Welcome to the 27th European Congress of Radiology

It is a great honour for me to welcome you to the European Congress of Radiology (ECR) 2015, the annual meeting of the European Society of Radiology (ESR).

As an attendee of every ECR over the last 25 years, I have seen the meeting evolve significantly. I have watched the crowds in the entrance hall and the audiences in the lecture rooms swell to a point where the ECR now regularly attracts more than 25,000 participants. I am confident that this year will be no exception, because the ECR’s deserved reputation is not only for high scientific quality but also for constant innovation in science, education, interactivity and networking. The 1,350 abstracts we received for this year’s event – the highest number in ECR history – is a great example of that reputation. This very encouraging show of enthusiasm from the radiological community underlines the meeting’s position as one of the best and most popular medical events in the world.

ECR 2015: A CONGRESS WITHOUT BORDERS

If you have seen the ECR 2015 poster, then you will know that the motto for this year’s congress is ‘radiology without borders’. Today, more than ever before, our specialty transcends the boundaries between countries. Wherever we are in the world, we have always been united by our profession and the effort we all make to drive our field forward, by our profession and the effort we all make to drive our field forward, but now we are increasingly working together in a practical sense too, sharing information, learning directly from each other and literally helping each other. I think the ECR is the perfect reflection of this spirit. At the congress there are no barriers, we are all united by our passion for the specialty.

You may also have noticed that the ECR 2015 poster includes a map of Europe. It is true that in recent years the ECR has become a global event, attracting attendees from far and wide, and really benefiting from the huge range of different experience that is brought together under one roof. But it is worth remembering that this is the annual meeting of the European Society of Radiology and this is where our heart is. The ECR marks its tenth anniversary at ECR 2015, and I am delighted that we will be celebrating this decade of remarkable achievements together.

The internal borders of Europe have been re-drawn many times over the centuries, and as a resident of Berlin, the location of one of the most infamous boundaries in the world, I am very much aware of the negative effect such divisions can have. It is one of the strongest virtues of the ESR that we work hard to overcome barriers and to ensure that everyone can be afforded the same opportunities together.

NEW STRUCTURE FOR SESSION FORMATS ENHANCES CLARITY OF PROGRAMME

An important innovative development this year is the restructuring of the session formats. With the exception of Refresher Courses, most of the educational sessions at the ECR are now grouped under the heading of E³ – European Excellence in Education, and they are now arranged according to the different levels defined by the European Training Curriculum for Radiology. The E³ programme is divided into five branches – Rising Stars, European Diploma Prep Sessions, The Beauty of Basic Knowledge, ECR Academies, and ECR Master Classes.
OPENING CEREMONY

Wednesday, March 4
17:45–19:00, Room A
The ECR is an annual event that the whole international radiological community looks forward to, whether they are attending for the first time or returning after the positive experience of previous years. The international radiological community considers the ECR to be the event that can truly meet their requirements in terms of being suited to residents, board-certified radiologists, with the content mostly corresponding to level III of the European Training Curriculum. Finally, the ECR Master Classes are designed for participants and subspecialists seeking cutting-edge information in a specific field of radiology, with one ECR Master Class offered for each subspecialty in radiology (level III and beyond). This new structure is the result of intense exchange and excellent cooperation between the Congress Programme Planning Committee members and I am very much looking forward to seeing all this hard work and preparation come to fruition. I have high confidence that this will enhance the clarity of the ECR programme (for both participants and speaker) and make for a smoother experience, especially for the many delegates visiting the congress for the first time.

The ECR never fails to inspire and innovate, so I would like to thank everyone who has been involved in the creation of ECR 2015, for ensuring that it will live up to this particular tradition. Thanks to the fantastic efforts of the Congress Programme Planning Committee, the Chairs and members of the Scientific Committee, the Subspecialty Societies and, of course, the dedicated support of ESR office staff.

I offer you a warm welcome to ECR 2015. I hope you will leave having gained new knowledge, new experiences and a real sense of ‘radiology without borders’.

Lorenzo Bonomo is professor and chairman of the Department of Radiological Sciences and Biomechanics at the Catholic University of Rome, A. Gemelli Hospital, Italy.
In recognition of his major contributions to scientific research and his commitment to transatlantic cooperation and exchange in radiology, Professor N. Reed Dunnick from Ann Arbor, US, will receive Honorary Membership of the European Society of Radiology today during the Opening Ceremony.

N. Reed Dunnick is the Fred Jener Hodges Professor of Radiology and chair of the department of radiology at the University of Michigan Health System in Ann Arbor. He served as the 2013 president of the Radiological Society of North America. Graduating with a medical degree from Cornell University Medical College in 1969, he went on to spend two years in internal medicine at the University of Rochester Strong Memorial Hospital in New York before taking up a radiology residency at Stanford University school of Medicine in California, where he served as chief resident in his final year. He was appointed assistant professor at Stanford in 1976, and later that year he took up a post in the diagnostic radiology department at the National Institutes of Health. He then moved to Duke University Medical Center, where he held a number of posts between 1980 and 1992, including professor of radiology, chief of urology and director of the division of diagnostic imaging.

A strong advocate for research, Dr. Dunnick is a former president of the Academy for Radiology Research, and he testified before the United States Congress on the need to establish a new institute, which was signed into law in 2000 as the National Institute of Biomedical Imaging and Bioengineering.

Throughout his career, Dr. Dunnick has actively participated in professional radiology organisations. He has served as president of the Society of Uro Radiology (SUR), the American Board of Radiology; the Association of University Radiologists and the Society of Chairmen of Academic Radiology Departments.

