ECR 2008

ECR 2008 has not yet closed, but one person who is already turning his thoughts firmly towards next year’s congress is Prof. Maximilian Reiser, President of ECR 2008.

“My ambitions for the next ECR meeting are very high,” he said. “I would like to ensure it is the best ever radiological meeting in Europe, in terms of the quality of the science presented, in terms of attendance – I would like to see even more German radiologists attend the meeting – and in terms of its character as a multidisciplinary meeting.”

ECR 2008 will take place from 7 to 11 March, and will put a particular focus on women’s imaging, including breast imaging and uterine fibroid embolisation. Women in the radiological profession will be another key topic. There will be a new foundation course on interventional radiology, and the traditional ECR ‘meets’ concept will continue, with India, Israel, and Germany being the guest countries. Also, industry will be offered a new platform within the so-called face-off sessions.

Turn to page 19 of this issue of ECR Today for an extended interview with Prof. Reiser.

By Paula Gould

Intervention moves into cosmetic medicine

‘Of course we are used to interacting with vascular surgeons, so our interest in treating varicose veins will only further stimulate that pleasant interaction. But dermatologists and plastic surgeons might choke over their porridge when they hear the terms interventional radiology and cosmetic medicine being linked,’ he said.

Prof. Zvi J. Haskal, director of vascular and interventional radiology
Dr. Miroslava Skovajsova from Prague first three years of a UK five-year training programme. And so, in the next three years they are doing as a form of cosmetic enhancement for cosmetics and medical devices. “If you walk down any main street, anywhere, you can see the advertisements for cosmetics and medications that mimic Botex,” he said. “We already know how to make our patients feel good. Now we can also learn how to make them look good.”

Interventional radiologists removing varicose veins with endovascular techniques should consider what they are doing as a form of cosmetic medicine, said Dr. Sanjey Kundra, medical director of the vein institute of Toronto. Outpatient practices set up to perform these procedures should not look like regular diagnostic imaging centres. “You have to have an attractive, welcoming situation, and what we describe as a ‘bright, brass and glass’ setting,” he said. “You have to have furniture that fits the cosmetic environment.”

The market for minimally invasive treatment of varicose veins is also looking like a healthy place to be. Approximately 25% of all women and 15% of all men in North America have some type of lower extremity venous insufficiency. Patients with bulging, painful veins were previously referred for surgical stripping, but this invasive procedure is no longer the gold standard, Kundra said.

Endothermal treatment, either using radio-frequency (RF) waves or laser therapies, has now emerged as a viable alternative. Kundra showed data from a multi-centre prospective clinical trial demonstrating that 92% of limbs that were reflux-free 12 months after intervention remained so after five years. Centres participating in an ongoing trial of endothermal laser treatment are reporting 93% to 99% closure rates.

The use of tumescent anaesthesia is critical to the efficacy of both RF ablation and endovascular laser vein treatments. He advises patients to wear compression stockings for at least two weeks afterwards to ensure that treated veins remain closed.

R-ITI’s development in conjunction with the creation of three radiology academies has proved to project architects and joint project leads Dr. Richard Fowler and Dr. Phil Cook that this material does allow training schemes to increase their capacity. In addition, the trainers are making faster progress through the normal milestones than their predecessors.

R-ITI’s first component, the e-Learning Database (elD), comprises a vast library of tutorials, or ‘sessions’, between 600 and 1000 hours of learning, based on a structured curriculum, and is the first three years of a UK five-year training programme.

“That’s one of the things that’s proving popular. We’ve had a lot of interest from other countries in Europe where they don’t have the same kind of structured training and where nobody’s seen any materials like this,” Fowler said.

The interaction is as much mental as physical and doesn’t just entail page-turning or mouse-clicking. Fowler continued. Plus R-ITI contains immediate feedback on the accuracy of trainer answers.

R-ITI’s second element is a Validated Case Archive (VCA). In-depth information from each case about the modality used, imaging findings, diagnosis and pathology is twinned with detailed search engine capabilities.

“The VCA will reinforce knowledge acquired during sessions,” Cook said. “In addition it will be a useful tool for self assessment, question setting, validation of radiologists, continuous professional development and as a desktop help with other cases.”

Free to all UK-based radiologists with non-UK residents able to access the resource through licence from next year, R-ITI is scheduled to move beyond the academies to be web-based by 2008.

“This is not to replace conventional clinical radiology practice. This is to support it and to accelerate the learning process,” Fowler said. “We firmly believe that this is the future of medical education.”

General radiological training is also moving ahead. The Czech Radiological Society (CRS) is organis-ing a triannual refresher course, to be held in Prague between 4 and 6 October 2007. In 1968, the second national congress was cancelled in protest over Soviet occupation, but otherwise conferences have been held on a regular basis, according to Prof. Marek Mechl, President of the CRS. Next year’s 36th radiological congress will focus on emergency radiology.

The sub-committees of the CRS are ultrasound, CT, MR, musculoskel-etal, abdominal, thoracic, mam-mography, paediatric, and PACS and telemedicine. For more information, visit www.crs.cz

The journal, Acta Radiologica et Cancerologica Bohemoslovenica, was established in 1938, but was closed during the Second World War. Czech Radiology is now pub-lished four times a year.

“The legacy of all the pioneers of Czech radiology is still alive: to maintain radiology as an independ-ent medical specialty and to co-operate with colleagues all over the world,” said Mechl, who is based at the department of radiology at Brno University Hospital.
Correct diagnosis of tumour character and stage is fundamental to lung-cancer therapy planning, but evaluating small indeterminate pulmonary nodules (SPNs) continues to challenge radiologists. In addition, it is vital to determine as soon as possible whether patients are likely to respond to treatment.

SPNs are common, and a small percentage are malignant. PET/CT is a sensitive detector of malignancy due to FDG uptake. Missed lesions are rare and mainly occur due to small size of the lesion or because the lesion is a well-differentiated cancer, which has a low avidity for FDG. False positives may result from FDG uptake due to other reasons such as infection and inflammation, though the higher the uptake, the greater the risk of cancer, according to Dr. Sally Barrington, consultant in nuclear medicine at the PET Imaging Centre at the Western General Hospital, Edinburgh. "We’re looking for response to see if there is malignancy," she said.

To improve detection and targeted radiotherapy, new tracers targeting other aspects of tumour biology will be useful for guiding treatment in individual patients, she said. "I think that [18F]FDG-PET/CT (respiratory gating will be very important to help us improve detection and targeted radiotherapy." Such new drug development plays a vital entity to be reviewed by the ESR and updated on an ongoing basis, reflecting changes in radiology practice.

To measure the document’s impact, radiologists are invited to access the document available at www.myESR.org and at the ESR booth and e-mail their comments to the ESR office.

"We're looking for response to see how the manual has affected the training that is available throughout Europe," Breatnach said. "We would like to know: Has it affected their national curriculum? Has it been of use to them in their negotiations with government bodies and state agencies, etc.?"

"Its ultimate aim is to improve training and to harmonise it, which is particularly important in the context of medical migration," he said.

As medical migration increases in an expanded Europe, radiologists continue their work of harmonising training standards to improve patient care. The European Society of Radiology aims to build on the foundations that have already been laid by the ESR, ECR, particularly in the context of education, according to Dr. Eamonn Breatnach, current Chairman of the Society’s Education Committee.

"An existing document outlining the European Training Charter and detailed curriculum for clinical radiology is a great achievement. It’s a consensus document to identify what the society would be happy benefitted their training? Has it affected their practice?"

In positive nodes, sampling techniques vary with node location. A nodule next to the left pulmonary artery might be reported as a T1N0M0, but uptake in an adjacent lymph node visualised in PET/CT and a lesion in the vertebrae may reveal that the stage is really T2N2M1.

Because PET/CT is a useful tool to detect and stage metastasis in other areas of the body, it can also reduce futile thoracotomy, whereby during surgery, benign disease is discovered to be inoperable. "If you think that [18F]FDG-PET/CT respiratory gating will be very important to help us improve detection and targeted radiotherapy," he said. "Such new drug development plays a major role in the future of perfusion CT to measure response to anti-angiogenic therapy. Because therapy is expensive, clinicians want early and reliable answers as to whether growth-inhibiting drugs are working or not. New imaging strategies are needed to complement advances in anti-angiogenics and the new molecular approach to therapy, according to Dr. Anno Graser, radiologist at the University Hospital of Munich. Traditionally, treatment response has been assessed through visualising tumour size and volume, but in anti-angiogenics these parameters may remain unchanged for weeks after the start of treatment. Moreover, uptake size might not reflect accurate response to treatment, whereby a tumour may shrink but metabolic activity remains the same. Functional imaging, such as perfusion PET, will show additional information to morphology.

"Perfusion multidetector CT can easily be integrated into routine staging protocols and will be much faster in determining which patients will respond to therapy and who will not," Graser said.

Stimulated by increasing prevalence of hybrid systems, the European Society of Nuclear Medicine and ESR have drafted a policy document to ensure that of nuclear medicine doctors in radiology. Hopes that the two organisations look set to form a closer relationship in future lie partly in a series of joint meetings, culminating in the shared chairing of yesterday’s session.

Dr. Sally Barrington from London.

Dr. Anno Graser from Munich.

ESR masterminds initiative to harmonise training

By Frances Rylands-Monk

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"An existing document outlining the European Training Charter and detailed curriculum for clinical radiology is a great achievement. It’s a consensus document to identify what the society would be happy with in the education of a clinical radiologist,“ Breatnach told ECR Today. "It incorporates the concept of radiology as being a clinical specialty, and the idea is that people training to this level will give the best patient care available in diagnostic radiology."

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Nicholas Gourtsoyiannis
ESR President
Harry’s highlights from third day of ECR 2007

Once again, ECR Today’s intrepid photographer, Harry Schiffer, mingled with the masses on Sunday to unearth some novel images from day three of the congress. Below is a selection of what he came across on his travels through the Austria Center.

Large numbers of Chinese delegates have played an active and essential role at ECR 2007. Mandarin-speaking staff have been kept busy at the special China welcome desk in the entrance hall. Leading researchers from China will give lectures during Monday’s ECR meets China session, called China and Europe: Tradition and future, to be held in Room A from 14:00 to 15:30. This will be followed by a special session (Room B, 16:00 to 17:30) on how to make a successful presentation, for which there will be simultaneous translations from English to Chinese.

The hands-on workshop, Experience Vascular Procedures Using Simulators, received rave reviews during the first three days of ECR. The workshop was supported by the Cardiovascular and Interventional Radiological Society of Europe (CIRSE) and allowed delegates to use computerised medical simulators to brush up on their interventional techniques. The five sessions focused on the carotids and renal/peripherals.

Some new alliances and friendships were formed at Sunday afternoon’s well-attended image interpretation quiz when teams from France/U.K., Greece/Turkey, Germany/Austria, and Italy/Hungary were pitted against each other. To ensure fair play, the action was supervised by referees Prof. Helen Carty from Liverpool and Prof. José Cáceres from Barcelona. The winners of the quiz will be announced on the ESR website within the next week.

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we can see your heart beat
Chinese golfer tastes success in Singapore

The emerging Chinese golfer, Liang Wen-Chong, parred the first extra hole of a play-off to defeat Iain Steel following in the footsteps of Zhang Lian-Wen, who won the same event on the same course in 2003.

