the name of the STREP (Specific Targeted Research Project) project the EIBIR Image Analysis Platform has proposed to the EU’s 7th Framework Programme ICT call. At present this project is in the negotiation phase with the European Commission.

HAMAM will provide a means to seamlessly integrate the available multi-modal images and patient information on a single clinical workstation. Based on knowledge gained from a large multi-disciplinary database, populated within the scope of this project, suspicious breast tissue will be characterised and classified. HAMAM will achieve this by:

- Building the tools needed to integrate datasets/modalities into a single interface.
- Providing pre-processing/standardisation tools that will allow for optimal comparison of disparate data.
- Building spatial correlation methodology to allow for anatomical cross-linking between modalities and examinations to enhance both multimodal reading and analysis.
- Building in adaptability that allows for the integration of other sources of knowledge such as tumour models, genetic data, genotype, phenotype and standardised imaging.

These are important steps that have large potential to improve the detection and diagnosis of breast cancer.

The exact diagnosis of suspicious breast tissue is ambiguous in many cases. HAMAM will make a large step forward by using statistical knowledge extracted from the large case database. A goal of the project is to compare and evaluate imaging protocols for specific clinical situations. The workisation thus guides the clinician in establishing an optimal patient-specific imaging procedure. This ultimately leads to a more specific and sensitive individual diagnosis.

The three-year project is expected to start during this year, after contract negotiations with the EU Commission have been finalised.

Besides other features like eICR (the electronic European Congress of Radiology), EP0STM (Electronic Presentation Online System), EDIPS (ECR Digital Preview System) and the journal European Radiology (online version), EURORAD is an electronic learning tool created by ESR and exclusively accessible to its members.

EURORAD is the largest peer-reviewed teaching database of radiological case reports. ESR offers this internet based tool to its members to access a wealth of medical information and imaging data, whose accuracy and quality have been validated by the most experienced radiologists in Europe. EURORAD contains case reports for medical students (simple cases), residents in radiology (everyday cases) and senior radiologists (complex cases). On the platform www.eurorad.org, EURORAD allows users to download, save and print the cases as PDF documents, or forward them via e-mail. All cases are registered with a DOI (Digital Object Identifier), which makes them citable.

Not only radiology and ECR have gone through changes, EURORAD has also developed. The beginnings of EURORAD were led by Prof. Albert L. Baert, Leuven/BE, and Prof. Davide Carabelli, Pisa/IT. Today, the current Editor-in-Chief, Prof. Johan Bloem from Leiden/NL, tries to bring this electronic education tool to a new level, a major system update and a website re-launch make application even more convenient for users, through multi-lingual navigation and a new powerful search engine amongst other developments. Furthermore, the EURORAD office, currently run by the company Webiges, which also created and still supervises EP0STM, will be integrated into the ESR head office to intensify the focus of ESR on electronic learning tools.

www.eurorad.org
Interventional Radiology: a bright future based on a solid past

By Prof. Jim A. Reekers, Amsterdam/NL.

In the last 15 years, interventional radiology has grown substantially, whilst innovating the treatment of a large number of medical conditions. Minimally invasive image-guided therapies have replaced numerous traditional techniques previously performed by other medical specialists.

Parallel to this trend, the Cardiovascular and Interventional Radiological Society of Europe (CIRSE) has experienced unprecedented growth in recent years, almost doubling its membership since 2002. It is currently approaching the 3,000 member benchmark, making it the second largest radiological society in Europe after the European Society of Radiology (ESR).

Attendance at the annual CIRSE meetings is also rapidly increasing, with nearly 5,000 participants visiting CIRSE 2007 in Athens. Today they are by far the largest non-cardiac interventional meetings in Europe.

In addition to the annual congress, CIRSE has launched a very successful educational programme called the European School of Interventional Radiology (ESIR) catering to the educational needs of radiologists who wish to specialise in a number of basic as well as complex IR procedures. Comprising 15 European educational conferences in 2008, it is the largest non-commercial training programme in the field.

So what is the perceived problem? What are the potential concerns and constraints of our discipline?

Endovascular procedures – the most contested & competitive turf

Interventional radiology is the leading specialty in endovascular treatment in Europe, and the only specialty covering the entire range of minimally invasive image-guided therapies in this field. Most of today’s IR therapies are superior to traditional treatment methods, thus inevitably attracting other medical specialties, which are eager to get into this business.

Considering where our patients come from and that we have been treating ‘their’ patients for the last 20 years, we need to be realistic. Some percutaneous vascular interventions will also be performed by non-radiologists in the future. This development might even be part of the natural evolution of our specialty.

The issue that has many interventional radiologists preoccupied is the continuous turf battles with vascular surgeons, and in some countries with cardiologists, over the treatment of peripheral vascular and aneurysmatic disease – a concern I understand and share. I believe that facing this problem we must assume a proactive approach to maintain our leading position.

CIRSE has taken two strategic initiatives, which at first glance might look contradictory.

The first one has been to improve the political leverage and position of interventional radiology. IR is an integral part of radiology, and in order to maintain this we need to ensure that the profile of IR, its training schemes and the working conditions for interventionists are well defined within radiology. CIRSE has therefore been lobbying for the establishment of an interventional radiology division within the radiology section of the UEMS. I consider this to be an important improvement for IR professionals.

It is among CIRSE’s prime tasks to support interventionists in such cooperation, by setting quality standards, providing training curricula, furthering clinical practice development and being a strong voice for interventional radiology in Europe. Providing high quality and good service is the best guarantee for interventional radiology to stay in the driving seat.

Non-Vascular Interventions and Interventional Oncology

Again, there is no reason for sombre looks at the new opportunities. IR is more than vascular interventions. The bulk of the non-vascular business is still growing and there are no ‘pirates’ on the horizon. Just like in the past 20 years when interventional radiologists were leading in developing new treatments, we again see new treatments for uterine fibroids, vertebroplasty and percutaneous treatment of varices developed by interventional radiologists. We will continue to be innovative entrepreneurs in the future, always seeking new challenges and opportunities to treat patients in a minimally invasive way.

Interventional oncology is another new and very rapidly growing branch on the IR tree. There are several innovative techniques and devices for direct tumour ablation and transarterial therapy. Sophisticated imaging methods have also been devised for improving tumour targeting and treatment monitoring.

A number of trials have been successfully completed in different clinical settings, and interventional oncology is gaining increasing acceptance as a viable alternative or complementary treatment for a variety of cancers.

Considering all of the above, I can only say: Let us embrace the new opportunities! The past has shown us that the innovative and entrepreneurial spirit of interventional radiologists has continuously improved the minimally invasive treatment of patients and opened new fields of activity for us. Thanks to the growing membership and activities of CIRSE we are now in a position from which we can more efficiently lobby for our interests and common goals. Instead of lamenting about the trimming of some old branches, we should look after the solid trunk from which new branches are budding.

The CIRSE Foundation will host the first European Conference on Embolotherapy, ET 2008, combined with the first European Conference on Interventional Oncology, ECOO 2008 from April 9–12 in Florence, Italy.