“Honorary membership in the European Society of Radiology is especially meaningful due to the history of cooperation between the ESR and the RSNA. It has been a pleasure to watch the progress the ECR has made since its first meeting in 1967,” said Dr. Dunnick. “Dr. Dunnick has written 320 scientific papers, six book chapters and ten books on various aspects of radiology in particular diagnostic oncology, uro radiology and more recently, administration. He has served as a visiting professor at 77 medical centres, a guest member of faculty for 486 medical education courses and has delivered 28 named lectures. He has also served on the boards of 13 peer-reviewed journals. Due to his dedication throughout his career, Dr. Dunnick has received a great number of awards and honours, including gold medals from the ARRS, SUR, AUR, MRS and the American College of Radiology, as well as the Mexican Federation of Radiology and Imaging’s Radiology Mentor Award. He is also an honorary member of the American Society of Radiation Oncology and the Japan Radiological Society.”

Renowned specialist in cardiovascular imaging to be awarded ESR Honorary Membership

In recognition of his outstanding contributions to the field of cardiovascular imaging and his dedication to building closer ties between radiologists from around the world, Professor Tae-Hwan Lim from Seoul, Republic of Korea, will be awarded Honorary Membership of the European Society of Radiology today during the Opening Ceremony.

Tae-Hwan Lim is professor of radiology at the University of Ulsan College of Medicine and a radiologist at the Asan Medical Center’s department of radiology in Seoul, Republic of Korea. After graduating with a degree in medicine from Seoul National University in 1978, Prof. Lim continued his studies there, earning a Master of Science degree in 1983 and a Ph.D. in 1987. During this time he worked as an intern and resident at Seoul National University Hospital. He later served as director of radiology at the Korean Armed Forces Capital Hospital. Since 1987, he has spent one and a half years in the United States as a research fellow in magnetic resonance imaging at the University of California San Francisco’s department of radiology under the supervision of Dr. C.B. Higgins. In 1989, he started his career at Asan Medical Center, University of Ulsan College of Medicine, Seoul, as an assistant professor, and has since then been working as associate professor and full professor. In 1990, he was appointed director of the NMR laboratory at the Asian Institute for Life Sciences. Eight years later he became chairman of the department of radiology at Asan Medical Center, a post he held until 2000.

With a clear commitment to developing and advancing cardiovascular imaging in Korea and Asia, Prof. Lim has played a major role in promoting and developing training in MR and CT in Korea, as well as in Asia. He also founded the Asian Society of Cardiovascular Imaging (ASCI) in 2007 and served as its first and second president. Prof. Lim is also devoted to improving general public health care and has held a number of senior government posts and is a member of several national committees. He is currently the president of the National Evidence-based Healthcare Collaborating Agency and was a member of the Korean Ministry of Health & Welfare Health Technology Assessment Committee for six years.

“Honorary membership of the European Society of Radiology is a tremendous honour. I accept it on behalf of all the colleagues with whom I have worked and the many volunteers who help make our professional societies what they are.”
ESOR GALEN Courses 2015

The GALEN Courses have been designed to familiarise young radiologists with the established approaches and most recent achievements in diagnostic imaging, related to topics across the modalities. The courses are aimed at residents and board-certified radiologists from all over Europe.

GALEN Foundation Course
Neuroradiology
June 25-27, Saint Petersburg/Russia

GALEN Advanced Courses
Cardio-Thoracic Cross-Sectional Imaging
May 7-8, Bucharest/Romania

Women's Imaging
May 28-29, Zagreb/Croatia

Paediatric Imaging
September 17-18, Kayseri/Turkey

Oncologic Imaging
October 29-30, Lisbon/Portugal

For further information on the detailed programmes and registration, please visit myESR.org/esor

Anne G. Osborn is Distinguished Professor of Radiology at the University Of Utah School of Medicine in Salt Lake City. She also holds the William H. and Patricia W. Child Presidential Chair in Radiology at the University of Utah.

Prof. Osborn received her Bachelor of Arts degree in psychology and her Medical degree from Stanford University in California, where she also completed her residency in diagnostic radiology. She joined the faculty at the University of Utah’s School of Medicine in 1974, spending her first three years as a James Picker Advance Academic Fellow in Neuroradiology. She has also served as a visiting professor at many of the world’s premier medical institutions including Harvard, Stanford, Johns Hopkins and the Karolinska Institute in Stockholm.

A renowned neuroradiologist, Prof. Osborn has authored several texts considered to be definitive references in her field. Her latest comprehensive textbook, Osborn’s Brain, won the 2013 American Medical Writers Association award for Best Book Written by a Physician.

The first woman to be elected president of the American Society of Neuroradiology, Prof. Osborn has received numerous awards, including honorary membership from a number of international radiology professional societies, the Marie Curie Award from the American Association of Women in Radiology, the Gold Medal from the Chicago Radiological Society, the Rosenblatt Prize for Excellence, the Distinguished Service Award from the University of Utah, the 2002 Bicêtre Medal from the International Society of Radiology, the 2003 gold medal from the American Society of Neuroradiology, and the Magna Cum Laude Scientific Exhibit Award from the Radiological Society of North America (RSNA).

Prof. Osborn has also received gold medal awards from the RSNA, the Asian-Oceanian Congress of Radiology, the Federation of Mexican Societies of Radiology and Imaging, the Turkish Society of Radiology and the Hong Kong College of Radiologists, as well as being named an honorary founding member of the Russian Society of Neuroradiology in 2012.

Anne G. Osborn, Distinguished Professor of Radiology at the University Of Utah School of Medicine in Salt Lake City, will receive ESR Honorary Membership at today’s Opening Ceremony.

“Becoming an Honorary Member of the ESR, which represents more than 50 countries, is something truly special that I will always cherish and remember with gratitude.”

In recognition of her major achievements in the field of neuroradiology and her commitment to education and cooperation in radiology, Professor Anne G. Osborn from Salt Lake City, US, will be awarded Honorary Membership of the European Society of Radiology today during the Opening Ceremony.

It’s like one gigantic ‘family reunion’ with numerous opportunities to meet and great colleagues from every corner of the planet; with the possible exception of Antarctica!” said Prof. Osborn.

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“The ESR uses its international power of convocation to provide a wonderfully rich scientific and educational environment for radiologists from all over the world. It’s like one gigantic ‘family reunion’ with numerous opportunities to meet and great colleagues from every corner of the planet; with the possible exception of Antarctica!” said Prof. Osborn.