Elsewhere in the sporting world, England pulled off an unexpected 26-18 victory in the Six Nations rugby championship, setting up a thrilling finale to the competition. On Saturday, Ireland secured the narrowest of victories (19-18) in the big rugby match with Scotland. Having already beaten Wales and England, the Irish have now won the Triple Crown. The hero was fly-half Ronan O’Gara, who scored all of Ireland’s points with a converted try and four penalties. Chris Paterson scored all of Scotland’s points with six penalties.

Popular sessions for radiographers continue on Monday and Tuesday

An ever popular feature of the scientific programme at ECR is the sessions for radiographers, which began on Sunday with an in-depth discussion about training and education.

The radiographers’ lectures on Monday will concentrate on CT applications, 64-slice CT of the heart, old problems and new solutions in MRI and CT, information and care policy in the paediatric radiology department, MRI of congenital heart disease, and radiation protection (part 1). The presentations on Tuesday will address quality assurance/management, radiation protection (part 2), and efficiency in radiography and fluoroscopy.

Peripheral CTA postprocessing arrives at ECR 2007

AngioVis is one of the IMAGINE exhibits, and it is dedicated to basic and translational research in the field of vascular imaging and visualisation. The clinical part of the exhibit demonstrates the AngioVis-ToolBox, a software platform specifically developed to process lower-extremity CT angiograms in a busy clinical environment. Current clinical AngioVis users from Vienna, AT, and Stanford, US, illustrate the possibilities of the ToolBox on a variety of cases with peripheral occlusive disease. Cases can be submitted directly on CD/DVD at the AngioVis booth in the IMAGINE exhibition area and at the Bracco booth in the technical exhibition.

The new software, AngioVis-ToolBox, has been developed as an interdisciplinary research effort to improve clinical visualisation of lower-extremity CT angiograms in patients with peripheral arterial occlusive disease. Observe the entire peripheral CTA post-processing workflow, and witness how hundreds of CT images become MultiPath and Single-Path CPR images.

The organizers can print your high-resolution images on a high-resolution Codonics Horizon (R) Multi-media Dry Imager, or burn a DICOM CD on a Codonics Virtua Medical Disc Publisher, which can be viewed with any DICOM-viewer, and even sent to PACS.

Scientific exhibition award winners

Magna Cum Laude

Dr. Eva Cantener, Sabadell, Spain

Dr. Satoru Takahashi, Nijmegen, The Netherlands

Prof. Yongsoo Kim, Kuri, Republic of Korea

Dr. Mana Ishibashi, Yonago, Japan

Dr. Alejandro Rovira-Cañellas, Barcelona, Spain

Dr. Hector Perez-Ponce, Vandoeuvre-lès-Nancy, France

Physics in Radiology

Prof. Dominik Fleischmann from Stanford University (right) explains about new developments in vascular imaging.

Moderators of Sunday’s radiographers session: Dr. Joseph Stines from the Centre Almane Vieux in Vandoeuvre-lès-Nancy, France, and Gunvor Robertsen from Trondheim, Norway.

Check out the ECR 2007 web gallery!

Browse through hundreds of photos covering everything from the scientific and educational programmes to the technical exhibition to beautiful impressions of the congress.

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To see Radiology Re-imagined, come visit us at Booth 202/Expo B, or visit www.gehealthcare.com/re-imagine
PACS vendors rise to challenges from well-informed customers and demanding technology

By Brenda Tilke

Even a casual glance at the ECR technical exhibit hall shows the ascendency of PACS/RIS. This year’s exhibit space features more PACS vendors than ever before and major exhibitors are allocating more space to their PACS/RIS offerings.

"It was only a few years ago that vendors still had to convince customers of the general value of buying PACS. Today your focus is on your own solutions and how they meet much more detailed requirements from highly knowledgeable customers," said Patrick Koch, director of worldwide marketing, business and product strategy of the Health Care Information Solution at Kodak Health Group.

Customers are looking closely at how PACS/RIS products handle high volumes of data associated with multislice CT, MRI and fusion imaging. In response, companies are offering a variety of general and application-specific products. Barco is showing its new 3D Colon Matrix for CT colonography. This application integrates into the Voxar 3D platform and allows radiologists to interpret a study and generate a report in as little as 10 minutes.

Digital mammography also is emerging as an important consideration in PACS/RIS. Agfa Healthcare is showing its digital mammography solutions, including a dedicated workstation. The workstation is currently marketed in France and will soon be marketed in other European countries, said Marcus Ostlander, global marketing manager for RIS/PACS at Agfa Healthcare.

In the European PACS/RIS market, the focus is on speed of display and integration beyond the radiology department. Philips Medical Systems has integrated its ViewForum clinical workstation within the iSite modality 3D tools for computers networked into Centricity PACS.

In addition, PACS vendors are keenly aware of national efforts to implement electronic medical records (EMR) for all patients. For instance, Agfa has just completed the first phase of a large-scale multi-center IT project with Vivantes, Germany’s largest municipal hospital group. The aim is to replace the group’s heterogeneous IT systems with a centralised HIS, PACS, and RIS from a single source. As more countries take steps to develop national EMR databases, competition among PACS/RIS/HIS vendors will become stiff for potentially lucrative contracts.

Kodak is showcasing new additions to its Carestream platform, encompassing both works in progress and new features commercially available. Works in progress enhancements include support for workflow grid computing, with synchronised global worklist and reporting features. The company is also developing a new user-friendly ‘dashboard’ to allow PACS administrators and users at any location to monitor and modify workflow status.

In addition to displaying its next generation Synapse medical imaging and information management system, Fujifilm has information available regarding its January 2007 acquisition of Problem Solving Concepts, Inc. (ProSoC), which has cardiology PACS installed at 350 sites worldwide. The acquisition is part of Fujifilm’s plan to expand its global image and health data management business.

Among the features high on customers’ wish lists are integrated systems that can handle the ever-increasing image volume and 3D displays. GE Healthcare is displaying its upgraded Centricity Advantage Workstation (AW) with multimodality 3D tools for computers networked into Centricity PACS.

"There is so much data with 64-slice CT that your PACS must be able to handle easily," said Jürgen Reyinger, general manager of Integrated IT Solutions for GE Healthcare, Europe, Middle East and Africa. "You also have to be able to include CAD!"

Swedish company Sectra is displaying its new family of workstations designed to handle high image volumes independent of network capabilities. The company recently made its first sale to a Belgian public hospital and signed a €2.4 million contract with Leiden University Medical Centre in the Netherlands. Leiden, the Leiden hospital project represents the company’s first major Dutch installation of its fully integrated RIS/PACS solution.

Despite the shift toward high-end PACS/RIS, there is still a niche for entry level PACS, particularly from institutions in Central and Eastern Europe.

“There are basically two kinds of PACS activities in Eastern Europe,” Koch said. “One group is moving into PACS from old technology and these customers are very price sensitive. On the other hand, there are EU initiatives with funding to advance the healthcare infrastructure in Eastern Europe. As this goes forward, we may even see institutions in the new EU countries leapfrogging over some in the old EU in terms of advanced technology.”
Norwegian Society of Radiology

The Norwegian Society of Radiology has about 650 members, 460 of whom are active. For 20 years the Society has been associated with the Norwegian Medical Association (which has 23,000 members) but it is now in the process of becoming an official part of it. This is primarily due to the desire of the Association to strengthen medical professionalism, rather than a wish of the Radiological Society.

We feel that this new mix of a labour union – the Medical Association – and a professional/scientific society, like ours in radiology, may not always be a benefit. Roles may be confused, what is good for radiology may not always be good for radiologists and vice versa, but the fusion will probably take place in 2007. The Norwegian Society of Radiology will continue as the special branch of the Norwegian Medical Association (which has 23,000 members) but it is primarily an official part of it. This is primarily due to the desire of the Association to strengthen medical professionalism, rather than a wish of the Radiological Society.

Last year, the Norwegian Society of Radiology established its own board, meetings, publications, courses and other national and international activities, within the new structure.

Recent, the first of several PET/CT installations came into operation in our country. The Society of Radiology established a cross-disciplinary commission to advise us how we could contribute to reaching a good European level in molecular imaging during the coming years. The commission gave its recommendations last autumn and we will now try to follow up and implement some of the actions.

Portuguese Society of Radiology and Nuclear Medicine

The Portuguese Society of Radiology and Nuclear Medicine (SPRMN) was founded in 1931 in Lisbon. It is the most important scientific radiological society in Portugal and the vast majority of Portuguese radiologists are members. A large number of the most distinguished Portuguese radiologists have served on the board of the society.

The goal of the society is to enhance and promote the highest standards of radiology through education of its members. The society tries to provide radiologists with educational programmes and courses of the highest quality. Internationally renowned radiologists are regularly invited to lecture at its courses.

The society has always worked with international radiological societies, namely the EAR and ECR, and most recently the ESR. One major collaboration with a European organisation was ECR ’87 (VIIth European Congress of Radiology), which took place in Lisbon in June 1987 and was presided over by Dr. Maria Emília Silvestre, who at the time was also the president of the SPRMN.

Beginning in 1992, the society has organised the National Congress of Radiology, which takes place every two years. The last was in 2006, in Vilaamoura, Algarve. The society also organises thematic meetings every other year, which are entirely devoted to a particular imaging technique or body region. The last one took place in Porto last January and was devoted to cardiac and vascular imaging. In collaboration with the Armed Forces Institute of Pathology from Washington, USA, the society organises a yearly 3-day course on radiologic-pathology correlation. The next one, the XIP AFIP Course, will take place in Funchal, Madeira Island, from June 23–25, 2007.

The Society offers all of its logistical support to the organisation of international meetings in Portugal, such as the forthcoming ESGAR 2007 in Lisbon, and ESCR 2008 in Porto.

Our purpose is to constantly improve the knowledge of Portuguese radiologists and thus contribute to the better care of patients.

The Board of the SPRMN
Researchers seek novel ways of minimising radiation risks of multidetector CT

By Brenda Tilke

For the best results, radiologists need to pay attention to both justification and optimisation of multidetector CT. That will be the overriding message at Monday’s refresher course.

The International Committee on Radiological Protection (ICRP) provides the global framework for justification of medical imaging procedures using ionising radiation, including MDCT. For a procedure to be justified, the patient should be exposed to radiation only if it benefits the individual patient or society at large.

Determining the benefits of MDCT depends on the appropriate selection of patients for the procedure. These benefits are based on the accurate detection or exclusion of disease balanced against the procedure’s risk factors.

Radiation dose should not be the only risk factor radiologists consider. MDCT vendors often are quick to claim their systems offer the lowest dose solution for MDCT, but generally, all late generation equipment has good standards for using minimal dose, observed Dr. Jacob Geleijns, medical physicist at Leiden University, the Netherlands.

“Decisions on proper indications for MDCT are even more relevant when considering the radiation risk factor, but there are other risk factors,” he said. Because diagnostic tests are not perfect, clinicians need to consider the secondary risk of an erroneous treatment decision derived from faulty test results. The third type of risk involves direct complications of the test itself. In MDCT, this third risk is usually related to contrast agents.

Across Europe, there is substantial variability in the factors that are used to determine the appropriate-ness of MDCT, and there is ample room for improvement, Geleijns noted. Both the American College of Radiology and the UK Royal College of Radiologists have published guidelines that can be used by radiologists in other countries.

At Monday’s course, he will discuss his model for achieving justification that is founded on evidence-based medicine. The model can be used to develop real-world practical guidelines integrating all aspects of MDCT. The model is created with influence diagrams, which show the interaction between variables, decisions, and outcomes. One example illustrates the effects of general tests (such as scoring systems and laboratory analyses) and medical imaging (MR, ultrasound, and MDCT) on the treatment of acute abdominal pain.