As part of CIRSE’s efforts to support interventional radiologists in providing full clinical care for their patients, the CIRSE Clinical Practice Task Force has published a manual on clinical practice.

By Prof. Jim A. Reekers, Amsterdam/NL.
Clinical spotlight falls on CT’s ability to perform complete cardiac examination

By Frances Rylands-Monk

Despite the ongoing controversy surrounding the risk of radiation, experts are excited about CT’s potential in performing a complete examination of the heart.

“CT can provide us not only with information similar to that gained by conventional coronary angiography, but also with different kinds of additional information about the coronary artery walls to detect arterial sclerosis and arterial sclerotic plaques,” said Dr. Filippo Cademartiri, head of noninvasive cardiovascular imaging, Academic Hospital of Parma, Italy. “This is a new field in cardiac imaging as there is no other minimally invasive tool providing such information.”

To obtain the same information using conventional coronary angiography, practitioners need to perform intra coronary ultrasound with large catheters. This is a riskier procedure for patients with acute myocardial infarction, unstable angina, diabetes, or heart failure due to the lengthy procedure time. Also, coronary arteries are usually more diseased in these patients, and can be damaged further during the procedure.

“We don’t want CT to be used as a screening tool, but when other tests, such as ECG, SPECT and echocardiography, aren’t clear. This may pose a political problem because in cardiology, most tests including SPECT and echocardiography are performed by cardiologists. The cardiovascular radiologist must play the key role in providing minimally invasive assessment through CT and MRI,” he noted. “It’s about applying cardiology knowledge to individual cases for the best diagnosis.”

The Triple Rule Out examination, a cornerstone of circa 2000, will provide a topic for some discussion during today’s session.

“There are a huge number of non-specific chest pain patients. Should we perform this scan in all of them? No, because the test is high not only in financial terms but also in radiation exposure,” Cademartiri said. “So far experts agree that generally, it shouldn’t be performed in low or high-risk patients but in intermediate-risk patients and only after clinical examination, factoring in biomarkers and other tests.”

He believes that costs will continue to rise, citing a 20–25% increase in cardiovascular costs every year due to the growing numbers of procedures carried out on high-risk patients who previously could not be investigated.

“We now have less invasive tools, we’ve lowered the threshold of scanning for higher risk patients. There is also a tendency to investigate more in lower risk cases,” he explained.

For complete cardiac imaging in children, performing tailored examinations and being aware of the important pathology will yield optimum results, according to Dr. Antonio Madureira, staff radiologist and head of cardiac and vascular imaging at St. João Hospital, Porto, Portugal.

“Children are not little adults, and need different protocols, reconstructions, and contrast injections. In short, dedicated, tailored imaging is required, especially in CT, where we need to minimise radiation dose,” he said.

A speaker at today’s session on complete heart imaging, Madureira is an advocate of an optimal single CT acquisition when examining children. He thinks this requires knowledge of how to answer clinical questions, with possible, with the most minimal procedure, and adapt protocol with low kVdose and low milliamperes/second (mA/s).

Most scanners have dedicated paediatric protocols. However, the radiologist should be present during a cardiac examination regardless of the modality used, according to Madureira. In his hospital, the clinician is usually also present during scans for intensive care patients so that there can be dialogue, which can be vital for finding out what the main questions are in terms of diagnosis or exclusion.

Pathologies of the aorta and pulmonary vessels to look out for in paediatric heart imaging will be discussed during the course, along and enter into the main circulation. If radiologists do not know what they are looking at, they may waste time trying to work out what it is or they may misdiagnose.

Again, prior knowledge of the clinical question is needed for specificity. With CT or MR angiography, mistakes may occur when administering contrast. Normally after contrast administration, acquisition is triggered when it reaches the cardiac chamber. However, acquisition may be triggered at the wrong moment due to communication anomalies in the structure of the heart.

To avoid this at St. João Hospital, a 200-bed referral centre for the north of the country, paediatric cardiologists perform an echocardiogram to diagnose a whole range of pathologies, the details of which they then pass on to radiologists.

Knowledge of such structural anomalies in vessel communications means that acquisition can be triggered at the correct moment. Cardiac ultrasound is standard across Portugal and is the mainstay of cardiac imaging in newborns and children, with CT or MRI forming the second stage.

In MRI, the introduction of fast imaging sequences help produce high temporal resolution images at a short acquisition time of around 3 to 4 seconds, making it possible to follow the progress of contrast media through the different chambers and vessels. This is particularly useful in patients with abnormal communications between the heart chambers or vessels, and in some cases the information is vital to make a correct diagnosis. A 3T scanner was installed in Madureira’s department about a year ago, and he believes this technology can help in examinations involving time-constrained, as in the case of sedation in newborns and small children.

Aortic coarctation is another pathology that often needs precise MR techniques because it directly influences the course of treatment. While diagnosis of aortic coarctation in young children usually involves ultrasound because there is easy access to the aortic arch, an MR angiogram is performed in older children to assess the diameter of the vessel, as well as the significance of the coarctation.

“The phase contrast sequence quantifies the velocity of the blood to identify the functional significance of the coarctation. This these examinations cost less and reduce a patient’s hospital stay. For both adults and children, over 50% of cardiac angiograms have been replaced by CT or MRI.”
News from the European Society of Breast Imaging

By Dr. Matthew G. Wallis, Cambridge/UK, EUSOBI Vice President

EUSOBI has two principal aims: to represent and promote breast radiology in Europe through the ESR committee structure, and to promote best practice through guidelines and education.

Provision of breast services varies widely across Europe. In northern Europe, there is a long-standing, high-quality, high-volume population-screening programme provided by dedicated radiologically-driven teams. At the other extreme, there is opportunistic screening by multitudinous units, often privately owned by non-radiologists.

Work-up of women with symptoms or image-detected abnormalities is similarly diverse. Large, integrated teams, often radiologically-driven, stage all women with MRI and consider it an affront to their practice if a woman goes to surgery without a detailed diagnosis. At the other extreme, all breast lumps are still treated to surgery without a detailed diagnosis. At the third point, the breast programme over the subsequent days. An important and successful component of ECR is the interactive session teaching BIRADS in E, breast biopsy training and the digital mammography screening workshops, which can only continue with the support of the equipment manufacturers.

The EUSOBI School has been running for two years and is currently separate from the European School of Radiology programme. We offer a two-day master class for up to 60 delegates, which is a mixture of didactic lectures, supported by small group tutorials, based around the lectures, which enables all delegates to meet the three faculty members. The school is specifically designed to help countries where breast radiology is less developed. Up to now this has been run by the executive committee but we are looking to develop a pool of interested radiologists so that we can run more frequent courses.

Training radiologists is not enough. We also need work to increase public and political expectation. We are not a campaigning organisation, but we can support the radiological community to ensure that there are radiologically-driven guidelines for breast care in every European country. This can be done, as the introduction of screening programmes is usually accompanied by guidelines, and we need to help ensure that these are written to cover all breast work. An example of this is the publication of EUSOBI guidelines on interventional procedures in European Radiology (2007: 581-586). Others on MRI and ultrasound are in the pipeline.