Anne G. Osborn, Distinguished Professor of Radiology at the University Of Utah School of Medicine in Salt Lake City, will receive ESR Honorary Membership at today’s Opening Ceremony.

“To be recognised by one’s peers is the highest professional accomplishment I can imagine. Becoming an Honorary Member of the ESR, which represents more than 50 countries, is something truly special that I will always cherish and remember with gratitude.”

In recognition of her major achievements in the field of neuroradiology and her commitment to education and cooperation in radiology, Professor Anne G. Osborn from Salt Lake City, US, will be awarded Honorary Membership of the European Society of Radiology today during the Opening Ceremony.
VISIT THE EUROSAFE IMAGING POSTER EXHIBITION
ECR LIVE & EPOS LOUNGE
FIRST LEVEL

More than 30 posters on radiation protection practices by experts from the ESR, European and international institutions, radiological subspecialty societies, related medical professions and industry partners.

www.eurosafeimaging.org
Putting quality and safety first: ESR EuroSafe Imaging

With the launch of EuroSafe Imaging at ECR 2014 as a flagship radiation protection initiative, the ESR created a new and comprehensive framework for its efforts to improve quality and safety in medical imaging in Europe.

The EuroSafe Imaging Steering Committee—chaired by ESR Past-President, Prof. Guy Frija, and composed of representatives from the ESR, EFOMP, EFIRS, patient groups, industry and an observer from the European Commission—started implementing measures in 2013 to deliver EuroSafe Imaging’s mission of supporting and strengthening medical radiation protection across Europe following a holistic, inclusive approach. A comprehensive strategy was developed and some significant progress achieved towards this end.

The EuroSafe Imaging Call for Action was launched in September 2013, designed to support the IAEA’s Generic Audit Guidance (Action 10) is essential. EuroSafe Imaging has published articles in journals and newsletters, issued press releases, and created a promotional video in 2014.

Implementation of Actions 1 and 9 started in November 2014, as an ESR expert group initiated the development process of European imaging referral guidelines which will be adapted from criteria developed by the American College of Radiology (ACR). These guidelines will form the content for the ESR’s clinical decision support platform for distribution in Europe to be developed in cooperation with the ACR and the National Decision Support Company.

The development of the ESR’s clinical audit tool was also driven forward in 2013, as the Generic Audit Guidance was published at the end of the year. The official launch of the tool itself is slated for ECR 2015.

In assuming the lead of a European Commission project on paediatric diagnostic reference levels (DRLs) entitled PDRPL, the ESR also contributed towards implementing measures to maintain radiation doses within DRLs (Action 3).

Education and training to improve radiation protection is of particular importance to the ESR, and the inclusion of 12 modules on radiation protection in its e-learning platform ‘Education on Demand’ as well as the EuroSafe Imaging radiation protection orientation session held at the MIR 2014 Annual Meeting in Bologna, Italy, in October 2014 were part of the implementation of Action 6 of EuroSafe Imaging’s strategy.

With the launch of the cooperation with the research platform MELDI (Multidisciplinary European Low Dose Initiative), the ESR showed its commitment to Action 7 of the Call for Action. Implementation of Action 7 was also started, as the ‘Is your Imaging EuroSafe?’ survey series was launched in the November 2014 edition of ESR News. The aim of these surveys is to build a European registry based on DRLs for those clinical indications most helpful for self-benchmarking, thereby also contributing to Action 3.

Joining forces with a variety of stakeholders is an essential part of the structure of EuroSafe Imaging.

The 12 points of the EuroSafe Imaging Call for Action are designed to support implementation of the Bonn Call for Action and the ESR’s mission of improving quality and safety in medical imaging.

www.eurosafeimaging.org
In recent years, there has been very innovative educational courses added to the ECR. However, in the final analysis, there has been a certain amount of overlap with both participants and presenters. With the new and clearer course structure that we have now, we hope to overcome this confusion,” he said.

With seven sessions formats such as a float, Refresher Courses, Special Focus Sessions, State of the Art Symposia, Rising Stars, New Horizons Sessions will still be on the schedule, the EJ programme will definitely help simplify the course plan. It will allow a much better range of educational issues from undergraduate medical education to subspecialised continuing professional development, emphasizing the importance of lifelong learning. To do so, it will feature the already existing Rising Stars and Beat of Basic Knowledge syllabus last year now forms the European Diploma Prep Sessions, ECR Academies and ECR Master Classes. These five bundles will reflect the different levels of education in radiology; by covering all stages, the conferences support all radiologists’ professional career.

Residents, medical students and radiographers-in-training have become regular guests at the ECR thanks to the Rising Stars initiative, which offers an interesting educational agenda and unique opportunites to take a first glance at the world of radiology, free of charge or for a significantly reduced fee. As a result, the number of participants has been growing steadily in recent years.

The sessions and success of the programme has surpassed our expectations. Over 3,500 students attended the congress over the last three years, and that number is expected to rise at ECR 2015. The number of papers submitted by students in 2014 was close to 700, and which also proves that interest in the programme is growing,” noted Rising Stars patron, Prof. Magdalena Czerkaszko-Trojanowska, from Lublin, Poland.

Approximately 33% of the submitted papers were from trainee radiographers, and so the organisers have prepared a programme especially for the trainees, chief among them is the trainee radiographers. A session entitled ‘How to create the perfect presentation’ has also been added to help participants to match demand, places in the Lisbon in the Youth Initiative, one of the Rising Stars programme’s main projects, have been increased from 360 to 700. The initiative invites residents and trainee radiographers under the age of 35 to submit their abstracts to the Rising Stars programme, and they are awarded an accommodation voucher worth 350 euros and free registration to the ECR in return. This year, students and trainee radiographers under the age of 30 without an academic title may also submit their abstracts; the 30 best candidates receive free travel costs to Vienna, free registration to the congress and 350 euros for their accommodation.