“This is a work in progress based on patient statistics and does look rather complicated,” Geleijns said. “But it’s a very handy tool for modelling. The next challenge is to derive decision trees that can be used in clinical practice, not just by radiologists but also by referring physicians.”

These diagrams and models can help radiologists quantify their primary goal of doing more good than harm. At present, many radiologists are aware of radiation risks with MDCT and believe the benefits outweigh the risks, but they tend to base their conclusions on qualitative criteria.

“We are trying to provide a method for justification that goes beyond what has been more or less a feeling,” he said.

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Radiation dose should not be the only risk factor radiologists consider. MDCT vendors often are quick to claim their systems offer the lowest dose solution for MDCT, but generally, all late generation equipment has good standards for using minimal dose, observed Dr. Jacob Geleijns, medical physicist at Leiden University, the Netherlands.

“Decisions on proper indications for MDCT are even more relevant when considering the radiation risk factor, but there are other risk factors,” he said. Because diagnostic tests are not perfect, clinicians need to consider the secondary risk of an erroneous treatment decision derived from faulty test results. The third type of risk involves direct complications of the test itself. In MDCT, this third risk is usually related to contrast agents.

Across Europe, there is substantial variability in the factors that are used to determine the appropriate-ness of MDCT, and there is ample room for improvement, Geleijns noted. Both the American College of Radiology and the UK Royal College of Radiologists have published guidelines that can be used by radiologists in other countries.

At Monday’s course, he will discuss his model for achieving justification that is founded on evidence-based medicine. The model can be used to develop real-world practical guidelines integrating all aspects of MDCT. The model is created with influence diagrams, which show the interaction between variables, decisions, and outcomes. One example illustrates the effects of general tests (such as scoring systems and laboratory analyses) and medical imaging (MR, ultrasound, and MDCT) on the treatment of acute abdominal pain.

“This is a work in progress based on patient statistics and does look rather complicated,” Geleijns said. “But it’s a very handy tool for modelling. The next challenge is to derive decision trees that can be used in clinical practice, not just by radiologists but also by referring physicians.”

These diagrams and models can help radiologists quantify their primary goal of doing more good than harm. At present, many radiologists are aware of radiation risks with MDCT and believe the benefits outweigh the risks, but they tend to base their conclusions on qualitative criteria.

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In the mid 1980s, Henrik Thoennes recognised the lack of a European uroradiological forum that could provide teaching and allow for presentation of research. In the following years, he organised several symposiums on uroradiology until finally, on August 26, 1996, twelve uroradiologists met in the garden of Sven Dorph in Copenhagen, where this informal meeting turned into the first General Assembly of the ESUR.

Initially, the ESUR met every second year, but since 2000 the Society has met annually. Meetings have been held in different cities throughout Europe (Copenhagen, Florence, Zurich, Strasbourg, London, Rotterdam, Genoa, Uppsala, Santiago, Ljubljana) and even beyond (Cairo, Amsterdam, Genoa, Uppsala, Santiago, Ljubljana) and have always included a scientific session for members, followed by a postgraduate course and open scientific sessions and exhibitions. The activities of ESUR are not limited to organising meetings.

To promote research on and improve knowledge about contrast media, in 1994 the Board of the ESUR established a Contrast Media Safety Committee, chaired by Henrik Thoennes, with Sameh Morcos as Secretary. Since then, the Committee has issued a series of guidelines on the safe use of contrast media. The guidelines have been published in peer-reviewed journals, printed in a series of booklets and are posted on the ESUR website.

More recently, a committee on Female Pelvic Imaging has been established, which is currently working on the production of technical guidelines for the study of uterine tumours with MR. Members with special clinical and research interests, such as paediatric uroradiology and CT- and MR-urography, have also created working groups.

The Society is a member of the European Society of Urogenital Radiology (ESUR) and has worked closely with the Educational Committee to produce both the curriculum for the programme of general radiological training in Europe and the detailed curriculum for subspecialty training in urogenital radiology (on the ESUR and EARS websites). ESUR has also cooperated with ECR, to plan the urogenital part of the programme of the European Congress of Radiology, and also maintains close links with the American Society of Uroradiology. ESUR’s next meeting will be held April 15–20, 2007 in Florida, in conjunction with SUR and SGR.

The public non-commercial medical organisation, Kazakhstan Academy of Medical Sciences, was formed for the purpose of promoting professional and educational activities in the field of medical scientific research in Kazakhstan. The Academy consists of 30 branches, bringing together scientists from all fields of medicine. The activities of the Section of Radiology are concerned with the improvement of radiological practice in Kazakhstan, including teaching and training activities in the field of diagnostic imaging, support of the implementation of modern radiological equipment and rational usage of imaging equipment.

The main activities of the section are concentrated in the following fields:
- Development and improvement of radiology services
- Education and teaching of its members and young radiologists
- Creation of a network of regional branches
- Optimisation of radiological practice to match modern standards
- Support of research activities in radiology
- Organisation of national symposiums, seminars and teaching schools
- Constant coordination of the activity of societies and organisations working in the sphere of radiology, both nationally and internationally (EAR and AOSR)
- Cooperation with other national radiology societies
- Participation in postgraduate training and continuous medical education of radiologists, bringing standards closer to the recommendations of the European Association of Radiology (EAR)
- Legislation and radiation protection
- Propagation of effective and rational use of radiological screening modalities
- Support of young researchers and scientists in the sphere of radiology
- Exchange of young scientists between local and foreign medical centres
- Periodic publication of various materials, providing discussions and recommendations concerning problems of national radiological service

Any new member should accept the Charter and Principles of the Academy. The activity of the academy is directed by the Executive Committee, consisting of 25–35 persons, the composition of which should be renewed every 5 years. The president, vice-president and treasurer will be chosen from members of the Executive Committee, and heads of each section are chosen by its members.

In 2002 Prof. Mukhtar A. Aliyev, Academician of the National Academy of Sciences, Head of the Scientific Center of Surgery of Kazakhstan, was elected as the first president of the Academy of Medical Sciences. The vice-president of the academy and head of the radiology section is Dr. Yermek Akhmetov, who is also a member of the International Relations Committee of ECR (2005, 2006 and 2007).

The academy carries out its activities in close cooperation with the Ministry of Healthcare of Kazakhstan and the Chief Regional Radiologists of Kazakhstan, as well as other professional societies, associations, journals, faculties and companies (manufacturers of imaging equipment), and other organisations working in the field of diagnostic imaging.

The academy constantly aspires to improve its professional and social links with colleagues from different countries and aims to share experience in the application of new modern radiological methods, hoping that broad international cooperation will aid the further development and improvement of radiological practice and education in Kazakhstan.
Few controversies in radiology have generated as much interest as that of whole-body imaging. Monday afternoon’s special focus session on this issue promises to enlighten and educate ECR attendees.

“It’s a perfect topic for the meeting as it has been so controversial, with people advocating whole-body imaging and others with very strong feelings against it,” said session moderator Prof. Gabriel P. Krestin, radiology chair at Erasmus University Medical Center in Rotterdam, the Netherlands.

There is no question that whole-body imaging is more feasible than ever, given technological advances in both CT and MRI. The question then becomes in which patient population does it make the most sense to apply the technique. Examining the topic from an epidemiological point of view, Prof. Myriam G. Hunink from the department of epidemiology and biostatistics and the department of radiology at Erasmus University Medical Center will focus on whether whole-body imaging is beneficial and whether those benefits are cost-effective.

“The decision to perform whole-body imaging depends on the probability of disease, the trade-off between the expected net gain of correctly identifying patients with disease versus the expected net harm of incorrectly labelling a healthy individual as diseased, and the associated costs,” she noted.

False-positive test results and incidental findings, which are often underestimated, carry an increased risk to the patient stemming from further issue promises to enlighten and anxiety. Additionally, they could put a strain on healthcare finances.

“In Europe, where we have many countries with socialised medicine, we are concerned about the effect whole-body imaging will have on the finances of the healthcare system,” Krestin said.

Many people will come to the focus session expecting to hear about undirected screening of asymptomatic people, he explained. What they will get instead are two very strong advocates of whole-body imaging, but for clearly specified indications.

Prof. Geoffrey Rubin, chief of cardiovascular imaging at Stanford University, California, will describe the current evidence for and against whole-body imaging for vascular disease. It is known that atherosclerosis is a systemic disease. If it is found in one vessel area, it is most likely to be in other areas too. But there is scant peer-reviewed evidence that treating asymptomatic lesions results in better survival, he said.

“Technologically, we have the capability to scan the entire arterial system with CT and MRI. Clinically, we haven't proven it has a real benefit in whole populations,” he noted.

Preliminary studies looking at cross-sectional correlation show that certain vascular beds correlate well with some vascular beds, while others do not. Many outcome studies need to be conducted to determine the path of preclinical lesions. Until then, clinicians run the risk of putting in stents or performing surgery when it’s not really needed, according to Rubin.

He favours using whole-body imaging to investigate atherosclerosis as a disease, to better understand the diversity of its manifestations. He does not advocate screening asymptomatic vascular territories with the intent to treat them upon finding lesions. "There is very little evidence to support doing so," he said.

There are a few preliminary reports for whole-body MRI, but no outcome studies comparing treatment based upon 64-slice CT to the reference standard of catheter angiography. This is a recognised deficiency, and some outcome studies are in the works, particularly looking at the acute chest pain patient, said Rubin.

The final presenter, Prof. Stephen J. Eustace, professor of musculoskeletal radiology at Cappagh National Orthopaedic and Mater Misericordiae Hospitals in Dublin, advocates using whole-body MRI for staging cancer patients. He says it is a much more efficient approach than a bone scan for proving or ruling out metastatic disease. Whole-body MRI also provides additional diagnostic information.

Evidence of MRI's superior sensitivity in detecting bone metastases has been available for over a decade. Researchers hold back from recommending that scintigraphy surveys be discontinued, however, until head-to-toe MRI examinations became clinically viable.

Whole-body MRI can identify sclerotic metastases, which are common to prostate and breast cancer, and the bone marrow disease multiple myeloma. Eustace will also argue in favour of MRI over PET for staging skeletal metastases. Regarding soft-tissue metastatic disease, PET-CT currently holds an edge, but diffusion-weighted MRI techniques hold promise. Additionally, whole-body MRI staging of cancer will only grow with the development of targeted contrast agents.

Whether these lectures put an end to the swirling controversy remains to be seen. In the end, however, it should stimulate healthy dialogue.

"Participants should have questions afterwards. This is the intention of the session," Krestin said. "Physicians, radiologists, entrepreneurs, and a large portion of the population were, and still are, attracted to the idea of whole-body imaging. Yes, there is a place for whole-body imaging, but only for very clear indications. In this setting, it is feasible.”

Whole-body imaging survives era of undirected screening to emerge as tool for specific indications

Whole-body CT showing mainly the skeletal system. (Provided by Prof. G. Krestin)

A 47-year-old woman with metastatic breast carcinoma to lungs, liver and bone. (Provided by Prof. S. Eustace and reprinted from the Journal of Magnetic Resonance Imaging)

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EuroAIM charts ambitious new direction for clinical trials

By Brenda Tilke

In the not too distant past, a small study conducted at a single centre could still generate significant interest and have an impact on clinical practice. But those days are ending. The push for evidence-based medicine is shifting the emphasis to larger multi-centre, and preferably multi-national, studies that can yield generalisable results.