In terms of new technology, we are on the cusp of major change and development. MRI and digital mammography are almost old hat, but the PACS and RIS interfaces, which ensure seamless and safe connectivity, are not. We hope that this year’s EUSOBI meeting will assist both us and the manufacturers in gaining a mutual understanding of the problems. MRI provision is patchy, expensive and requires extra skills in biopsy. I hope we will be producing guidelines for use of MRI and MRI biopsy this coming year. The real cutting-edge work over the next few years will be to determine if we can move breast imaging to the next stage, from diagnostics to functional prediction. Can we use new imaging technology to determine treatment and predict response to neo-adjuvant regimes? At that point, we will truly become the conductor, rather than just the first violin of the breast team.

Visit us at the EUSOBI Booth across the entrance hall
Imaging assists in follow-up studies after treatment of head and neck tumours

By Jane Qiu

The head and neck region has very complex anatomy and so what you see is not always what you get, according to Professor Roland Brüning of the Asklepios Barmbek Hospital in Hamburg, Germany. "This has posed significant challenges for follow-up studies after treatment of head and neck tumours.

"Most anatomical changes occur deep in the tissues, which clinicians cannot see with the naked eye," he said. "However, it’s important to assess those changes to determine the patient’s response to the therapy and to detect any recurrent or persistent tumours."

In this afternoon’s refresher course, "Imaging after treatment of head and neck tumours", Brüning will review cases of normal anatomical changes (such as loss of certain muscles) and abnormal ones (such as local inflammation and recurrent or persistent tumours) in patients treated for head and neck malignancies.

"It’s important to work out the borderline between what is normal and what is not, but this can be quite tricky," he said.

In addition to post-surgical changes and distortion of anatomic landmarks, there is often unspecific uptake of contrast materials in treated tissues, and the signal intensities in MRI and densities in CT can also be irregular.

Each modality has its own role. For example, CT is better at providing a general overview and showing volume changes in muscle fibres, whereas MRI is more powerful at distinguishing the changes associated with inflammation, oedema, and tumour recurrence, explained Brüning. It also depends on which types of tumour entities are involved. Tumours of the tongue, larynx, and temporal bone need to be studied differently, he said.

Dr. Alexandra Borges, of the department of pathology at the Instituto Português de Oncologia Francisco Gentil in Lisbon, agreed that a case-by-case approach is required. "Taking squamous-cell carcinomas as an example, MR is better for tumours in the suprahypophyseal compartment of the neck, whereas CT is more appropriate for those in the intrathoracic equivalent because it is less susceptible to movement artefacts; for thyroid tumours, however, nuclear medicine techniques using radioactive iodine are much more sensitive than CT and MR.

There are some guidelines on how to conduct follow-up examinations, but most centres have their own procedures. Their approaches may vary in the surgical methods used, the frequency of follow-up studies, and the modalities used; within a modality, the approaches may also differ in terms of protocols, contrast materials, and their doses.

"There are few consensus in this field," said Brüning, who hopes the symposium will provoke some discussion so that more consensus can be reached.

In her talk, Borges will discuss the application of MRI in the study of denervation changes, which can result from radiation, surgical procedures and, most importantly, from perineural spread of tumours. MR has good soft-tissue contrast and is therefore better at detecting early, subtle changes in denervation, she said.

"MR is the only technique for studying acute denervation, characterised by early oedema of the muscle," Borges continued. "This can be revealed first as hyper-intensity on STIR sequences and, later on, on T2-weighted MR images."

The acute phase is followed by chronic denervation, which is marked by atrophy of the muscle and replacement of muscle fibres by fatty tissues. These changes can be depicted by both MRI and CT.

In addition to denervation patterns, MRI is also able to identify the cause of denervation because it can reveal the entire course of cranial nerves, from its brain stem exit to its last branches, thereby pinpointing the site of the lesion. Nerve injuries resulting from perineural spread of tumours precede and lead to denervation, she explained. Thus, detection of abnormal nerve thickening and enhancement using MR in follow-up studies may be the first sign of perineural spread in patients with head and neck cancer. Increasing resolution by incorporating parallel imaging and smaller coils in MR studies may be a step forward for early diagnosis.

The session will also feature Prof. Robert Sigal, professor of radiology at Institut Gustave Roussy in Villejuif, France, who will showcase recent progress in detecting tumour recurrence and treatment complications by CT, MR and PET. The talk will advocate a multidisciplinary approach between clinicians and radiologists.
ESR Electronic Congress – too easy for words

By Vera Schmidt

I was once again commissioned to write an article for the ECR Today. Whenever it comes to online services I get a little anxious, because I am not into computers and usually have to bother all my IT colleagues a thousand times until I understand how everything works. After the meeting with my colleague, Konrad Friedrich, in which he explained the Meta Data Search to me, I made sure my favourite work of reference, ‘Internet for Dummies’, was within my reach and opened the ESR Electronic Congress website. Meta Data Search sounds extremely complicated, I thought. I had no trouble finding the login area. I typed in my last name and my ID, and pressed the ‘login’ button. Another page opened. It was extremely clearly laid out and I had no trouble finding the ‘search’ area. I suspiciously ticked criteria, topics and congresses, clicked search and the tool did the rest. ‘There it was! Everything in one go! So easy!’

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In other words, the ESR Electronic Congress provides you with all the scientific knowledge of every ECR since 2003 in a nutshell, and no matter if you are a computer expert or if you are still thinking of your old typewriter tearfully, you will love working with it!
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2 N D  L E V E L

ESR meets General Practitioners

Cooperation is essential

By Mélisande Rouger

Prof. Igor Švab, President of the European Society of General Practice/Family Medicine (WONCA Europe), will head ‘ESR meets General Practitioners’, the first specialty to take part in a new programme featuring partner disciplines at ECR.

He tells ECR Today what his expectations are while attending ECR and how the collaboration between GPs and physicians will help preserve the ‘European principle of solidarity’.

ECR Today: ‘ESR meets GPs’ is the first of a new ECR programme featuring partner disciplines. What do you think of such an initiative? Is it welcomed among European GPs?

Prof. Igor Švab: It is a very good, a brilliant initiative which is much welcomed by GPs. The WONCA European conference took place from 17–20 October in Paris, and one of the key messages in my closing speech was to ask for more collaboration with other physicians. More cooperation is definitely needed, it is very important to us.

ECR: Is there a demand from GPs to know more about radiology’s diagnostic capacities and therapy procedures, like interventional radiology?

IŠ: Since science is constantly developing, it is always useful to know what other specialities have to offer to patients. What is relevant to the patients is of interest to us, not all the technical details.

ECR: The lectures in ‘ESR meets’ will focus on artery-related diseases. Are there other diseases that imaging could help GPs diagnose better than other tools?

IŠ: Artery-related diseases are the main killer in developed countries, and they are the most common problem we encounter in our practices. The issue of these lectures is for us to see what radiology has to offer, what the state of the art is, and how the patient can benefit from this discipline. We are interested in the technologies radiology provides. Other diseases could of course be debated between GPs and radiologists, like abdominal problems, and I am hoping to discuss it at ECR. These diseases could then be the focus of other meetings.