Furthermore, students under the age of 30 who don’t have any academic title can now register for the ECR for a reduced fee of 460, regardless of the time of registration, and any medical student can attend the last day of the ECR for free.

The Basic Sessions have been a huge success at ECR 2014, with strong attendance and extremely positive feedback. Three sessions have been added to feed the growing interest, bringing the total number of ECR Academy sessions to six. They will focus on neuroradiology, oncologic imaging, musculoskeletal trauma, interventional radiology, thoracic emergencies and breast imaging.

The sessions will be moderated by some of the most distinguished radiologists in Europe who should benefit both the audience and the speakers. Prof. Czerkaszko-Trojanowska believes: “All great radiologists recognize the importance of education and raising interest in our specialty among young talented and devoted doctors, students and radiologists. A leader’s position is always bound to their educational activities; they are natural and enthusiastic teachers. They take the opportunity to present the specialty they love to the next generation as an obligation and a source of gratification. Lectures in the Rising Stars programme are highly challenging. Speakers have to adapt their lectures to the knowledge and interests of the audience and to respect the different levels of complexity in each audience.”

Rising Stars is the future of radiology and the Rising Stars programme should give them the keys to familiarise themselves with a demanding and exciting discipline. “Students attending the ECR become acquainted with the cutting-edge achievements and recognise the trends for future development. They also have an opportunity to present their own work at a scientific conference, learn to carry scientific discussions and offer their ideas as a valuable support to the ECR programme,” said Prof. Czerkaszko-Trojanowska.

Finally, the Student Sessions will focus on the role of the radiologist in the management of trauma patients, x-ray imaging and gynecology, the role of radiographers in screening programmes, and practical training for radiographers-in-training. “The sessions will help the students in the Rising Stars programme achieve their educational project at my university” as usual, the best presentation will be awarded during the final student session.

Residents, students and trainees are the future of radiology and the Rising Stars programme should give them the keys to familiarise themselves with a demanding and exciting discipline. “Students attending the ECR become acquainted with the cutting-edge achievements and recognise the trends for future development. They also have an opportunity to present their own work at a scientific conference, learn to carry scientific discussions and offer their ideas as a valuable support to the ECR programme,” said Prof. Czerkaszko-Trojanowska.

The New ECR Academies consist of a series of sessions on emerging issues and should appeal to general radiologists or radiologists with a subspecialisation. Topics include hybrid imaging, image-guided interventions in oncology, and modern imaging of the GI tract.

In addition, there will be sessions covering diagnostic and surgical radiology and interactive teaching sessions focusing on different aspects of radiology such as changes of the gastro intestinal tract after treatment, the treated spine and joints, the treated breast, unexpected findings on brain MRI, cardiac CT, and diagnostic evaluation of bone tumours.

Finally, the ECR Master Classes are designed for participants and subspecialists seeking cutting-edge information in specific fields of interest. One ECR Master Class will be offered for each subspeciality in radiology (level I and beyond) and presented by experts in the field.

The classes will reflect state-of-the-art knowledge, as well as emerging trends, and tackle areas such as lung cancer staging, advances in paediatric imaging, cardiac MRI, breast MRI, musculoskeletal imaging, oncology, endocrinology, and the role of interventional radiology in trauma management, to name a few.

The programmes of the Programme Planning Committee and the ECR 2015 President hope that the EJ programme will help both the audience and the speakers.

“We expect that the new structure will make it easier for participants to choose the courses that will benefit them most. In addition, it might help speakers in preparing their presentations, by providing a clearer idea of the kind of audience to address. I am curious to see how the new session structure will be received by the audience and whether it turns out to be a good basis for further development in the years to come,” Prof. Hamm said.
New breed of imagers can ensure hybrid techniques thrive in clinical routine

As hybrid imaging gains more ground in cardiology, neurology and oncology, the debate over PET/MRI's current and potential role in routine practice still rages. The central question remains: is it an expensive new toy with no clinical applications on the horizon, or is it a truly revolutionary technique?

Both subspecialists and generalists attending today’s ECR session on Scanners and Tracers – the first of a six-part course with the more advanced sessions scheduled for Friday and Saturday – will learn about the latest on hybrid imaging, interact and how this interacts with their long-term procedures across Europe is slowing reimbursement for hybrid imaging specialists must be certified by a fixed radiologist and a board certified nuclear medicine physician. “We may only be able to supply such manpower in big university hospitals. However, time constraints and issues of affordability have and will become more important. Thus, optimizing workflow by training hybrid imaging specialists must be considered an important goal for the future,” he said.

The future of hybrid imaging is to some extent dependent on reimbursement, which in some countries remains limited, while other member states enjoy a more liberal and evidence-based reimbursement policy. “If not reimbursed, it will be difficult for hybrid imaging to evolve as doctors won’t use it. Although it is already implemented in clinical routine, further use depends on country-specific policies,” Antoch said.

Echoing his sentiments, Prof. Dr. Thomas Beyer, PhD, professor of the physics of medical imaging, Medical University of Vienna, pointed out the need for hybrid imaging to evolve further. “So far there has been no hard evidence to support the diagnostic benefit of PET/MR, which begs the question of why doctors perform it,” Beyer told ECR Today.

He suggests part of the answer lies in MRs capacity to yield more information than CT, particularly due to its better soft tissue contrast and ability to visualise selected aspects of physiological and molecular pathways. Simultaneous PET/ MR also allows doctors to follow tracer distributions over time and combine quantitative molecular PET information with information on cellular densities, flow and perfusion, such as data obtained from advanced MR-based spectroscopy, diffusion and perfusion studies.

“Such a simultaneous and synergetic approach generates much more useful information than consecutively imaging. The big question now is: will research lead to new clinical applications adopted into the workflow?” he noted.