To help facilitate this evolving approach to clinical trial development and management, the European Institute for Biomedical Imaging Research (EIBIR) established the European Network for the Assessment of Imaging in Medicine (EuroAIM). At Tuesday’s session, presenters will explain EuroAIM’s goals and objectives and how it intends to put these into action. Radiologists with an interest in running or participating in a clinical trial should attend to learn more about the new trends in research.

Imaging assessment in many studies hinges on whether the imaging technique delivers anatomically reproducible information or on the technical or diagnostic aspects of a modality or technique. Other studies focus on a specific therapeutic aspect. Clinical trials should move beyond these limits, noted Prof. Adrian Dixon, honorary consultant radiologist at Addenbrooke’s Hospital and professor of radiology at the University of Cambridge, UK.

"Whether it makes patients better or not, that’s the ultimate question. Or perhaps it doesn’t, but new radiological techniques may allow us to image patients in a more comfortable fashion with less risk or at less cost. Or perhaps the use of an expensive test early on may make the entire course of hospital treatment cheaper," he explained. "It’s increasingly important to come up with strategies to manage patients with a smaller hospital bed base, which is good for patients as there is less chance of secondary infection."

EuroAIM has five key objectives, which are based largely on the activities of the American College of Radiology Imaging Network (ACRIN), a cooperative group funded by the (US) National Cancer Institute. ACRIN supports wide-scale studies and collaboration with other groups, the healthcare industry, and healthcare funding sources such as insurance companies. ACRIN’s primary aim is to coordinate clinical trials of diagnostic imaging and image-guided therapeutic technologies that ultimately can lengthen lives and improve the quality of life for cancer patients. Although it may follow the ACRIN model, EuroAIM’s reach will extend beyond cancer.

At Tuesday’s session, Prof. Bruce Hillman, the Theodore E. Keats professor of radiology at the University of Virginia and ACRIN’s network chair, will share his insights into creating and running large-scale trials.

"The most important thing is to be practical," he said. "You can have absolutely terrific science, but if the doctors won’t or can’t adhere to the protocol or the patients are not willing to sign on, you’re going to have a failure on your hands."

Moreover, he cautioned that any large-scale multi-national, multi-centre study would demand a significant amount of funding and personnel. One of ACRIN’s largest studies, a national lung cancer screening trial involving 50,000 subjects, has costs totalling nearly $200 million (€155 million). The organization’s annual core budget is $7 million (€5.4 million).

The personnel demands of a large-scale, multi-centre, multi-national trial should not be underestimated, Hillman said. In ACRIN trials, a comprehensive protocol team is required. Key team members must include a statistician who helps design the protocol and during the trial manages patient accrual, data collection, and data monitoring, and oversees the work of the team’s biostatisticians. Protocol managers coordinate communications between researchers and establish the trial’s guidelines.

Before the trial starts, data managers must review and help shape the developing protocol and oversee the procedure for maintaining the integrity and accuracy of computer data files. The imaging technology specialist works with the principal investigators to develop the specific imaging needs of the study and, after the trial has started, oversees how images are collected, stored, and read. Other personnel needed include protocol associates, regulatory specialists, auditors, patient advocates, recruitment specialists, and quality assurance committee liaisons.

Collaboration and cooperation are needed between not only the trial investigators but also the regulatory/ethical boards of the countries included in the trial. Some European researchers believe these bodies may pose serious roadblocks to developing and conducting wide-scale trials. Others are more optimistic that common goals will overshadow national differences.

EuroAIM charts ambitious new direction for clinical trials

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Angiogenesis imaging matures rapidly into ‘must-do’ technique

By Paula Gould

It’s official: angiogenesis imaging is no longer just a worthy research tool. Evaluation of tumour vasculature has been recognised as a key part of oncology work-up and therapy monitoring by clinical radiologists are getting on board. For evidence of this shift, look no further than this year’s ECR programme. Angiogenesis imaging would once have been flagged up as a novel technique. Not this time.

The session’s presenters are keen to dispel the widely held view that angiogenesis imaging is only of academic interest and is difficult to perform. Far from it, they say. Another misconception is that FDG-PET can provide the exact same diagnostic and prognostic information. So why bother with the quantitative studies?

"Much of what radiologists do actually captures information about angiogenesis. The idea is to show these clinical practitioners that it isn’t such an erudite area as they might imagine, and it is something they are doing anyway," Miles said. Both CT and MRI can be used for angiogenesis imaging. Certain indications, however, may favour one modality over the other. Tumours in the upper retroperitoneum or the central mediastinum are often obscured by artefacts on MRI, and for visualising bone tumours, the central tumour is likely to spread will demonstrate quite intense angiogenesis. Spotting this behaviour can help indicate which treatment option to pursue.

The extent of angiogenesis can be gauged by analysing contrast enhancement patterns quantitatively. But dedicated software is not always necessary. Even a visual, qualitative impression of enhancement can indicate important diagnostic information about a lesion’s status. Radiologists may already be using this information – without calling it angiogenesis imaging – when they perform dynamic examinations.

The information you get from looking at angiogenesis is different," said Prof. Ken Miles, professor of imaging at Brighton and Sussex Medical School. "An important message will be: ‘Don’t write this off because you think FDG-PET can do everything’. Far from it, they say. Another misconception is that FDG-PET can indicate important diagnostic information about a lesion’s status. Radiologists may already be using this information – without calling it angiogenesis imaging – when they perform dynamic examinations.

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drug. Note acute blood flow is shut down in some lesions. Intra- and inter-tumour heterogeneity, however, is a huge number of fantastic innovations. Think of advances in molecular imaging, including current hot topics, such as breast imaging, uterine fibroid embolisation, etc. However, women in the radiological profession will also be a key topic, discussed in a session chaired by Prof. Helen Carty, who presided over ECR in 2004 and who will explore how the input of women can be maximised. We will also introduce a new foundation course on interventional radiology. The traditional ECR meets ... concept will be continued, with India, Israel and Germany as guest countries.

Our industry partners will be offered a new platform within the so-called ‘Face Off’ sessions. Five companies will be invited to present their software products, which are demonstrated by using a dataset provided by ECR. Within a limited period of time, the functionality and performance will be demonstrated. The goal of the ‘Face Off’ session is to give attendees an opportunity to compare the capabilities of the different workstations.

ECRT: Innovations always walk the tightrope between high-tech and economic viability. What role does radiology play?
MR: We all have to face the challenge of every field, whether it be cardiac imaging or in every field where technology plays a key role, the structure of hospitals has also changed. The task of the radiologist is to support hospital managers in implementing economically viable strategies. There are clear indications that powerful and effective radiology greatly contributes to the success of hospitals and the healthcare system. Precise and fast diagnosis allows one to start adequate therapy at an early stage, so that hospital stays can be considerably reduced, which is a major factor in the success of a hospital. Radiologists have to make their practice as effective as possible, improve the workflow and save resources. This also includes implementation of modern equipment and technologies.

Years ago, for example, I caused a stir when I presented the then futuristic concept of teleradiology. Today, this valuable service is not only a reality, but also a fairly widespread practice. In general, the task of the radiologist is to convince hospital managers that investments in radiology services will lead to immediate returns, e.g. by reducing the duration of hospital stays, by increasing patient flow in the radiology units, etc.

ECRT: What does molecular imaging hold for the ‘face off’ on the street?
MR: As with all state-of-the-art medical developments, molecular imaging today is still far from becoming mainstream. However, this can change from one day to the next, as we have recently seen in other fields, for example, the freezing of stem cells as a potential cure later in life, a service that is already widely used.

Practitioners just need to be aware of the right discipline. There is an ever-increasing demand for advanced medical imaging and minimally invasive, image-guided therapy. The opportunities for qualified radiologists are excellent, not only in Europe, but also worldwide. Many young M.D.s are aware of this, so radiology attracts many bright and committed people, while various other disciplines have problems recruiting the next generation. Young radiologists should fight for their rights and join forces under the umbrella of ESR, in order not to get lost in fragmented organisations, and in order to stay at the forefront of the advances made in medical imaging. One undisputed key to the next generation’s success is connecting people in their early years of professional life, at the European level. This forms the basis for exchanging knowledge and ideas, liaising with peers, and presenting one’s work to others for critical and competitive appraisal.

Face to face encounters and presentations at international meetings are conducive to these processes. ECR is an ideal platform for that.

ECRT: What is your message to the first European institutions to successfully apply selective interventional radiation therapy, using microscopic radioactive spheres to treat malign liver tumours. What’s going to come next?
MR: (laughing) … First of all, our current investments and advances have to become financially viable and have to be made available at other hospitals throughout Europe, so that these become accessible to a large number of patients.
Spanish Society of Medical Radiology

The Spanish Society of Medical Radiology (SERAM) is currently one of the fastest growing and most influential scientific societies in Spain. The journal RADIOLOGÍA is its official communication media.

RADIOLOGÍA has been accepted by Medline recently, and this fact marks a great event in the history of the journal. On one hand, it means a radical change towards greater visibility of its articles. On the other hand, this is excellent news for the extremely large market of Spanish-American radiologists, given that RADIOLOGÍA is the only scientific journal written in Spanish and dedicated to the publication of articles on image-guided diagnosis and therapy.

SERAM has recently initiated a strategic plan for RADIOLOGÍA, which pursues the following objectives:
1. Achieve entry of the journal into the registry that issues the Impact Factor. In order to do so, a new editorial board has been named, formed by radiologists of renowned prestige. The international editorial board will be renewed and the relevance of the manuscripts will be improved.
2. Increase involvement and participation in the journal of the different Spanish radiology societies.
3. Increase collaboration with the Spanish-American radiologists and offer the possibility for the journal to be their communication media.
4. Change the design and content of the editorial sections of the journal to make it more attractive and functional.
5. Initiate an electronic version of the journal with more extensive contents than the printed version and with manuscripts also translated into English. The final objective is to place RADIOLOGÍA at the level of the best international radiology journals and, taking into account the dynamism and strength of the Spanish-speaking radiology community, project its growth further, without establishing any limits.

Dr. Salvador Pedraza
Director of Publications
Dr. José María García Santos
Editor-in-Chief of the journal RADIOLOGÍA

EAR Membership inspires GeoAR to enhance the prestige of Georgian radiology

The Georgian Association of Radiology (GeoAR) was the first among the former Soviet Republics to become a member of the EAR in 1996. Since then, a new era has begun in Georgian radiology. The first steps have been taken in the development of the European model in Georgia and this process is still progressing.

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The integration of the GeoAR with the EAR and the regular collaboration of Georgian radiologists with specialists from European clinics, can contribute to the rise in prestige of radiology in Georgia.
ECR attendees can test their skills at diagnosing breast disease and learn how to create clear, concise breast imaging reports at Tuesday morning’s BI-RADS® training in breast imaging session.

Mammography reports throughout much of Europe have simply too much variety in the choice of words used, which can lead to confusion and even medical mistakes, according to Prof. Dr. Ingrid Schreer, professor of medicine at the University of Kiel, Germany. Young radiologists need to develop an ability to provide clear, concise reports.

At ECR 2007, she will give a presentation on how to use the BI-RADS® breast image classification system. Developed by the American College of Radiology (ACR), BI-RADS® (Breast Imaging Reporting and Data System) is steadily gaining acceptance in Europe.

“We should have a uniform way to describe, to categorise what we see on mammograms,” Schreer said.

The BI-RADS® system classifies images on a 0–6 scale: 1 = absolutely normal; 2 = clearly benign lesion; 3 = probably benign lesion; risk of malignancy less than 2%; 4 = questionable lesion needing immediate histological examination; 5 = highly suspicious, with a high risk of malignancy; and 6 = malignancy confirmed with percutaneous biopsy.