ECRT: Are there any differences between European countries in GPs’ imaging referral, and if yes, what are they? Could you give us some examples? Are these differences influenced by healthcare systems and policies, regional ‘traditions’, or other reasons?

IŠ: It is very difficult to build a consistent healthcare system. There are very big differences between the European healthcare systems. With regard to collaboration between primary and secondary care, in most countries, a GP referral is the rule, whereas in other countries patients are free to directly consult a specialist. The referral system is in my opinion better, not only because poor people can benefit from it as much as rich people, but also because it ensures a better use of medical resources. Our European principle of solidarity is something we should cherish and preserve.

ECRT: How often do GPs refer to imaging to complete their diagnosis for a given disease EU wide? Are there any statistics on the subject?

IŠ: Do you think this is a tendency that is increasing/decreasing?

IŠ: Unfortunately there are no such statistics. But with the development of guidelines and medical science in general, a specific procedure such as radiology will have more and more to offer, so I am sure that the referral rate to imaging is going to increase in the future.

ECRT: Is this the first time GPs have been asked to take part in another specialty programme?

IŠ: Actually yes! In the last year, we have received more and more requests to collaborate with other specialties. Before ECR, we met with occupational medicine specialists in November. Then, we will meet cardiologists, gastroenterologists and mental health specialists. Such interdisciplinary meetings are essential because they allow maintenance of good relationships with other specialties. They also represent a big challenge for us: we are an executive of 7 people. We have already started to include special interest groups of doctors, so far organised around main topics: gastroenterology, cardiology, mental health, occupational medicine and diabetes. These pan-European groups already existed informally and were collaborating with specialists.

ECRT: Do you think GPs should cooperate more with radiology/other specialties, and, if yes, which ones?

IŠ: Cooperation is essential. We should develop more structured ways of communicating between specialists, particularly with the ones of the aforementioned disciplines. Meetings constitute the first level of communication. Developing common ideas and projects, in research for instance, are the second. There are already a lot of research projects that put specialists and GPs together in the EU.

ESR meets General Practitioners

Saturday, March 8, 16:00–17:30, Room C

EM 2 Manifestations of atherosclerosis: A common challenge in diagnosis and treatment

Presiding:
A. Adam, London/UK
M.F. Reiser, Munich/DE
I. Švab, Ljubljana/SI

Introduction
M.F. Reiser, Munich/DE
I. Švab, Ljubljana/SI

Assessment of coronary artery disease
General practitioner: C. Loni, Poole/SR
Radiologist: N.R. Motley, Rotterdam/NL

Patients with peripheral arterial obstructive disease (PAOD) in primary care
General practitioner: M. Mayer, Vienna/AU
Radiologist: M. Treitl, Munich/DE

Panel discussion

ESR meets Germany

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ESR meets Germany

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IMAGINE stresses practical potential of high-tech tools

By Paula Gould

Innovative developments in imaging technology are to get an even higher profile at this year's congress. The high-tech IMAGINE exhibition has, for the first time, been linked to an ECR special focus session.

"The importance of technology to the field of radiology is increasing rapidly," said Prof. Wiro Niessen, professor of biomedical image processing at the Erasmus Medical Centre, Rotterdam, the Netherlands. "We felt that the connection between IMAGINE and the rest of the conference should be stronger."

IMAGINE has been held at ECR since 1999. The exhibition provides a platform for research groups to present the novel radiological technologies that they are working on and receive feedback from potential users. At the same time, radiologists can learn more about the high-tech tools and techniques that may shape future practice in diagnostic and interventional radiology.

Niessen is optimistic that the new special focus session will appeal to clinical radiologists, as well as imaging's high-tech R&D community. "Delegates who are interested in these new developments. They will also get insights into the limitation of conventional radiology." He stated. "But most of it is actually largely irrelevant in terms of clinical goals. We have always worked in groups of three, with collaboration between industry, clinicians, and basic researchers."

Several examples will be presented. For example, Oxford researchers have devised a technique to measure the circumferential resection margin of colorectal tumours from imaging data. The circumferential margin is used by surgeons as an indicator of whether tumour resection is viable. The accuracy of this measurement is consequently extremely important. Brady's team is also developing MR-based analysis tools to segment the mesorectum, and analyse lymph nodes that are within the mesorectal fascia.

He will also show how MRI can predict the outcome of high intensity focused ultrasound (HIFU) tumour ablation. Practitioners who use HIFU to 'cook' liver tumours cannot always be completely sure that all of the malignant tissue has been ablated. Enhancement of liver images has the potential to rectify this. MRI may then be used in vivo to give an accurate estimate of the outcome.

Each of these novel methods has left the laboratory already to some extent. Trials have been conducted on groups of 10–100 patients, depending on the specific technique, and commercialisation opportunities are now being pursued. "This is something that I feel very passionate about," Brady said. "I am not in this game just to write papers, according to Prof. Sir Michael Brady.

I am not in this game just to write papers, according to Prof. Sir Michael Brady.

"Quite a large number of people are very interested in these new developments. They will also get insights into the limitation of techniques that are around today," he noted. "The focus of this afternoon’s session is: 'Novel image analysis and modelling techniques to improve diagnosis and therapy of cancer."

"This is all about showing the impact of technology on the whole chain, from early diagnosis and disease prevention, through to therapy monitoring and image-guided intervention," Niessen said.

The session will conclude by asking the all-important question: 'Can new technology cut errors in cancer diagnosis and treatment?" In other words, will the smart solutions presented be of any practical benefit outside the research laboratory?

"Some of these developments may never make it into clinical practice," he stated. "But the general trend towards these technologies is irreversible. The people who are presenting at this session are part of those groups that will provide the technologies that will change the workplace of radiologists in the coming years. I am very sure about that."

The practical potential of novel image analysis technology is top of the agenda for Prof. Sir Michael Brady, professor of information engineering at the University of Oxford, UK. He will be discussing work underway at Oxford to improve the assessment of liver and colorectal cancers from MRI data. From the outset, the work has been concentrated on genuine, clinical problems, and developed with technology transfer in mind.

"I look at much of the medical image analysis community, which is populated by mathematicians and computer scientists, and there is some very elegant science being done," he said. "But most of it is actually largely irrelevant in terms of clinical goals. We have always worked in groups of three, with collaboration between industry, clinicians, and basic researchers."

"Th is is something that I feel very passionate about," Brady said. "I am not in this game just to write papers. I want to see our work being used routinely in the clinic. That is my track record."

Special Focus Session

Saturday, March 8, 16:00-17:30, Room Z

SF 8b Novel image analysis and modelling techniques to improve diagnosis and therapy of cancer (in IMAGINE – the high-tech specialty exhibit session)

Chairman’s introduction
W.J. Niessen, Rotterdam/NL

Tumor response imaging biomarkers: A practical framework for development
A.B. Fleetham, Northwood/UK

Cutting the errors in evaluating the response to treatment in solid tumour
H.D. Peijnen, Bremen/DE

Oncological image analysis: Medical and molecular imaging
M. Brady, Oxford/UK

Image guidance in interventional radiology and radiotherapy
D.J. Hawkes, London/UK

Panel discussion: Can new technology cut errors in cancer diagnosis and treatment?