Fully integrated PET/CT, the main workhorse of hybrid imaging, accounts for about 90% of all CT production, with 3,000 units operational worldwide today and with 95% of use dedicated to initial staging and restaging oncology questions as well as therapy response, 5% used for neuro-oncology, and 2% for cardiology questions. SPECT/CT has undergone slower adoption, while three years into commercial inception, there are still only around 60 PET/MRI units installed worldwide.

“So far there has been no hard evidence to support the diagnostic benefit of PET/MR, which begs the question of why doctors perform it,” Beyer told ECR Today.

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The good, the bad, and the ugly regarding breast ultrasound

When it comes to screening women for breast cancer, those with dense breasts or tissue abnormalities tend to be the most troublesome, but breast ultrasound has proved, and continues to prove, its utility for these women. Leading researchers will elaborate on this hot topic today.

Estimates for mammography sensitivity range anywhere from 69% to 91%, and the masking effect of dense breast tissue is the most relevant cause of false-negatives, according to Dr. Veronica Girardi from the Istituti Ospedalieri Bresciani in Brescia, Italy.

“When we consider breast density, there are two different issues. One is that it’s influencing cancer detection on mammographic imaging, and the second is its possible independent effect on breast cancer risk,” she noted. “Breast density is significantly associated with an increased risk of breast cancer at any age, but it does not seem to influence ultrasound accuracy. For this reason, the association of ultrasound to mammography in women with dense breasts has been proposed by many authors, although there is no evidence of mortality reduction.”

Girardi advocates ultrasound because especially compared with mammography and MRI, it is quick, widely available, well-tolerated, very safe, and relatively cheap. In addition, it can boost cancer detection by about 25%, said Girardi in a recent study by her group. However, ultrasound may increase false-positive biopsies.

“We have no sufficient information for a thorough analysis of costs, but very high sensitivity and specificity will promote the use of hybrid imaging, and PET/CT in particular. PET/CT is likely to become increasingly organ-specific, with the use of calcium-dense tissue (CZT) solid-state detectors, according to Dr. Beyer. Advances in data handling, image processing and reconstruction will allow quantitative data, similar to those acquired in PET.

“The future of PET/CT is linked to finding that key application I suspect that this will be in neurodegenerative disease,” he said. Paediatric oncology is also an area where PET/CT promises much because MRI can provide good image contrast with little body fat typically found in children.”

Multiparametric imaging using MRI and PET/CT will also continue to be investigated, and may increasingly yield answers to clinical questions. “All combinations of hybrid imaging – PET/CT, SPECT/CT and PET/IMRA – are technological state of the art where they can be used distantly but this mandates a multi-disciplinary approach,” Beyer summed up. “Technology has provided the tools; now it’s down to the humans to make the best of them.”

The decision about whether to use breast ultrasound should be an individual one and should take into account patient context, particularly specific benefits and harms.

Although supplemental screening with breast MRI imaging is usually preferred for women who are at very high risk for breast cancer (i.e., women with a lifetime risk of over 20%, women who are BRCA positive, or have multiple first-degree relatives with a history of pre-menopausal breast cancer), screening breast ultrasound should be considered in women at very high risk for breast cancer who cannot tolerate breast MRI imaging as well as those women with dense breast tissue and intermediate risk, or even average risk,” Girardi stated.

Future studies should establish strategies to reduce false-positive results and continue to optimise both technologist-performed hand-held screening ultrasound and automated whole-breast ultrasound in women with mammographically dense breast tissue.

Also at the scientific session, Dr. Cécile Chatelet, from the diagnostic imaging department at Gustave Roussy Cancer Campus in Villejuif, France, plans to discuss whether elastography is providing true advances or a false hope.

“The mammography (US) B-mode is an established and challenging imaging tool in the diagnosis of breast tissue abnormalities,” she noted. “US provides a high degree of sensitivity in differentiating malignancies, nevertheless, false-positive results represent a drawback for US.”

Elastography improves the specificity of ultrasound. The most common elasticity imaging technique is free-hand elastography, which requires manual compression on a lesion with the ultrasound probe.

“Swine, wave elasticity, or elastography ‘this technique is easily feasible with a learning curve, but remains dependant on the operator’ she continued. “Shear-wave elasticity imaging is a new technology which provides qualitative and quantitative analysis on a lesion, and is less dependant on the operator.”

Swine elasticity imaging may be used to evaluate cancer lesion characterization and help to better categorise undetermined lesions, such as BI-RADS 4a and 3 nodules. In fact, elasticity imaging characteristics have been added in the latest version of the BI-RADS ultrasound lexicon.

“Elasticity imaging is not mandatory, but may be used as an additional tool to help characterisation,” she said. “Anyway, in case of doubt, B-mode imaging features still should be considered with priority against elastography results.”

Elastography principles, with an overview of the different elasticity modes which may be used, will be presented during this session.

Meanwhile, Dr. Suzanne Diepstraten, from the radiology department at the University Medical Centre Utrecht in the Netherlands, will present on whether nodal staging of breast cancer is still needed.

“In breast cancer, axillary lymph node status is an important prognostic factor and a guiding factor in treatment decisions,” she said. “Axillary lymph node dissection in cases where the sentinel node proves to be positive, has been the standard-of-care for axillary nodal staging for more than a decade. A disadvantage of this approach is the need for two-stage surgery in patients with axillary involvement.”

Recent studies have shown in patients with limited axillary involvement who are undergoing breast conserving treatment, subsequent axillary lymph node dissection does not improve overall survival or reduce local recurrence, which means a reassessment of the value of preoperative axillary staging for this subgroup of patients is necessary.

“Future studies investigating preoperative axillary staging should be aimed at methods that allow differentiation between limited versus extended axillary involvement, or specific identification and sampling of the sentinel lymph node,” she concluded.
Standardisation strategy set to streamline Europe’s reporting structures

Advances in data mining from radiological cases can be made only if the global imaging community adopts lexicon and formatting standards for their reports, and radiologists must ask their IT providers for reporting tools, especially support for the Integrating the Healthcare Enterprise Management of Radiology Report Templates (IHE MRRT). Only then can structured reporting have a substantial impact on clinical decisions and workflow in a way that will revolutionise both daily practice and data extraction, according to speakers at this afternoon’s session.