The zero category is used only for screening mammograms where the findings are inconclusive and another imaging modality is recommended. In reports classified as zero, the radiologist should recommend which adjunct imaging study should be used.

The BI-RADS® lexicon is succinct, with a strictly limited choice of words used to describe findings in mammography, ultrasound, and MRI.

Those at the session will be presented with 10 cases (none with palpable lesions) and asked to evaluate and classify each case using remote control panels on their seats. To give the challenge a ‘real world’ feel, they will have less than a minute to reach their decision for each case. Schreer and her fellow speakers will then discuss the delegates’ responses. A computer will track individual answers, and the participant with the best score will win a prize; at the 2006 congress, a young Polish radiologist won two bottles of fine Austrian wine.

“It was fun for everyone last year and quite eye-opening,” she said. “We had radiologists in training with very little experience in breast imaging and those who were specialising in this field. And people both over- and under-diagnosed the cases we showed.”

Last year’s BI-RADS® course drew a standing-room only crowd and had to be repeated, so attendees should plan on arriving in plenty of time to find a seat and be able to participate in the image evaluation part of the course.

Not everyone is willing and eager to switch to BI-RADS®, however. The UK has its own reporting system, as do many institutions in Scandinavian countries. Without a strict lexicon, radiologists may use a rich, but not always clear, choice of terms in their reports. BI-RADS® uses only 22 terms to characterise calcifications, whereas radiologists not adhering to the system may use at least 50 different terms. Some of the descriptive terms used frequently in the UK system do not appear in BI-RADS® and not all of these non-BI-RADS® descriptors have diagnostic value.

Although radiologists may have valid reasons for not wanting to embrace BI-RADS®, proponents like Dr. Schreer believe that radiologists need to rely on a reporting lexicon that can be easily understood across the professional and academic body of the medical community when it is found that 100 unnecessary mastectomies had been performed on patients in the cities of Essen and Bochum. In the follow-up after the scandal, contradictions and lack of information were given as the main factors that led to the disaster.

Further information is available on the website, www.birads.at, which was created by Dr. Georg Pielar and Prof. Dr. Thomas Helbich from the department of radiology at the University of Vienna. Prof. Helbich will be the moderator of the ECR session on BI-RADS®. The other presenters will be Dr. Roberta Chersevani from the General Hospital, GORIZIA, Italy, and Dr. Karen Kinkel from the University Hospital of Geneva, Switzerland.

The Faculty of Radiologists at the Royal College of Surgeons in Ireland was established in 1961. It is the professional and academic body for clinical radiologists and radiation oncologists in Ireland. Its primary activity is postgraduate education, which is conducted under the auspices of the National Training Programme in both Radiology and Radiation Oncology. The Irish Training Programme in Radiology was established in 1966 and was in fact the first structured medical postgraduate training programme in Ireland. Since then, the programme has evolved and strengthened, and is now a comprehensive five-year training programme. The initial four years consist of the Basic Radiology Training Programme, leading to the examination for admission as a Fellow of the Faculty of Radiologists. The fifth year is spent on the Higher Training Programme for subspecialty/fellowship experience or on an accredited fellowship programme abroad. The fifth year of training is required for CCST certification.

Apart from its role in postgraduate training, the Faculty of Radiologists is also involved in professional certification, accreditation of participating hospitals on the training programme; the organisation and running of continuing medical education meetings; the organisation of examinations, radiation protection, and interaction with various national bodies, including the Medical Council and the Department of Health and Children.

Through its research committee, the faculty fosters and promotes the initiation and integration of research activity in Ireland. Its activities include awarding grants and the development of education in research skills. Through its higher training committee, the faculty has developed a close relationship with the academic radiology departments of universities in Ireland. This allows the faculty to promote the role of radiology within the undergraduate medical curriculum.

The Faculty of Radiologists, R.C.S.I., is also involved in a number of international activities. The faculty runs a successful radiology training programme in Kuwait, which was established in 1984. In 2004 the O’Halpin/Linders outreach scholarship programme was established under the auspices of the faculty. Under this programme, a scholar from a developing country is appointed to undergo complete radiology training in Ireland. These scholars are committed to return to their country of origin after training and it is hoped that these graduates will have a significant and long-term impact on the standard of services in their home countries. The faculty continues to represent itself abroad and to interact with European and North American radiological societies. The development and conferring of Honorary Fellowships of the Faculty has also strengthened our overseas associations and the faculty is proud of the list of distinguished radiologists from Europe and North America who have been conferred with this honour.

For further information on the Faculty of Radiologists, Royal College of Surgeons in Ireland please view our website www.radiology.ie or contact us at radiology@rcsi.ie.
information. Our genome operates by sending instructions for the manufacture of proteins from DNA in the nucleus of the cell to the protein synthesizing machinery in the cytoplasm. These instructions are conveyed by messenger RNA (mRNA). In 1998, Andrew Fire and Craig Mello published their discovery of a mechanism that can degrade mRNA from a specific gene. This mechanism, RNA interference, is activated when RNA molecules occur as double-stranded pairs in the cell. Double-stranded RNA activates biochemical machinery that degrades these mRNA molecules that carry a genetic code identical to that of the double-stranded RNA. When such mRNA molecules disappear, the corresponding gene is silenced and no protein of the encoded type is made. Our genome consists of approximately 30,000 genes. However, only a fraction of them are used in each cell. Which genes are expressed (i.e. govern the synthesis of new proteins) is controlled by the machinery that copies DNA to mRNA in a process called transcription. The fundamental principles for the regulation of gene expression were identified more than 40 years ago by the French Nobel Laureates François Jacob and Jacques Monod. Today, we know that similar principles operate throughout evolution, from bacteria to humans. They also form the basis for gene technology, in which a DNA sequence is introduced into a cell to produce new protein.

RNA interference occurs in plants, animals, and humans. It is of great importance for the regulation of gene expression, participates in defense against viral infections, and keeps so-called jumping genes under control. RNA interference is already being widely used in basic science as a method to study the function of genes and it may lead to novel therapies in the future.

The genetic code in DNA determines how proteins are built. The instructions contained in the DNA are copied to mRNA and subsequently used to synthesize proteins. This flow of genetic information from DNA via mRNA to protein has been termed the central dogma of molecular biology by the British Nobel Laureate Francis Crick. Proteins are involved in all processes of life, for instance as enzymes digesting our food, receptors receiving signals in the brain, and as antibodies defending us against bacteria.

The American scientists had been investigating how gene expression is regulated in the nematode worm Caenorhabditis elegans. Injecting mRNA molecules encoding a muscle protein led to no changes in the behavior of the worms. The genetic code in mRNA is described as being the ‘sense’ sequence, and injecting ‘antisense’ RNA, which can pair with the mRNA, also had no effect. But when Fire and Mello injected sense RNA (now commonly abbreviated to RNAi) is a catalytic process. Fire and Mello published their findings in Nature on February 19, 1998. Their discovery clarified many confusing and contradictory experimental observations and revealed a natural mechanism for controlling the flow of genetic information. This heralded the start of a new research field.

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The components of the RNAi machinery were identified during the following years. Double-stranded RNA binds to a protein complex, Drosha, which cleaves it into fragments. Another protein complex, RISC, binds these fragments. One of the RNA strands is eliminated but the other remains bound to the RISC complex and serves as a probe to detect mRNA molecules. When an mRNA molecule can pair with the RNA fragment on RISC, it is bound to the RISC complex, cleared and degraded. The gene served by this particular mRNA has been silenced.

RNA interference is important in the defense against viruses, particularly in lower organisms. Many viruses have a genetic code that contains double-stranded RNA. When such a virus infects a cell, it injects its RNA molecule, which immediately binds to Drosha. The RISC complex is activated, viral RNA is degraded, and the cell survives the infection. In addition to this defence, higher organisms such as man have developed an efficient immune defence involving antibodies, killer cells, and interferons.

RNA interference can also provide protection against DNA sequences that can move around in the genome. These transposons, or jumping genes, are present in all organisms and can cause damage if they end up in the wrong place. Many transposons operate by copying their DNA to RNA, which is then reverse-transcribed back to DNA and inserted at another site in the genome. Part of this RNA molecule is often double-stranded and can be targeted by RNA interference.

RNA interference is used to regulate gene expression in the cells of humans as well as worms. Hundreds of genes in our genome encode small RNA molecules, called microRNAs, which contain pieces of the code of other genes. Such a microRNA molecule can form a double-stranded structure and activate the RNA interference machinery to block protein synthesis. The expression of that particular gene is silenced. Genetic regulation by microRNAs plays an important role in the development of the organism and the control of cellular functions.

RNA interference opens up exciting possibilities for use in gene technology. Double-stranded RNA molecules have been designed to activate the silencing of specific genes in humans, animals or plants. Such silencing RNA molecules are introduced into the cell and activate the RNA interference machinery to break down mRNA with an identical code.

This method has already become an important research tool in biology and biomedicine. In the future, it is hoped that it will be used in many disciplines including clinical medicine and agriculture. Plans are underway to develop silencing RNA as a treatment for refractory infections, cardiovascular diseases, cancer, endocrine disorders and several other conditions.

In many diseases, certain genes are over-expressed (that is, overactive). It might be possible to alleviate these disorders by suppressing the activity of specific genes. It is conceptually attractive to use RNA interference to treat diseases – RNA interference is a natural mechanism and double-stranded RNA is an endogenous substance. RNA interference – unlike antisense techniques – has also been shown to give reproducible results. In addition, double-stranded RNA molecules can easily be synthesized.

So far no drugs based on RNA interference have been approved, but successful animal experiments have been performed and several substances are being tested in clinical trials. For example, double-stranded RNA is being tested as a means to treat age related degeneration of the fovea (neovascular or ‘wet’ macular degeneration). This condition is common among elderly people and can severely reduce the eyesight. Blood vessels grow into and damage the fovea, the part of the retina that gives the sharpest image. One continued on next page
Radiology, a piano and all that jazz …

By Julia Patuzzi, ESR Office

Today, our series on radiologists seen from a different perspective introduces a young French radiologist from Hôpital Européen Georges Pompidou in Paris, namely Dr. Azarine Alexandre-Azarine. In his spare time Dr. Azarine pursues something like a second career as a jazz pianist, not only playing privately with friends, but even performing regularly in some of Paris’ better known jazz clubs.

Dr. Azarine was born in Tehran, Iran in 1968 and came to France as a child. When asked about the beginnings of his piano ‘career’, he started to elaborate on his childhood and thus provided us with a touching story.

ECR Today: When did you start learning to play the piano?

Dr. Azarine: I started when I was 8 or 9 years old, because my older sister was playing piano, and I was hanging around the piano … it was in Iran before the revolution and I had a very serious Armenian piano teacher (a Chopinist), he was physically huge and very strong, so I was really impressed! He took the lessons very seriously, and he wanted to prepare me for classical piano contests, especially for one regularly scheduled at the Conservatoire de Versailles. But then the revolution happened when I was 10 and for a while everything stopped. I was secretly happy as I was fed up with always having to refuse to play football or whatever with my pals and instead had to practice on the piano … However, once the revolution finished and my teacher hadn’t left Tehran, we started the courses again!