IMAGINE stresses practical potential of high-tech tools

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There are an increasing number of physicians from haematology/oncology, radiooncology, surgery, nuclear medicine, and radiology for every single patient brings together the skills of many partners. Radiology plays a key role since all patients need imaging studies. Case discussions are significantly driven by imaging results. The price that radiology pays for playing a key role is the time investment related to the numerous clinical rounds.

ECRT: Skilled staff are a prerequisite for the implementation and maintenance of high-quality radiological services – what do you do to promote postgraduate education and training in modern imaging methods?

ML: The DRG founded an academy more than ten years ago. One aim is to provide resident and postgraduate training (CME). The courses are accredited after review of the programme, and all speakers receive feedback from the evaluation made by the participants. The programme is now well established and 3,600 members of the DRG are registered. The members themselves promote the idea of postgraduate education. In addition, the annual Deutsche Röntgenkongress, the German Congress of Radiology, offers a broad spectrum of basic and advanced training.

ECRT: Is there any competition between German radiological services and other services and if so, how does radiology work together with these specialties to improve the situation?

ML: Indeed, turf battles are the bread and butter of German radiology. Neurologists and psychologists like to claim MRI (namely fMRI), orthopaedic surgeons want to ‘invasive’ musculoskeletal MRI. Cardiologists are keen to perform cardiac CT/MRI. Vascular surgeons are ready to take over percutaneous vascular interventions. Every approach is to be skilful enough to be better than the competitors and to establish collaborations.

ECRT: Why did you choose to focus your lectures for the ESR meets programme exclusively on Computer-Aided diagnostic (CAD)?

ML: The ‘ESR meets’ programme is a unique opportunity to present both German radiology and German radiology is very much technology-driven with a high standard of equipment, and many papers from Germany presented at ECR every year have demonstrated the benefits of using it. With CAD, we have chosen a topic that may highlight the ‘pros and cons’ of cutting edge technology.

ECRT: CAD is a relatively recent technology and Germany seems to be particularly keen on developing it. For instance the University Medical Centre Hamburg-Eppendorf in Germany is currently testing the world’s first MRI/PET image software tool for the diagnosis of testicular and prostate diseases. Are there other technologies in which German radiologists are leading/actively contributing to research?

ML: It is somewhat difficult to judge whether German radiologists are leading in particular fields of radiology. There is, however, an active contribution in fields like MR-mammography, ultrasonic field MRI, interventional radiology, etc.

ECRT: Since x-rays were discovered by a German physicist, do you think German radiologists feel a responsibility to remain on the forefront of cutting edge research?

ML: Is it the heritage of Wilhelm Conrad Röntgen or is it just the high level of academic radiology that drives research? Frankly, I don’t know. What is important, however, is the influence of research that has been done in the United States over the past decades, where numerous German radiologists have had the privilege of spending time working with outstanding American radiologists. Their teaching was (and still is) an extremely motivating for academic German radiologists.

ECRT: CAD may help radiologists to achieve a better reading of images. The industry even says that it will help less experienced physicians to attain the same diagnostic accuracy as highly trained specialists. How is the radiological community reacting to this? Are there any fears from specialists that CAD will threaten their position in the profession? Ultimately, cannot CAD simply replace a highly trained specialist?

ML: The potential of CAD has been proven in dedicated applications, including the detection of microcalcifications in mammography and polyps in virtual colonograpy. With CAD the detection rate can be increased. However, as with almost all imaging tests, increased sensitivity is obtained at the price of decreased specificity (i.e. more false positives are detected). Therefore, CAD may be a tool to assist highly skilled readers who review large volumes of a specific imaging test in a population with low prevalence of pathology. A less...
**ECR TODAY**

**Saturday, March 8, 2008**

**Room B**

Wilhelm Conrad Röntgen – Honorary Lecture

**Pushing the speed limits in MR imaging**, today at ECR.

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**By Mélisande Rouger**

"Pushing the speed limits requires the development of new concepts rather than the optimisation and the maximisation of hardware," says Prof. Jürgen Hennig, co-chairman and scientific director of the department of radiology at the University Hospital Freiburg. His lecture at ECR will explain how, from an application point-of-view, imaging speed is determined by more than the acquisition time per image. "Speed limits in the clinical context are set by the time it takes to answer the diagnostic problem at hand and to reach a relevant decision on further patient treatment," he explains. In addition to the speed of data acquisition, this is affected by the sensitivity and specificity of the chosen imaging protocol(s) and by the reliability and robustness of the diagnostic procedure, he says. Hennig. "Increasing imaging speed predomi-

nantly means optimisation of the diagnostic workflow, including not just the MRI imaging procedure itself but also additional and alternate examinations," he concludes.

Born in 1951 in Stuttgart, Germany, Hennig soon became interested in MR imaging. After a PhD in physical chemistry and two years of postdoctorate study in the same field, he accepted a position at Freiburg University and established a clinical MR institute at its department of radiology. There, he headed research until 1992 and obtained full professorship one year later. In 1998 he was appointed Chairman of the section of Medical Physics of the service of Diagnostic Radiology, where he was eventually appointed Research Director three years later. The same year, he took the lead of the newly established Magnetic Resonance Development and Application Centre (MRDAC) at Freiburg University.

Hennig's contribution to MRI has been crucial to the development of this technique. Under his leadership, the Freiburg MR research group has implemented new ideas and concepts for the use of MRI in a broad spectrum of applications. The measurement procedures they developed have since been implemented in all MRI devices worldwide, and are used for all MR patient examinations. The core of their development work has been in the establishment of fast and ultra-fast MRI, the functional imaging of brain and heart, 'molecular imaging' for the development of highly selective contrast agents, and in the use of MRI for the development and testing of new drugs.

These achievements have earned Hennig recognition and awards, such as the European Magnetic Resonance Award and the Gold Medal of the Society of Magnetic Resonance. He served as President of the International Society of Magnetic Resonance in Medicine (ISMRM) and was appointed Scientific Director of the European Institute for Bio-medical Imaging Research (EIBIR) in 2006.

His work has often led him to lecture all around the world, but he has been particularly active in Europe and Asia. He is notably President of the European-Chinese Society for Clini-cal Magnetic Resonance and the current chairman of the Scientific Advisory Board of the Singapore Brain Imaging Centre. Those activities have enabled him to see the differences between the university and clinical worlds in many countries.

"In Europe and the US, university life and clinical life have been very much driven by a close interdisciplinary relationship between the world of basic research and clinical application (...) but there are quite significant differences between specific countries on those continents, due to the development and traditions of each country," he says.