The current lack of report standardisation across all disciplines forms one of the key challenges to workflow and patient management due to inconsistency between different institutions, departments and among individual radiologists. A joint initiative between ESR and RSNA, RadReport (www.radreport.org), introduced two years ago and formalised last year in a memorandum of understanding, aims to promote and facilitate structured reporting through the creation of a joint open repository for radiology report templates. The initiative, to be announced to ESR members during ECR this week, uses the RSNA’s web infrastructure. Contributions will be free from copyright. Furthermore, authors and centres will be referred but will not be liable for how their templates are used.

Experts believe that the joint efforts of the two societies will be globally more effective than each society working separately on their own repositories.

“I am hoping that the session will show radiologists how to improve their reporting structure – and demonstrate that the added value it will bring to our medical future is worth the effort,” said Prof. Osman Ratib, chair of ESR’s eHealth and Informatics Subcommission, and also professor at the University of Geneva and head of the Nuclear Medicine and Molecular Imaging Division. “We can either impose standardisation through top-down decisions or achieve it by consensus. We believe it is preferable to take a bottom-up approach.”

ESR members who have already worked on standardisation in their different fields, and even internally in their respective institutions, will be able to share their data. Doctors will eventually be able to select the most applicable reporting models. Reporting methods that work will be adopted, while those that don’t will be discarded. To this way, the repository will be based on natural selection and function similarly to social networks.

In an age of evidence-based medicine, it is hoped that the adoption of structured reporting through the use of standards such as MRRT and the incorporation of lexicons such as RadLex will allow large-scale data extraction, made possible with tag tools that will attach the RadLex lexicon to sentences or items in the report. An invisible code tagged to certain words will mean that different terminology such as ‘tumour mass,’ ‘neoplasms of the liver,’ ‘liver metastases’ or ‘cancer of the liver’ will no longer stop doctors finding the information they need.

“Structured reporting has potential for workflow improvement, specifically through codes that generate automatic prompts which act as decision support,” according to Prof. Peter Mildenberger.

“Describing a pathology with the phrase ‘it could be’ is not helpful. By this, one radiologist might mean that he or she strongly believes it is the pathology in question, another that it is simply a possibility. Therefore prose may generate huge discrepancies in interpretation,” said Mildenberger, who is also a cardiovascular, emergency and oncology imaging consultant.

Moreover, it is difficult and time-consuming for physicians to access the relevant information that might be hidden within the long radiology report that sometimes has no conclusion and up to 10 differential diagnoses, he continued.

“My secondary message is structured reporting’s large potential for workflow improvement, specifically through codes that generate automatic prompts. This can’t be done easily with prose reports,” he noted.

Mildenberger points to systems that already incorporate structured reporting in decision support, citing one Boston group as a case in point. Its system provides automatic recommendations based on a category of findings and accepted guidelines. For example, a 6 mm lung nodule in a low risk patient will automatically generate a recommendation to recall the patient in six months.

Attendees will also learn how to write reports in the MRRT HTML format, as well as upload templates to the server. The repository already contains a large sample of templates, and groups from other countries have started to adopt these, and also contribute their own.

In addition, there will be a chance to question the value of the reporting initiative during the panel discussion, as well as discuss how to measure the value of structured reporting. “For many, no concrete evidence proves its strongly suspected benefits – is this a new area for a multisectype study?” Mildenberger said.

The future for structured reporting and its role in the radiological workflow is not yet clear cut. Turkey’s Ministry of Health, for instance, wants its radiology departments to adopt structured reporting. There is, however, a chance that change will not come quickly enough if the IT companies don’t follow suit. Reporting tools for BIRADS or PIRADS affect a small part of total imaging, while there are still many other imaging procedures for which IT systems don’t yet provide templates, he explained.

“If radiologist groups implement structured reporting and surgeons and physicians start requesting it, then there will be pressure on all radiologists to adopt it, and they in turn will put pressure on vendors to incorporate structured reporting tools in their software. Such radiologists might then change their minds,” he added.

Ratib echoed these comments. “Radiologists must therefore request manufacturers to adopt their software so that every template can be easily incorporated into RIS and PACS. There should also be tools to allow users to easily make reports in the required formats, create new templates and upload them to the repository,” he remarked.

Structured reporting may be a new area for a multicentre study in order to prove the benefits it brings to radiology and evidence-based medicine, according to Mildenberger.

Professional Challenges Session

Wednesday, March 4, 16:00–17:30, Room Z

PC 4b What are the concrete benefits of structured reporting?

- Chair: Ms. L. Bosmans, Barcelona/ES
- For the radiologist: Prof. Mildenberger, Mainz/DE
- For the referring physician: Prof. C. Kohn, Philadelphia, PA/US
- The ESR/RSNA structured reporting initiative: O. Ratib, Basel/CH
- Panel discussion: What are the concrete benefits of structured reporting?
Radiologists must claim their place in the medical team if they are to survive. They must come out of the shadows and show that they can bring added value to the team, according to Jim Reekers, professor of interventional radiology at the University of Amsterdam, who will chair the session.

“I want to make my colleagues aware that they should step out of their offices and act as doctors who work in multidisciplinary teams. Being the photographers or doctors who only give a report with a picture will not secure their future and the reason is very simple: anybody can make and look at a picture nowadays. The difference the radiologist brings is that he or she can give an interpretation of the picture within the context of the patient’s clinical situation. So the radiologist should become a doctor who gets involved with the patient’s situation,” he said.

There is more than one way to do this. For starters, to be on the same level as clinicians, radiologists must behave as such. That means they have to do more than just show the images in multidisciplinary team meetings; they have to sit and discuss with them the doctors.

“Have a junior show the images for you. While my junior presents the pictures, the patient and his medical history, the other specialists, and suggesting treatment and follow-up options or further diagnostic investigation. It is important to sit with the other doctors. There’s a big difference in how people see me. I’m one of them instead of being the guy who shows the pictures,” Reekers said.