So, thanks to the insistence of my mother, I was accepted at the Conservatoire d’Ivry-sur-Seine, where I started learning just enough financially to be able to go on playing piano, and then after things were going better, we rented a piano and I started to take private courses with Miss Poor-tahor, an award-winning pianist from Budapest. She was a real guru for me; I had 4 hours of courses per week and 6 hours of practice every day! When I started the first year of medicine, I stopped taking courses with her. I went on playing alone, some Chopin or Bach, but after a while I started building my own group (Chamiré was the first one) with musician friends I had met through ads in student music studios. At the beginning, I was the singer and pianist and we played mostly my own compositions. Then, after a while we started to become jazzy!

ECRT: When did you first develop an interest in jazz piano?

Dr. Azarine: At medical university we started building a jazz fusion band with medical and dentistry students. And that was when we began to play funk fusion and first became familiar with jazz. Little by little we discovered jazz bands and finally we played in famous jazz bars like ‘Suisse’ and ‘Baier Sale’ in Paris. The bass player I’m playing with now is from this first group, and that makes 17 years that we have been playing together! He is now the chief of the E.U.T. (ear, nose and throat) department of a Parisian hospital. Our saxophonist is a psychiatrist we met during a jam session we once played at a club (not via medical links). The other members of our band are professional musicians.

ECRT: Who would you call your most important influence and/or inspiration?

Dr. Azarine: There are many pieces I love to play. When playing with the group, it depends on the directions you take you in unison. Sometimes you are not playing one of your favourite songs, but it happens that the improvisation takes unexpected turns and then together you reach new spaces and fields you didn’t really expect, but it still sounds good and you go on in this unexpected and mysterious manner. To go forward together is very exciting and can make you discover summits and high cholesterol levels. Experiments that you take in unison.

Dr. Azarine: To go forward together is very exciting. Experiments you take in unison can be quite spectacular, just like playing the violin, which you don’t really expect, but it still sounds good and you go on in this unexpected and mysterious manner. To go forward together is very exciting and can make you discover summits.

ECRT: How about the times you take in unison? You learn it!

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ECRT: Do you have a favourite piece of music to listen to and/or to play?

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ECRT: Have you ever played with someone ‘famous’?

Dr. Azarine: We have played for Johnny Hallyday, who is very famous in France. Years ago I played in a jam session with Mathieu Chedid (‘M’) who is a popular pop singer in France.

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Hybrid imaging makes headway in cardiac and oncologic imaging, but not without caveats

The combined functional and morphological approach to imaging afforded by PET/CT and SPECT/CT has several far-reaching technical, diagnostic, and economic advantages, according to Prof. Dr. Gerald Antoch, from the department of diagnostic and interventional radiology and neuroradiology at the University Hospital Essen, Germany, and moderator of Monday's state-of-the-art symposium on the use of PET/CT and SPECT/CT for cardiac and oncologic purposes.

Regarding PET/CT, he noted that the PET imaging no longer requires transmission sources because attenuation correction can be based on previously acquired CT images. In addition to better PET image quality, the PET examination time can be reduced by 30% to 40%. Consequently, patient throughput increases and examination costs decrease.

From a diagnostic point of view, the combination proves invaluable. Supplementing morphological images by functional data vastly increases the diagnostic yield. By the same token, because a clear anatomical correlation is possible, functional PET data become far more valuable.

The advantages of PET, and now PET/CT, mean that it has become the standard in many institutions for fact, PET staging alters management in up to 30% of adult and paediatric patients, she said. Data are accumulating to confirm PET/CT’s efficacy in assessing early response to treatment performed after two or three cycles of induction chemotherapy is a strong predictor of disease-free and overall survival, independent of clinical stage and other pre-treatment prognostic indicators in Hodgkin’s disease and non-Hodgkin lymphoma. PET also has a high negative predictive value in the assessment of residual masses in Hodgkin’s disease at completion of chemotherapy, and reduces the number of patients with complete response unconfirmed, Barrington observed.

There are limitations in using PET imaging for lymphoma, including false negative uptake in some low-grade lymphomas and minimal residual disease as well as false positive uptake in infection and inflammation.

The four most common cancers imaged with PET/CT at St. Vincent’s University Hospital in Dublin are:
- lymphoma – staging, treatment evaluation, and assessment of recurrence
- non-small cell lung cancer – pre-operative staging and assessment of recurrence
- colorectal cancer – preoperative staging and assessment of recurrence

There is also increasing utilisation of PET/CT in patients with cancers of extracranial head and neck, breast, testes, cervix, and melanoma, according to Prof. Conor Collins, from the department of radiology at St. Vincent’s, who will present a lecture on PET/CT and SPECT/CT in oncologic imaging, including staging patients with hepatic metastases and assessment of possible recurrence, and oesophageal cancer – preoperative staging, evaluation of treatment response, and assessment of recurrence.

He noted that there are still important underlying questions about PET/CT, despite its accuracy. What is its impact on patient management? Is it cost-effective? And are there other less expensive imaging alternatives that would provide the same information? One area where FDG-PET has no role is prostate cancer, he said. However, other radiotracers such as 18F-choline and 18F-ethylcholine show promise in the prostate. Research also is ongoing into new tracers for specific organs or cellular signatures. These include 18F-ethylbromine for brain tumours, 18F-chymidine for cellular proliferation, 18F-DOPA for endocrine tumours, and 60Cu-ATSM for cellular hypoxia.

SPECT/CT and PET/CT certainly present the opportunity for a ‘one story shopping approach for cardiac imaging, Antoch said. But he added that these hybrid imaging modalities are not the last word. While future developments may make cardiac MRI a competitor in imaging morphology and function in a single session, research into PET/MRI hybrid scanners could round out the playing field.
Why thoracic imaging must evolve toward cardiothoracic imaging

By Monika Hiehle, ESR Office

Prof. Martine Rémy-Jardin will present Monday’s Felix Fleischner Honorary Lecture. ECR Today had the pleasure to speak with her about her career and why thoracic imaging must evolve toward cardiothoracic imaging.

ECR Today: Can you briefly explain why such an evolution is necessary? Prof. Martine Rémy-Jardin: Before the advent of multidetector CT (MDCT) technology, thoracic CT studies were exclusively used for morphological assessment of thoracic organs. However, because of the low temporal resolution of previous MDCT scanner generations, the heart and coronary arteries were excluded from chest imaging. With 64-slice MDCT and more efficiently with dual-source CT, it is now possible to perform more morphological information, including cardiac and coronary arterial imaging, into standard chest CT and also to include functional information from the same data set. From a practical standpoint, this is going to have an important impact on clinicians’ daily practice as MDCT has the potential to replace several additional investigations, previously necessary for their patients’ management. For radiologists, whenever new technology allows it, it is important to provide all these pieces of information from the same CT examination.

ECRT: Why is it relevant to have both morphological and functional assessment of thoracic organ with MDCT technology? What else could be achieved thanks to MDCT technology? Prof. Rémy-Jardin: Numerous interactions between lung and cardiac function (i.e. physiological, lesionals and mechanical interactions) which are important to recognize in clinical practice at least for three main reasons. Firstly, numerous acute and chronic respiratory diseases and their specific treatments can lead to cardiac dysfunction, especially at the level of the pulmonary vessels and right heart. Secondly, respiratory symptoms are non-specific and, whereas they can reveal an underlying respiratory disease, they may also reveal the presence of an unknown cardiovascular disorder. Lastly, there are numerous co-morbidities, well illustrated in chronic obstructive pulmonary disease (COPD), now recognised as a cardiovascular disorder. In this group of patients, chest radiologists can now provide clinicians with a greater deal of diagnostic information, no longer limited to the evaluation of the bronchopulmonary consequences of tobacco smoker, but currently much more intertwined with right and left ventricular dysfunction as well as coronary artery disease.

ECRT: What other developments in CT are important?

Prof. Martine Rémy-Jardin: The recent introduction of dual-source CT and its increased temporal resolution opens the field of applications of ECG-gated MDCT examinations in the entire thorax in respiratory patients. Initial experiences have already shown that dual-source CT permits improved morphological evaluation of thoracic organs. Coronary artery imaging is now accessible from routine chest CT scans without the need for routine administration of an oral beta-blocker. Moreover, functional information is now no longer restricted to cardiac function. New areas are currently under investigation and promising results are expected from MDCT in the depiction of pulmonary hypertension as well as in the investigation of lung ventilation and perfusion.

ECRT: How do you see CT evolving in the future?

Prof. Rémy-Jardin: Developments in CT technology have already triggered numerous changes in chest imaging, with MDCT introducing new possibilities. The future of cardiovascular imaging will probably see considerable developments in this direction, thanks to further improvement in temporal resolution and postprocessing techniques, the cine-qua-non conditions for widespread clinical applications of functional imaging. Molecular imaging, currently far from our clinical practice, is also in the fields of future developments.

ECRT: What specialty do you think will eventually surpass the other in terms of technical achievements: CT or MR?

Prof. Rémy-Jardin: For chest disorders, until now, there was a double option, namely very precise morphological assessment of chest organs with CT and functional information with MR. The dramatic and rapid technological improvement observed with CT over the last few years has stressed how this balance is functional imaging is now accessible to CT. If the industry is able to go on with such a trend in the coming years, there is no doubt that CT is going to maintain and even increase its current superiority over MR in thoracic applications.

ECRT: Why did you choose CT as your specialty?

Prof. Rémy-Jardin: The main reason for a chest radiologist to choose CT for clinical developments is that it offers a more precise understanding of the underlying changes than MR. In our specialty, MR has several limitations in lung imaging and it cannot be considered as a first-line tool of clinical examination. Thoracic MR is limited in lung imaging and it cannot be considered as a first-line tool of clinical examination.

ECRT: There tends to be a growing need in radiology for a multidisciplinary approach. How do you cope with this phenomenon at the Hopital Calmette in Lille?

Prof. Rémy-Jardin: This trend is a necessity for an optimal integration of the per-tinent information provided by the numerous diagnostic tests which can be indicated for the management of respiratory disorders. In our specialty, we have seen not only technological developments in thoracic imaging, but also in biological and pulmonary functional function tests. In such conditions, it has become mandatory for each specialist to share their conclusions with the other participants of multidisciplinary groups when the objective is to reach a diagnosis with the lowest invasive test for the patient, especially for difficult cases. In our hospital dedicated to chest disorders, chest radiologists are involved in three categories of multidisciplinary meetings, focusing on thoracic oncology, chest surgery and interventional lung diseases. These weekly meetings gather chest physicians, surgeons, specialists of pulmonary function tests, chest pathologists and/or radiologists according to the category of cases considered.

ECRT: How many radiologists are working at the Hospital Calmette in Lille? How does that number compare with other French University Center hospitals?

Prof. Rémy-Jardin: In the University of Lille, there are seven departments of radiology, each oriented in a specific specialty (neuroradiology, musculoskeletal radiology, paediatric, obstetric and gynaecology, cardio-vascular imaging, thoracic imaging, abdominal imaging, uroradiology). One of this Centre is the Hospital Calmette, which is dedicated to the management of chest diseases, where we work. In our department of thoracic imaging, we investigate all respiratory cases referred from the University Hospital Center as well as from regional chest specialists. This organisation with specific specialties on different (but close) geographical sites of our University Center is quite unique in France, installed more than 30 years ago.

In the Hospital Calmette, seven senior radiologists (including 5 fellows) and six residents work in the Department of Chest Imaging. Our team of senior radiologists is partly composed of European or American radiologists, working with us for one year clinical practice. Each year, this group is renewed to keep the most actual and specific knowledge. The team is constantly in contact with the thoracic surgeons in the city of Lille, the interventional cardiologists, the thoracic cardiac surgeons, and the nephrologists.

ECRT: What do you consider to be the major interest of your research?