This may be even more obvious in Asia, where there are quite different approaches both in university life and clinical life. "In many Asian countries, fundamental science as such is not as strongly developed and is further apart from clinical life, compared to Europe and the US. Initiatives and policies for basic research are in general tightly linked to practical outcome and economic goals," he explains.

The challenge for Europe and the US, Hennig thinks, is to establish further communication between the existing fields and to be flexible in developing and incorporating new and interdisciplinary efforts, which have not yet been implemented in the sometimes too rigid and well-established existing structures.

For Asia, it will be important to develop a culture of sustainability that goes beyond solving the immediate problems at hand.

Originally a physical chemist, Hennig chose to work in a radiology department because of the promising potential of MRI. "It appeared to be very appealing to work in a field which, back then, already seemed interesting to many specialists." His choice was also influenced by his fascination for spin dynamics. "To this date I am still amazed by the apparently infinite variety of opportunities offered by the simple basic principles of spin dynamics," he says candidly.

Since applying his inclination to work towards a 'worthwhile goal' has been a good guiding moral throughout his academic life, he strongly encourages his young peers to find their own relevant purpose: "Be open to looking beyond the confines of your field. Life should be dedicated not to fighting for a piece of the cake but to helping to make a bigger cake.

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**continued from page 27**

"What are the potential benefits of the German Radiology Society taking part in the ESR's meets programme?" I ask Prof. Jürgen Hennig. His work has often led him to lecture all around the world, but he has been particularly active in Europe and Asia. He is notably President of the European-Chinese Society for Clinical Magnetic Resonance and the current chairman of the Scientific Advisory Board of the Singapore Brain Imaging Centre. Those activities have enabled him to see the differences between the university and clinical worlds in many countries. In Europe and the US, university life and clinical life have been very much driven by a close interdisciplinary relationship between the worlds of basic research and clinical application (...) but there are quite significant differences between specific countries on those continents, due to the development and traditions of each country," he says.

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Good practice enables radiologists to avoid pitfalls of musculoskeletal imaging

By Emily Hayes

When something goes awry in the musculoskeletal system, it is tempting to jump right in with advanced imaging techniques. But old-fashioned plain films should often still be the first step, such as for the assessment of suspected bone tumours, according to Dr. Mark Davies, a speaker at today’s categorical course on musculoskeletal MRI. He stresses the pre-eminent value of radiographs in the diagnosis of bone tumours, which can occur in otherwise fit and healthy young people.

"Bone resolution on x-rays is excellent. MRI is not always as good for anatomical detail," said Davies, lead radiologist at the Birmingham Orthopaedic Oncology Service, Royal Orthopaedic Hospital NHS Foundation Trust, UK.

Given the treatment options available today, the long-term prognosis for bone tumours is excellent. About 75% of patients survive for five years or more, compared to only 15% a quarter of a century ago.

However, radiologists must not overlook subtle changes in bone on radiographs and miss the opportunity for an early diagnosis, he noted. To minimise the chances of a miss, the radiograph must be of high technical quality and the radiologist needs to be alert to the possibility of bone tumour in children and young adults.

If an occult lesion on radiography is suspected, it is appropriate to proceed to MRI.

After plain films, MRI proves valuable in the characterisation of soft tissue masses in the extremities. Masses that are smaller than 5 cm in diameter and are superficial are typically benign. However, if the mass is over 5 cm in diameter and deeply located, MRI is indicated to confirm the presence and location of the mass and then to characterise the lesion.

"The advantage of MRI lies in its sensitivity for soft tissue disease. It can show these abnormalities earlier than plain films," Davies said.

MRI is also extremely useful in staging tumours and providing a roadmap for surgeons. However, one potential downside of MRI is the diagnosis of incidental findings, such as small cartilage tumours.

"MRI picks up any little abnormality within bone. These findings are not necessarily clinically significant, but physicians spend a significant amount of time investigating them. It’s easy to over-diagnose with MRI," he stated.

Because biopsies sometimes miss a lesion, communication between radiologists and pathologists during multidisciplinary meetings is essential; sometimes repeat biopsies and consensus diagnoses are required, Davies said. When it comes to inflammatory and infectious diseases, musculoskeletal MRI is the first port-of-call, enabling identification of various pathological processes, said Dr. Victor Pullicino, another speaker at today’s categorical course.

Infectious disease becomes evident through signal alterations on MR. Hallmark changes in parts of the musculoskeletal system, such as the joints and spine, indicate if infection is present and where it is located.

" Nowadays, infection is really the remit of every radiologist who works in a hospital with an MR system. Throughout all walks of life and patient populations, from paediatrics to geriatrics, infection can take place. You just need to know what the appearances are on MR to identify it correctly," said Pullicino, consultant radiologist and clinical director at the Robert Jones & Agnes Hunt Orthopaedic and District Hospital in Oswestry, UK.

By and large, when radiologists see an abnormality on MR and suspect a tumour, they also should consider the possibility of infection, he said. Similarly, if infection is suspected, radiologists should consider the presence of a tumour.

In cases of suspected infection, a biopsy is typically necessary for a histological and microbiological diagnosis and to exclude other diseases.

In older patients, radiologists need to also be mindful of the possible presence of inflammatory conditions in the musculoskeletal system, notably inflammatory and degenerative arthritis.

In recent years, interest has grown in using MR to diagnose silent inflammatory conditions before changes on plain film are detectable, enabling early treatment to help avoid joint and bone destruction.

In addition, MRI can be used hand-in-hand with new anti-inflammatory drug treatments on the market.

"MR may help in monitoring these patients once you have started treatment, helping you to see how much of the soft tissue inflammatory changes have occurred with treatment," Pullicino said.
Cultural rendezvous

An assemblage of exquisite talent – the Spanish Riding School

By Julia Patuzzi

Certainly one of Vienna’s most famous sights is the Spanish Riding School, located right in the heart of the city at the former imperial stables. Even more than 400 years after its founding, it still annually attracts hundreds of thousands of visitors from all over the world. And it is not only horse lovers who practically storm the Riding School every day, but also visitors with a penchant for all things royal and imperial or for traditions and ceremonies from a time long past.

The Spanish Riding School can look back on more than 430 years of rich history. It is the world’s only institution that still cultivates classical dressage in the Renaissance tradition of the haute école to this day. It is called Spanish because Spanish horses were used when the Riding School was founded in 1572, and because the Lipizzans are descended from Spanish horses. In 1580 Archduke Karl II of Austria established the Lipizza imperial stud farm. Emperor Karl VI instructed Josef Emanuel Fischer von Erlach to build the magnificent Winter Riding School in Vienna’s Imperial Hofburg Palace from 1729 to 1733. The monarch’s portrait still hangs in the white Baroque hall where the riders of the Spanish Riding School train the horses and perform. The splendid building has retained its original construction to the present day and is regarded as the world’s most beautiful riding hall, providing a one-of-a-kind setting for training and presenting the white Lipizzan stallions. The first public performances took place in 1919 and were greeted with great enthusiasm. In the 1920s, thanks to tour and guest appearances, the Spanish Riding School became famous the world over and laid the foundation for its unique reputation. After various relocations during World War II, the school finally returned to its original home at the Imperial Hofburg Palace in 1945, with their first performance taking place on Austria’s national holiday, October 26.