Then, and most importantly, radiologists must subspecialise in one area. Knowing everything about a subspecialty will ensure that the service provided goes beyond the simple interpretation of images, Nicola Strickland, a consultant radiologist at the Imperial College Healthcare NHS Trust, Hammer smith Hospital in London, explained.

“Radiologists are future proof. But we can protect ourselves by remaining at the forefront of radiological knowledge, which inevitably means that radiologists everywhere will have to subspecialise to some extent. They can remain general radiologists but with a particular interest in special areas of medicine or surgery. We have to remember that we are all doctors first and radiologists second. We are interpreting the imaging studies in the light of our medical knowledge of the patient’s condition. So it is important to remember that when our colleagues ask for a consultation on a patient and that patient’s imaging, they want the opinion of a doctor who understands the possible pathological conditions and their implications, and can interpret the images in the light of a broad knowledge of medicine and surgery,” she said.

It may sometimes be useful to meet the patient and explain the procedure that will be carried out or the results of an investigation, the way interventional radiologists or radiologists performing mammography do. Radiologists can also, if they have a good relationship with clinicians, accompany them when they do rounds to visit patients, Reekers suggested. The point is to improve their visibility to both the clinicians and the public.

“Another area where radiologists can ‘future proof’ themselves and make themselves indispensable is imaging IT. It has advanced enormously over the past ten years and has done so in medical imaging more than any other area of clinical prac tice,” Strickland pointed out.

“With our knowledge of radiological information systems (RIS), picture archiving and communication systems (PACS), speech recognition, electronic patient records, and all the high technology machinery that we use, MR, CT, PET/CT scans and complex post-processing image reconstruction, we are already experts in the area of imaging IT. We need to apply that knowledge to the whole of medicine and surgery, and involve ourselves in advising the whole IT department in hospitals and healthcare institutions on the best type of imaging IT for that institution. We have to pay particular attention to the integration of these systems and draw attention to the fact that we must have the record of the whole patient pathway accessible to us as radiologists,” she said.

This last point is an area radiologists will have to fight for in the absence of a system enabling doctors to access all the patient’s imaging history. Strickland insisted.

“We need immediate access to the past imaging and to the imaging study reports with integration across the whole healthcare network and this is one of the big deficits that has developed in modern healthcare. Lack of immediate interconnectivity between healthcare institutions where the patient has had his/her imaging studies performed means that the reporting radiologist and the doctor looking after the patient do not have timely access to all the relevant previous imaging studies, and may not even be aware that such studies exist, which is detrimental to the patient’s subsequent manage ment and current care. We need to provide optimum patient care and we can only do that when we have proper complete access to the imaging history of that patient,” she said.

Another flaw in modern healthcare, Reekers argues, is teleradiology. Simply put, teleradiology is a death sentence for the radiologist’s profession.

“Radiology departments do not sell images but diagnostic information and advice. Teleradiology is a commodity that is driven by cost savings and short-tape of radiologists, but it has no added value in the hospital. Teleradiology is a disaster: it will be the downfall of radiology and it is going to kill radiology. At teleradiology we do not see, not involved, and we don’t act as doctors anymore. At the end of the line you can put anybody there, you can put a radiologist there and nobody will know. If this continues, radiology will not exist in 15 years, because everything will be gone. The moment the doctor is not in the hospital anymore, the clinicians will start reading films themselves. They’ll say they don’t need teleradiology anymore. But if you have a very good radiologist who works very much like a partner, you don’t need teleradiology,” he said.

Instead of using teleradiology, physicians should develop a network of specialists outside their hospital and cooperate with these experts when necessary, by making the most of telecommunication technologies currently available and having multidisciplinary meetings. Reekers published a paper in Insights into Imaging earlier this year, in which he explained in detail this model and how to place the radiologist back in the driving seat.

“I think certainly that a patient is not well served by teleradiology services,” Strickland echoed. “What I would prefer to see is what I have called in the UK NHS in-sourcing, in which you use expertise from a region defined by existing patient referral pathways, where you would network hospitals together, because within a region the radiologists know each other, the non-radiological doctors know each other, and most importantly they take part in multidisciplinary meetings together to discuss the patients. If we have to lose teleradiology it has to be integrated into clinical care. I think it will always remain a second-best option, and the appropriateness of its use in particular well-defined circumstances (e.g. acute uncomplicated emergency out-of-hours head scans, acute trauma, old musculoskeletal imaging where there are no previous imaging stud ies, etc.) should be carefully decided upon,” she suggested.

Whatever path they choose, radiologists are now faced with a choice: do they want to be merely imagers or imaging doctors? Experts in the session hope to help them make the right decision.

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**Clinical Corner**

Remember HAL 9000, the murderous computer in ‘2001: A Space Odyssey? This scenario doesn’t seem too far off when it comes to radiologists and the constant evolution of their technology. Luckily, they can still stay in control if they change their behaviour and remain at the head of the imaging process, experts will argue during the dedicated Professional Challenges session today at the ECR.

Elects sound the alarm on dangers facing radiologists

Jim Reekers, professor of interventional radiology at the University of Amsterdam, will chair the session on the role of the radiologist.

Nicola Strickland, a consultant radiologist at the Imperial College Healthcare NHS Trust, Hammersmith Hospital in London, will speak about the radiologist’s future in today’s professional challenges session.
How to deal with ‘special’ patients: the pregnant, the elderly, and the young

Not all patients can be imaged the same way, particularly pregnant patients, the elderly, and children, all of whom require a tailored approach. A session presented today aims to provide a practical, easy to follow, comprehensive and timely update about how to image each of these ‘special’ cases, focusing specifically on the emergency room.