Prof. Rémy-Jardin: The most important aspect of my research interest is that this intellectual interest is regularly stimulated by technological developments in CT, which open new fields of clinical applications. This constantly evolving link between an increasing technical progress and patient management is a great clinical stimulation. It would not have been possible to maintain this level of interest over the years without strong links with all the radiologists and the radiopaque companies. We work in our department, together with cardiology and neurological department, for the quality of their daily activity and personal involvement in clinical research.

Prof. Rémy-Jardin: Are you a regular visitor to the congress?

Prof. Rémy-Jardin: The answer is undoubtedly ‘yes’, since its first meeting. This is an important meeting for European radiologists, during which we can share our experiences with colleagues of the same specialty throughout Europe, but also with radiologists coming from all the continents. Its evolution over years has led to its current format, appreciated by all the attendees. The dynamism of those involved in its organisation should be acknowledged!
Radiology in China continues to thrive

The ECRT meets China: Monday, March 12, 14:00–15:30, Room A
EM 3 China and Europe: Tradition and future
Presiding: Ji Qi
• JS: EM 3 China and Europe: Tradition and future
• JQ: The applications of radiological technology in China: from Tianjin, outlines the advancements in setting standards across such a heterogeneous region.

A diverse group of Chinese experts will highlight the talents and collective experience in their country and present a fascinating programme under the heading 'China and Europe: Tradition and future.' Radiology has greatly advanced in China over the past two decades and plays an increasingly important role in medical healthcare. The vast cultural and political diversity of the Asia-Pacific region poses many challenges though, such as supplying China's 1.2 billion population with sufficient medical staff.

However, figures and statistics never tell the whole story. In an interview with ECRT Today, Prof. Ji Qi, President of the Chinese Society of Radiology, from Tianjin, outlines the accomplishments in setting standards across such a heterogeneous region. 'China has a few, quite personal stedexes.'

ECRT Today: The beginning of radiology as a science has induced many pioneers – can you give a short survey of outstanding Chinese pioneers such as Professor Zhi-Guang Xie, Jing Wu, Du-shan Rong, Qing-yang Yang, in the southwest of China. At the time of war, Du-shan Rong was Professor Paul Hodges. A lot of Chinese pioneers in radiology were trained in Peking Union Hospital; before him it was Professor Zhao-xun Wang and so on. That was the beginning of CSRs history. But it was stopped after the Japanese invasion during the Second World War, and the inner war of China. At the time of war, Du-shan Rong trained lots of radiologists in Guizhou, and Shen Yung, in the southwest of China. After the war, he went back to Shang- hai. He was the only supervisor of doctors' degrees in radiology in the south of China at that time. The CSR was rebuilt in 1951. Professor Zhaoshan Xia was elected to be the 2nd to the 4th President of CSR. He was the only supervisor of doctors' degrees in radiology in the south of China at that time. There was a saying, 'South Rong and North Xie' to show the situation at the time of the 1950s to 1960s.

ECRT: Can you name some key figures in radiological equipment and distribution in China?

JQ: There are about 5,000 CT and 1,000 MRI systems in China now. Most CT and MRI or other advanced imaging equipment are in big cities. But CT and MRI scanners have become more and more popular in small cities over the last years.

ECRT: The amount of expenditure allocated to health can be interpreted as an indicator of the government's commitment to healthcare – so, what is the ratio has to invite senior radiologists to perform the training courses. Each radiologist must get corresponding CME credit hours every year. They must also pass several exams to be senior doctors. The CSR will probably also hold 10 symposia each year with equipment companies.

ECRT: Are there any turf battles with other specialties? And if so, how are Chinese radiologists developing a pragmatic, collaborative model to improve the situation?

JQ: Yes. There are. The biggest problem is in the interventional radiology area. More and more neurological, cardiac and other departments' doctors are given preference to enter the market. The radiologist usually doesn't have much advantage in such turf battles. This situation may be improved by exploiting new fields and integrating new medical modes, such as molecular imaging.

ECRT: How is China's radiology encountering the growing need for a multidisciplinary approach in radiology?

JQ: The radiology department has become a major part in every hospital. It has changed its name to 'Imaging Department,' and it includes all the modalities and staff of x-ray, CT, MRI, Ultrasound,
Biomedical Image Analysis
Eindhoven University of Technology, the Netherlands

The Biomedical Image Analysis (BMA) group at Eindhoven University of Technology is part of the Department of Biomedical Engineering (BME), which is the largest in the Netherlands with 500 students. The group, headed by Prof. Bart ter Haar Romeny, was established in 2001, as a response to the growing need for qualified research and education in the field of medical image analysis. Now 7 staff members and 17 PhD students form the scientific core, with some 20 MSc students spending the last year of their BME study in the group.

BMA’s research and education focuses on the development of diagnostic workstations applications for diagnostic radiology, image-guided surgery and life-sciences, and is divided into five areas:

**Computer-aided Diagnosis**
We develop CAD methods for dynamic contrast-enhanced MR images of the breast. Static and dynamic MR images are acquired during diffusion of a contrast agent in the breast tissue, exposing cancerous disorders by means of characteristic spatial and temporal enhancement patterns. We exploit pharmacokinetic multi-compartment modelling and pattern recognition techniques. Other projects include automated detection of pulmonary emboli, and polydetection in low-dose virtual endoscopy. All in collaboration with Philips Medical Systems.

**Multivalued Image Analysis and Visualisation**
We tackle the difficult problem of automated setting of the transfer function for volume rendering, and how to view complex multi-valued data. MR Diffusion Tensor Imaging (DTI) measures the diffusion of water molecules in tissue, and enables the imaging of fiber tracts in brain and muscle tissue. We specialise in interactive and photo-realistic 3D visualisation of the fiber field, bundle extraction and fiber field segmentation. We also explore new illustrative volume rendering techniques, wondering about the effectiveness of drawings in anatomy books.

**Cardiac Image Analysis**
Here it is all about quantitative image analysis: study of the detailed local deformation of the left atrium wall, with high-resolution optical flow field analysis from tagged MRI (CSPAMM), left atrium segmentation of the heart facilitated with so-called ‘toppoints’ (prestigious Dutch VICI grant to Dr. Florack) form a revolutionary and promising approach to image-guided retrieval (PACS) and recognition (CAD).

**Image-guided Surgery**
Neurosurgery is a complex surgical discipline, requiring accurate planning and intra-operative navigation. Maastricht University Hospital, our clinical partner, acquired a 0.15T interoperative MRI in 2005. In collaboration with Medtronic, we focus on the optimal pre-operative path planning, registration of pre- to intra-operative MR images, and the development of (GPU based) multi-modal (mix of MR, CT, DTR, DTI) 3D visualisation. We hope to meet you at the IMAGINE exhibit. All the research topics described above (and more) are demonstrated and carefully explained. And quite special: all staff members and PhD students, and a range of MSc students have come to ECR to meet you there.

**Visualisation of muscle fibres going through a slice of Diffusion Tensor Imaging data of a mouse heart. Note the clear helical orientation.**

**Lessons from the brain: images can also be represented by ‘toppoints’ instead of pixels, revolutionising new ways of image analysis.**

**Biomedical Image Analysis**
After being absent at last year’s congress – and bitterly missed by many delegates – a most popular feature of former meetings is reinstated at ECR 2007 – IMAGINE, the high-tech specialty exhibit.

The former IT committee of ECR, Prof. Davide Caramella, Prof. Wiro Niessen (as successor of Prof. Bart ter Haar Romeny) and Prof. Joachim Kettenbach, together with the ECR Executive Committee, decided to re-establish IMAGINE in 2007, since an exhibit of such quality would certainly further contribute to ECR’s reputation as one of the world’s outstanding conferences regarding high-tech in radiology.

The main aim of IMAGINE in 2007, as well as in the following years, is to provide a platform at ECR to show new technological developments in the field of diagnostic and interventional radiology. In contrast to the technical exhibition which shows already available products, IMAGINE focuses on research and gives a preview of future evolution and trends. IMAGINE aspires to function as an ‘antenna’ for developments soon to come, but not yet commercially available.

**The location on the second floor of the congress venue in Foyer A is ideally suited for the presentation of IMAGINE, as it provides sufficient space for all groups and for discussions in front of the booths.** It will therefore help to intensify cooperation and further contact between individuals, institutes and universities, thus adding to ECR’s status as a perfect meeting place for all those who want to be part of the future of imaging.

**IMAGINE – the high-tech specialty exhibit**

**Opening Hours:**
Monday, March 12  08:00–18:00
Tuesday, March 13  08:00–12:00

2nd level, Foyer A

**Visualisation of muscle fibres going through a slice of Diffusion Tensor Imaging data of a mouse heart. Note the clear helical orientation.**

**Lessons from the brain: images can also be represented by ‘toppoints’ instead of pixels, revolutionising new ways of image analysis.**

**Courtesy: L. Florack, B. Platel, F. Kanters.**
Patient care in abdominal cases can improve from wider use of functional MR imaging

By Frances Bylands-Monk

Technical advances in MRI have paved the way for functional imaging of the abdomen, moving beyond simple morphological evaluation of disease and in some cases proving superior to multi-detector CT. With ‘quantitative imaging’ tools at their disposal, radiologists are rethinking what they need to visualise with MR in order to answer new clinical questions.

Inflammatory, metabolic, and tumourous diseases of the abdomen can appear on a functional, microstructural, or molecular basis, and not just anatomically. Therefore, information acquired through new MR approaches such as perfusion, diffusion, spectroscopy, or elastography (which relate to vascular permeability, thermal motion, chemical composition of lesions, and microstructure of parenchyma) will become increasingly important in clinical practice.

This also means MRI can detect vascular, structural, or molecular changes, which may not have associated symptomatic changes in the patient to allow for earlier detection and follow-up. With new MR tools, which can quantitate abnormalities, doctors will be able to establish the severity of a disease, its prognosis, and treatment response.

Diffuse diseases of the liver such as steatosis, fibrosis, and iron overload that could not be staged before, can now be subject to accurate evaluation with functional and quantitative MRI. Abdominal tumours can be assessed more precisely with perfusion and diffusion MRI, and their response to chemotherapy, radiotherapy, and new antivascular and antiangiogenic treatments can be evaluated with increased sensitivity.

The functional and quantitative capabilities of MRI in the diagnosis of diffuse liver diseases and abdominal tumours will be demonstrated by Prof. Bernard Van Beers, professor of radiology and head of the medical imaging department at the Université Catholique de Louvain in Brussels, during Tuesday’s special focus session.

“Approaches such as perfusion, diffusion, spectroscopy, and elastography complement the assessment of diffuse and focal diseases with anatomical MR images, and can obviate the need for invasive procedures such as biopsy,” he said.

The session moderator, Prof. Luis Marti-Bonmatí, head of the MRI-Unit at Dr Peset Hospital from Valencia in Spain, thinks a greater number of patients will benefit from these new techniques.

“We can approach different diseases from the ones we were used to with new MR tools. Liver diseases affect 5–10% of Europe’s population. 20–30% of these patients will benefit, and 25% of abdominal examinations will be improved with these new techniques,” he noted.

Techniques covered in the session will include T2-weighted fat-suppressed imaging, which is a key sequence for assessment of inflammation activity. In a patient with inflammatory bowel disease, the gastroenterologist needs to know whether it is active or chronic, given that active disease is treated with immunosuppressive medication such as corticosteroids, while chronic disease is treated mainly with surgery.