Even today the daily routine at the Spanish Riding School is still shaped by the philosophy of classical équitation, a philosophy based on the writings of the Greek commander Xenophon, which were rediscovered in the 16th century. In terms of equine mentality, acceptance of the equine psyche and mental attitude, these works are still considered standards today. The objective of classical équitation is to study the way the horse naturally moves and to cultivate the highest levels of haute école elegance the horse is capable of through systematic training. The result creates an unparalleled harmony between rider and horse, as only Vienna’s Spanish Riding School achieves.

With their origins dating back to the 16th century, the Lipizzans are Europe’s oldest breed of horses. However, until the 19th century these noble steeds were not known as Lipizzans, a name that was taken from the Slovenian village of Lipica. Until that time they were called Spanish Karsters and highly prized. Since 1920, the Lipizzans have made the Piber Federal Stud Farm, located in western Styria, their home. The stud farm carefully cultivates and develops the knowledge gained from over four hundred years of breeding these magnificent animals. Every year the best Lipizzan stallions are selected for training at the Spanish Riding School. At the height of their career, they enchant visitors from all over the world with their truly unique performances. Some of the stallions are virtual stars with actual fans following their routines as often as possible. At the Spanish Riding School website, there are details to be found for each and every one of these very special animals, with photographs showing off their exquisite equine beauty.

What’s on today

OPERA
Staatsoper
19:30 La forza del destino by Giuseppe Verdi, conducted by Zubin Mehta with Nina Stemme, Carlos Alvarez, Salvatore Licitra, Alastair Miles
Volkstheater
19:00 Der Eurodramenfilm by Wilhelm Kienzl
Wiener Kammeropern
19:30 Blond Eckhart by Judith Weir; conducted by Daniel Hayem Cavaizza

CLASSICAL MUSIC
Konzertbau
19:00 Baroque Chamber Orchestra, Wiener Singakademie, conductor Heinz Fertelsch; J.S. Bach: Matthäuspassion
Musikvergnügen
19:30 Orchestra Cherubini, conductor Riccardo Muti; G. Donizetti

JAZZ
Birdland
20:00 Cooko
Porgy & Bess
20:00 Franz Reitinger Level 45

MUSICAL THEATRE
Raimundtheater
19:30 We will rock you by Brian May, Roger Taylor & Benaton
THEATRE
Akademietheater
19:30 Bus purpurea Muttermal by René Pollesch
Burghtheater
20:00 Michael Raiter und die Wiener Theatermusiker
Ensembletheater
19:45 Raal by Bertolt Brecht
Schauspielschaus
20:00 (W)ild: Man with traumatic Augen by Hardt Klaus
Theater in der Josefstadt
20:00 Getöckelte Liebschaften by Christopher Hampton
Vienna’s English Theatre
19:30 Donkey’s Years by Michael Freyn

Culinary treats

Named after the world-famous horse carriages and their drivers, Fiakergulasch is a most savoury dish that will leave nothing to be desired for the true lover of meat and traditional central European cuisine.

Fiakergulasch

Beef Goulash Fiaker style

Ingredients

For 4 servings
2 lb. cut of upper hind shank beef, trimmed
2 lb. onions
3 ½ fluid oz. oil or rendered down beef suet
1 tablespoon tomato paste
1 pint water
3–4 tablespoons sweet paprika
2 cloves of garlic, crushed
1 teaspoon caraway, ground
1 teaspoon caraway, ground
white vinegar

Finely slice the onions, brown in hot oil, add the paprika, stir quickly, add a dash of vinegar and some water. Poor in approximately 1 pint of water, stew the onions until soft, strain if needed. Cut the meat into thick cubes. Put the onions, meat cubes, tomato paste, garlic and other seasoning into a suitable pot and stew, covered, over a moderate heat on the stove or in the oven for 2–3 hours. Add more water if needed. The meat should be cooked until just tender, as it will continue cooking somewhat in the hot gravy. The gravy of Viennese style Goulash should have some red fat on the surface, the so-called mirror. Served with a Wiener sausage, sliced gherkin, fried egg and white bread dumplings.

Johann-Georg von Hamilton (1672 – 1737) - Karster Schimmel, c. 1720

Spanish Riding School
Visitor Centre
Michaelerplatz 1
1010 Vienna, Austria
Phone: +43 1 533 90 31
www.srs.at

© Spanische Hofreitschule Wien, Kunsthistorisches Museum Wien
Places to see
Giddy-up through the old town!

By Vera Schmidt

All in all, Vienna is a very contemporary city that is constantly being modernised, but there’s something about our city that never lets us forget the time when our emperors and empresses still reigned: the fiaker. The traditional horse carriages used to take the rich and the beautiful from one place to another before there were cars, and they are still around.

The name ‘fiaker’ is derived from French, as the fi rst stand for horse carriages in Vienna was given out in 1693. Around 1760 there were already 700 fiakers in Vienna, and by the end of the 19th century there were over 1,000 of them. In those days, only fiaker coaches lived in the 3rd district, by the square that is now called the Fiakerplatz. They soon became Viennese originals, who were known all over town. Strauss dedi- cated the character of Fiakermilli to them in his famous opera Arabella, and there have been many songs written about them, like the famous ‘Fiakerlied’ (fiaker song) by Gustav Pick or the sad farewell song ‘Schul’mene Ross in Staff’ (put my horses in their stable) by Ferry Wünsch, which are still frequently sung at Viennese Heurigen.

As of 1979, there are already about 700 fiakers in Vienna, and by the end of the 19th century there were over 1,000 of them. In those days, only fiaker coaches lived in the 3rd district, by the square that is now called the Fiakerplatz. They soon became Viennese originals, who were known all over town. Strauss dedicated the character of Fiakermilli to them in his famous opera Arabella, and there have been many songs written about them, like the famous ‘Fiakerlied’ (fiaker song) by Gustav Pick or the sad farewell song ‘Schul’mene Ross in Staff’ (put my horses in their stable) by Ferry Wünsch, which are still frequently sung at Viennese Heurigen.

Since the old times, life has become much harder for our mobile tourist attraction. Ten years ago, a new law was passed that forces each coachman to take a special test in order to obtain their driving permission. Until some years ago, the horses also added a vintage colour to our city centre which was not highly appreciated by most inhabitants. A lot of complaints were filled at the local authorities, which culminated in a legal order that each fiaker horse has to wear a so-called poobag, which became effective on July 1, 2004. In case of disregard, the coachmen have to pay a large fine. In addition to that, the city council decided that the horses themselves cause more damage to the pavement than cars and lorries together and is therefore now testing plastic horsehooves on the animals. Their patter can be heard all the same all over the old town.

The Viennese love their 58 present fiakers and so do the tourists. In which other city can you read headlines like “boiled horses racing through the city centre”? No worries, nobody but the horses themselves were harmed, and the only damage was to a wall and the furniture of a pavement café.

Nevertheless, the fiaker are always busy, and not only due to the tourists. There’s a tradition of taking a fiaker tour after confir- mations, and in springtime and the summer months many Viennese brides fulfill their dream of riding to church in a fiaker. No matter for which occasion, a fiaker ride is always a worthwhile experience.

Places to see

If you are not in a rush, just hop on one of the carriages, some of which are over 100 years old, and take a tour around the old town. Stands are located on Stephansplatz, Helden- platz, Michaelerplatz, Petersplatz, by the Burgtheater, and behind the State Opera by the Albertina. Most coach- men speak many languages and will tell you funny stories of former times. Prices vary between €40 and €95, depending on the length of the tour.

Inhale in nostalgia and enjoy his- toric, Vienna to the full.

Literary encounters

Where imperial traditions still prevail

By Nils Jensen, Viennaer, Buchkultur

Many of you will be familiar with the following picture: A white horse balancing on its hindquarters, the rider elevated, proudly making the leap. This picture has become a symbol of the Lipizzan breed. Throughout the world, for their foundation horses, whose offspring are still bred today, the Lipizzans have been and are still admired. The white horses amaze with their performances.

The Lipizzans

The Lipizzan breed takes its peculiar name from one place to another before there were cars, and they are still around.

The name ‘fiaker’ is derived from French, as the fi rst stand for horse carriages in Vienna was given out in 1693. Around 1760 there were already 700 fiakers in Vienna, and by the end of the 19th century there were over 1,000 of them. In those days, only fiaker coaches lived in the 3rd district, by the square that is now called the Fiakerplatz. They soon became Viennese originals, who were known all over town. Strauss dedicated the character of Fiakermilli to them in his famous opera Arabella, and there have been many songs written about them, like the famous ‘Fiakerlied’ (fiaker song) by Gustav Pick or the sad farewell song “Schul’mene Ross in Staff” (put my horses in their stable) by Ferry Wünsch, which are still frequently sung at Viennese Heurigen.

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The Lipizzan breed takes its peculiar name from one place of origin: Lipica, a village north of Trieste in modern-day Slovenia, where a stud farm of white warmblood breeds has been hosted since 1580. Until 1918, Lipica remained the place of residence of the imperial stud farm that has in the meantime gained worldwide renown. After that, they moved to Piber in Austria’s province of Sty- ria. To this day, young Lipizzan horses indulge in lavish summer meadows and ample grassland dur- ing their first runs. Young Lipiza- zans are not white, but brown or spotted, and only at a later stage take on the laziest white coat for which they are so admired during their performances at the Spanish Riding School.

A visit to one of the performances at the Spanish Riding School is well worthwhile, although your enthu- siasm should be slightly cautious as official performances are often sold out months in advance. You are therefore advised to book your ticket by e-mail from home. Another tactic that might pay off is trying to get a ticket for a rehearsal.

The former imperial stud breeders had their own ritual ceremonies, maybe this is where today’s strictness of some of the Lipizzans to officially breed the white horses. In the meantime, this issue has been amicably solved to the benefit of the Piber stud farm.

A compact, well-illustrated guide that reveals anecdotes and inside stories, as well as exemplary descriptions of both the Spanish Riding School and the Lipizzans.

Translation by Monika Hierath.
How to submit to European Radiology

By Simon Lee

European Radiology, one of ESR’s major supporting features, is the leading European journal for general radiology, and its position at the forefront of radiological publishing is largely due to much dedication and hard work. Current editor-in-chief Prof. Adrian K. Dixon, who took the reins at the start of 2008, is now in charge of a journal that grew significantly under the previous editor, Prof. Albert L. Baert. "Thanks to Prof. Baert, and the hard work of his staff in Leuven, European Radiology has now become a highly regarded journal in the imaging field, with a high impact factor," says the editor-in-chief.

Prof. Baert’s contribution is clearly reflected in the status of the journal today, but the success of European Radiology is also a result of the high quality of work submitted by the authors hoping to fill its pages. A high rejection rate is testament to the vast number of manuscripts tendered for consideration, and a sign that to be published in European Radiology is no easy achievement. The sheer number of submissions means that only the very best works can be selected for publication, so unnecessary references to previous publications can also be a clue to an author’s identity, just as frequently publications can also be a clue to an author’s identity, just as frequently unnecessary references to previous publications can also be a clue to an author’s identity, just as frequently

According to Prof. Dixon, “the single most important factor in getting a paper accepted is its scientific originality.” Submissions that bring new value or findings to a topic will stand considerably more chance of convincing the editor-in-chief in his final decision. As is the case with all scientific journals, very tight limits on space mean that only the best and most innovative manuscripts can be published, which is why original research is usually given a higher priority over case reports. “It also helps if the results are likely to influence clinical practice”, he explains, “even if that may be some time in the future.”

When it comes to structuring a paper, there are also a number of basic points that will aid a smooth passage through the review process. For instance, submissions must always contain a full title page, abstract, main document and relevant image files, and the main body should follow the prescribed order: introduction – material and methods – results – discussion. Keeping to this format helps the editor-in-chief and the peer reviewers considerably when assessing the work and its merit.

Following the specific requirements of the journal also extends to using the house style when writing reference lists, and paying close attention to how your references are listed will ensure that your submission reaches the reviewers much faster. “The list of references should only include works that are cited in the text and that have been published or accepted for publication. References should be numbered in the order in which they appear in the text and listed in numerical order, and journal titles should be abbreviated according to Index Medicus. If available, the Digital Object Identifier (DOI) of the cited literature can be added to the end of the reference as well.”

Another tip for a swift review is to take the blinding of the main document very seriously. Any information that could reveal the authors’ identities or their institutions (names, initials, acknowledgements, etc.) must be removed. Too many or unnecessary references to previous publications can also be a clue to an author’s identity, just as frequently citing non-English-language journals could potentially reveal the background of an author.

The peer-review process

If you have followed the instructions for authors carefully, your paper should be ready for submission via the online system, Manuscript Central. Once all of the required parts of the submission have been uploaded via the user-friendly interface, staff at the Editorial Office will check it is complete and then send it to at least two peer reviewers. European Radiology has a pool of more than 900 voluntary reviewers to draw from, all of whom make a vital contribution to the scientific quality of the journal with their expert knowledge. Once the selected reviewers have accepted the invitation to review, they thoroughly examine the manuscript and return it to the editor-in-chief, along with any suggestions for possible revisions, or a firm recommendation on whether or not to publish. The editor-in-chief then makes the final decision, the authors are alerted and, if all has gone well, the manuscript is passed to the publisher to await publication.

Keeping the above guidelines in mind will enable you to ensure your manuscript is ready to begin the peer-review process. However, guidelines on how to guarantee a successful review are rather hard to provide – there is no set of rules for scientific innovation! Staff at the Editorial Office, now incorporated with the ESR Office in Vienna, are looking forward to receiving your newly prepared submission, and are always ready to provide tips and assistance with the submission system.

Submit your manuscript at https://mc.manuscriptcentral.com/eurradiol

Detailed instructions for authors can also be found at www.springer.com

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