After a T1-weighted sequence to detect the presence of disease, T2-weighted fat-suppressed imaging sequences allow depiction of oedema adjacent to the bowel wall. Oedema in this location is considered to be nearly always an indication of active disease, while absence of oedema means that the disease can be diagnosed in most cases as chronic.

“But before this two-step technique, the decision to choose the right treatment was more difficult. Even three years ago, it was possible that patients were not followed up as effectively as they can be now because treatment depended on scoring other features such as number of lymph nodes and bowel wall thickness to decide on its progress. This cumbersome process has now been replaced by a very easy T2-weighted sequence,” said Dr. Thomas Laurerstein, assistant professor of radiology at Emory University Hospital, Atlanta, US, who will be speaking about MRI of the GI tract.

The session aims to provide up-to-date knowledge of not only performance and techniques, but also indications of MRI. Crohn’s disease affects a large number of otherwise healthy young adults of between 15 and 35 years of age, and doctors manage the disease on a day-to-day basis. However, with centres still performing CT to visualise the inflammation process, some radiologists are concerned about the accumulation of radiation exposure in a young person who is most likely to undergo long-term therapeutic monitoring.

“MRI is a good indication in such patients. CT should not be the first choice modality, especially in young people with inflammatory bowel disease,” he said.

Many of these new functional imaging techniques would not be as effective or productive without the latest generation of MRI scanners for real-time intervention under imaging guidance, according to Prof. Jean-Paul Vallée, professor of radiology at Geneva University Hospital. He will be talking about improvements in hardware and software, as well as contrast agents, particularly hepatospecific media, all creating new opportunities for the exploration of abdominal pathologies.

Improved depiction of lesions not seen by ultrasound or CT can now lead to treatment by image-guided therapy that would not be possible otherwise. For example, patients who cannot be treated by surgery can still have metastases removed by thermal ablation under MRI guidance using an interventional system for an improved prognosis.

“In thermal ablation therapy, too much heat kills good liver parenchyma around the tumour, while too little leaves some of the tumour. With MRI, one can now monitor in real time the heat deposition using the temperature dependency of the MR signal phase,” Vallée said.
Cultural rendezvous

Pay a visit to a founder of ‘New Music’

By Julia Patuzzi, ESR Office

Today we would like to introduce a lesser known institution, which nevertheless is well worth a visit to meet one of the 20th century’s foremost composers. Arnold Schönberg was born in Vienna in 1874. As early as 1882 he took his first violin lessons and made his first attempts at composing. After finishing school in 1890, he started to train as a clerk in a bank and worked for a private bank until 1895. In 1894, being a member of the amateur orchestra Polýmnia, he met his future teacher and brother-in-law Alexander Zemlinsky. In the following years, Schönberg devoted himself mainly to composing and directing workers’ choirs. In 1901, upon the recommendation of Richard Strauss, he got a job as musical director at the Berlin cabaret ‘Überbrettl’ and in 1902 taught composition at the Stern Conservatoire. In 1903 he returned to Vienna, where he set up as a composer and teacher of composition.

Among the pupils he taught at the progressive ‘Schwarzwald-Schule’ in Vienna were Alban Berg and Anton Webern. Schönberg drew upon his experience of teaching to produce his ‘Harmonielehre’ of 1911. Apart from working as a composer, he also turned to painting from 1907 and from 1911 he set up as a composer and teacher of composition. Schönberg’s reputation as a composer striding away from tradition. The triumphal première of this work in 1913 brought to a temporary silence all those critics who had for the past few years rejected his steps toward an expressionist New Music, calling it a result of compositional incompetence or even impotence. With the works composed between 1907 and 1913, Schönberg entered music history. They are the source documents of what has since been called ‘New Music’.

In music history his name is associated with two epic inventions: the renunciation of tonal composition, in the wake of the ‘renunciation of the diatonic’ in expressionist atonality around 1910 and, a dozen years later, the development of ‘composition with twelve notes related only to each other’ (i.e. not based on a common tonic note), 12-tone music or dodecaphony. These compositional innovations are certified by works of the highest rank, their possibilities having been artistically proven beyond all theory and explicit poetics.

In 1933, the year the National Socialists took over power, Schönberg was excluded from the Berlin Academy. He emigrated to the USA via Paris and found a job as a music teacher at the Malkin Conservatory in Boston. From 1936 to 1944 he held a professorship in music at the University of California in Los Angeles and in 1941 he was granted American citizenship. In 1947 he became an elected member of the American Academy of Arts and Letters and in 1951 honorary president of the Jewish Academy of Music in Jerusalem. Schönberg died in Los Angeles on July 13, 1951.

A place of inspiration: the study of Arnold Schönberg, master of dodecaphony.

What’s on today

OPERA
Salzburger March 12 19:30 Moses und Aron by Arnold Schönberg, conductor Daniele Gatti, with Franz Grundheber and Thomas Moser March 13 19:30 Mannen by Jules Massenet, conductor Bertrand de Billy with Anna Netrebko, Roberto Alagna, Adrian Eröd

Volkstheater March 12 19:00 Das Nachtlied von Graunza by Konradin Kreutzer March 13 19:00 They will rock you – an homage to Queen (Dance)

CLASSICAL MUSIC

Musikverein March 12 19:30 Thomas Quasthoff & Band featuring Till Brönner, A jazz Dream Ensemble Wien F. Schubert, C.M. Ziehrer, J. Strauss

JAZZ
Porgy & Bess March 12 20:00 Pat Martino Quartet (USA)

THEATRE

Culinary treats

Krautfleckerln
(Pasta Squares with Cabbage)

Ingredients

- 7 oz. pasta squares
- 21 oz. white cabbage, without stem and outer leaves
- 5 1/2 oz. onions, finely sliced
- 2 oz. granular sugar
- 7 oz. pasta squares
- 21 oz. white cabbage, without stem and outer leaves
- 5 1/2 oz. onions, finely sliced
- 2 oz. granular sugar
- 2 tbsp. oil
- 2 tbsp. oil
- 2 tbsp. oil
- 2 tbsp. oil
- 2 tbsp. oil

1. Cut the cabbage into squares of approx. 1/2", add and fry, pour some broth or water
2. Finely sliced onions, fry well.
3. Heat the oil or fat, add the sugar and caramelise until quite brown, add the
4. Cold water, leave to drain.
5. Cook the pasta squares in plenty of salted water until al dente, sieve, refresh in cold water, leave to drain.
6. Reheat the pasta squares, salt and pepper, and mix with the cabbage.
7. The finely sliced onions, fry well.
8. Cut the cabbage into squares of approx. 1/2", add and fry, pour some broth or water underneath, season with salt and pepper, stew until tender but still crunchy, leave for 20 minutes, take care to keep dry.
9. Best served with: lettuce

Best served with: lettuce
By Julia Patuzzi, ESR Office

In line with today’s literary recommendation, a portrait of the pre-dominantly Jewish, artistic, scene of fin-de-siècle Vienna, we introduce to you today a very special place of interest.

In 1993 the Jewish Museum of Vienna opened its doors at Palais Eskeles, close to St. Stephen’s Cathedral. The museum houses a permanent historic exhibition on Austrian Jewish history and a permanent exhibition on Jewish religion. The museum’s comprehensive inventory is on display continually from Jewish cultural and intellectual life, literature, architecture, photography, and art are shown. The museum defines itself as an ‘Austrian Jewish’ and ‘Austrian (and Prague and Budapest) way of life, and works of Felix Salten provide important insights into the character of Vienna, and the biographical background and its vital influence on the work of these exceptional artists.

Another special exhibition was dedicated to Felix Salten. Writers – Journalists – Emigrés: Felix Salten (1869–1945), the author of ‘Bambi’ as well as ‘Josephine Mutzenbacher’, the only German-language ‘classic pornographic novel, is one of the most successful Austrian writers in the world. As a theatre and cinema critic and as screenwriter, cabinet enter-tainer, operetta librettist, travel writer, author of children’s books, president of the Austrian PEN Club, artist and translator, he was instrumental in shaping the culture of his time. The life and works of Felix Salten provide an exceptional and typical reflection of the major themes of Austrian and Jewish history, including the question of Jewish identity in an era of liberal assimilation, cultural modernisation and Zionism. The exhibition takes a biographical approach, showing Salten, his works and his era, while cross-referencing themes such as exoticism, urban culture, Zionism and physiognomy. The documentation is illustrated by private photos, stills from Salten films, satirical letters to Hofmannsthal and Schonleber, and paintings, costumes, posters, etc.

A memorial by the English sculptor Rachel Whiteread made a second place of remembrance on Judenplatz, a few minutes walk from the museum. It is a reinforced concrete cube with a base of 10 by 7 metres and a height of 3.8 metres, the outer sides of which are in the form of literary pages. Around the bottom of the monument are engraved the names of the places in which Aus-trian Jews were put to death during the Nazi regime. Situated below are three exhibition rooms on medieval Jewish life in Vienna and the exca-vations of the medieval synagogue, which show the religious, cultural and social life of the Viennese Jews of the Middle Ages until their expulsion and death in 1420/21 during the First Viennese Gesta, as it is called.

The book is available in English, German, Italian and Czech.

A place for remembering – the Jewish Museum of Vienna

Places to see

Enlightened encounters

On the traces of a Viennese original

By Nils Jensen, Viennese author, Buchkultur

Not too long ago, Viennese citizens did not go on holidays but on ‘Som-merfrische’, a term which seems impossible to translate and which means something like ‘a refresh-ing sojourn in the countryside’. Author Friedrich Torberg, a born-Viennese and trained Austrian, elaborates on this sojourn and what it conveys in his book ‘Auntie Jolesch’ or ‘The decline of the occult in anecdotes’. The term ‘decline’ must not be taken too seriously, though. In a nostalgic way, Torberg tells about the ‘decline’ of circumstances, ways of living, oddballs and eccentricities, and certain experiences like the fabulous ‘Som-merfrische’. The eponymous Auntie Jolesch was one of an omnipresent kind in those days, as were the many real people portrayed; days when one of the hot topics discussed was where ‘better German’ was spoken and written, in Prague or Vienna. After all, some of the most emi-nent German-language authors of that time came from Prague, such as Franz Kafka, Anton Kuh, Franz Werfel and Egon Erwin Kisch.

Torberg presents these famous men as well as the legendary summer resort Bad Ischl, where Emperor Franz Joseph traditionally spent his summer holidays – if you could call it holidays, for an Emperor. And, of course, the typical Viennese Kaffe-haus runs like a thread through all these stories, described in details and in anecdotes, as background to a story, as a very particular institu-tion, which belonged to the Vienn-ese (and Prague and Budapest) way of life in those days like the air they breathed. Torberg stated that it is the ‘functioning legends’ that determine the character of Vienna, and the most complicated legend is the Vien-nese Kaffehaus. The author expa-niates on this topic on many, many pages as you read smiling, with a frozen, amused and thoughtful, only to finally reach the conclusion that exquisitely defines the spirit of the Kaffehaus as slovenly, impeccable and inimitable.

Besides portraying Sommerfrische, grumpy eccentrics, close and less close male and female relatives, Kaffe-haus, card games, and culinary trips, Torberg resolves the old dis-pute about the Sachertorte – who owns and produces the ‘original’ one and who the ‘genuine’ one: the world-famous Hotel Sacher or the legendary imperial bakery Demel? An arbitral award made with a twi-nkle in the author’s eye, a reader’s delight, satisfying for gourmets as well as for gourmands.

Translation by Julia Patuzzi, ESR Office
2ND LEVEL

WORKSHOP
“DANCING WITH WORKSTATIONS”