Dr. Katarzyna Katulska, from the Department of General Radiology and Neuroradiology at the University of Medical Sciences in Poznan, Poland, said the elderly represent a constantly increasing population that give rise to clinical, organisational, qualitative, and ethical challenges. Their visits are more likely to be characterized by a higher level of urgency than their younger counterparts, involving atypical clinical presentation of illness, a high prevalence of cognitive disorders, and the presence of multiple comorbidities.

“Remember that these patients sometimes have problems with cognitive disorders, sometimes they can’t talk clearly,” she said in an interview. In addition, they often come to the emergency department by themselves without remembering all the medications they’re taking, which further complicates matters.

“We think some symptoms could be missed by the clinicians; these patients usually have problems with their hearts and lungs,” she said. A condition like pulmonary infammation could be missed, for instance.

During her presentation, she plans to show several cases involving the chest, abdomen, and brain. For instance, haematomas in the brain is very asymptomatic and not easily visible in the elderly because they may have problems with haemoglobin, it doesn’t present in the elderly in the same way it does in younger adult patients.

“The radiologist must be familiar with the main diagnostic findings that are useful to guide therapeutic decisions, and should consider the signs that aid in the differential diagnosis,” she emphasised.
CLINICAL CORNER

New treatments give hope to hearing impaired

Hearing loss can present many difficulties and obstacles to sufferers, and with ageing populations it’s set to become a major healthcare challenge. Many conditions such as congenital malformation of the inner ear or hypoplastic cochlear nerve can also lead to hearing loss, and sometimes deafness.

Fortunately, many new treatments are available to recover hearing both partially and completely. Imaging plays an increasingly important role in therapy planning and follow-up, and there is hope on the research front, experts will show today during a dedicated Special Focus session.

The prevalence of auditory problems in the Western world has doubled over the past 30 years. It is estimated that between 15% and 17% of the population will suffer hearing loss due to ageing or congenital malformation, but also bad habits, according to Agnieszka Trojanowska, a radiologist at Lublin University Medical School, Poland, who will chair the session.

“We start to see young adults in their early 30s with sensorineural hearing loss or other related problems because of high frequency noise, which is typical for listening to music. Twenty years ago, such a condition was linked with working in fabrics or on the street. But the good news is that even if you use your iPod a lot, the degree of hearing loss is light to moderate, so this is not something that will considerably affect your life,” she said.

To treat hearing loss, it is important to diagnose the type of condition affecting the patient. Physicians need to differentiate between two different kinds of hearing loss: sensorineural hearing loss (SNHL) and conductive hearing loss (CHL). Medical treatment and imaging for these two types are very different.

In CHL, sound cannot be transmitted through the middle ear. There are many things that obstruct the sound wave and the obstruction is located either in the external or middle ear. This can be removed or treated; these patients usually undergo a CT study and, in 95% of cases, radiologists are able to find the cause of CHL, Trojanowska explained.

“This is really great because we can help to diagnose these patients; there are absolutely no unsolved causes in CHL, everything is really simple. If we have enough experience in diagnosing temporal lobe disorders and have a good examination from the technical point of view, we can discover the cause of CHL,” she said.

Usually the reason is the presence of a post-inflamatory lesion in the middle ear, for instance chronic otitis media or inflammation of the eustachian tube. However, CHL is far more challenging to characterise because the cause lies deep inside the internal ear, a complex region to show on film.

“The inner ear, the cochlear nerve itself. It is much harder to image, and in most of the cases we need high-resolution MRI. We have to image the whole internal ear and, unfortunately, the whole auditory pathway, with the brain stem, the cochlear nucleus and the cerebellum. This means that there can be many reasons for SNHL,” Trojanowska said.

Once the cause has been identified, surgeons can initiate treatment directly. There are a range of options to help rehabilitate patients.

Removal of disease and sound amplification are not always sufficient, in particular in SNHL. This has inspired the development of electronic devices or implants, such as bone-anchored hearing aids, middle ear implants, cochlear implants and auditory brain stem implants, which can enhance bone conduction, provide mechanical stimulation of the ossicular chain or stimulate the auditory nerve or auditory nucleus directly.

Some of these treatments have been used for decades, and their success in curing auditory loss, and even deafness, has led to expanding the number of patients and indications. For instance, auditory brainstem implants (ABIs) were first used in patients with neurofibromatosis 2. Nowadays, children with severe congenital malformations of the inner ear also benefit from such treatments.

These developments have implications for the work of the radiologist. MRI can help to characterise the patient before making the treatment plan, the choice of side and surgery.

“In the postoperative phase, radiologists have to image the whole internal ear and, unfortunately, the whole auditory pathway, with the brain stem, the cochlear nucleus and the cerebellum. Some imaging findings will influence the treatment plan, the choice of side of the operation, the choice of device, etc. Of course, imaging findings have to be combined with clinical findings, audiological findings, and cognitive status of the patient before making final decisions,” she said.

In the postoperative phase, radiologists might be asked to evaluate patients who do not present with the desired outcome. Again, radiologists need to be acquainted with the materials and devices used to be able to recognise normal postoperative images as well as complications.

In CHL, MRI is also useful to evaluate adults who are candidates for cochlear implantation, by helping to find the cause of hearing loss — for instance dissection of the vertebral artery or small infarction in the cerebellum.

After implantation, if the implant is not working, MRI can help to determine the cause, which may be an ingrowth or displacement or anatomical changes in the cochlea or surrounding structures.

Ms Grzegorz Chajc, Department of Radiology, Medical University of Bialystok, Poland, who will present the session.

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By Mélanie Rouger
“The radiologist is now the partner of the ENT surgeon, helping him or her to decide upon the type of the implantation and the qualification for the implant. So it is like a multidisciplinary team, and there are many ways we can help these patients,” Trojanowska said.

In most cases, if the nerve is present, patients can receive hearing with an implant. Surgeons are also starting to use bilateral implants in order to have stereotactic hearing, a significant improvement in the quality of life.

Trojanowska also wants to address sudden hearing loss, an increasingly frequent condition. “We as society have to take into consideration the fact that there is a greater percentage of sudden hearing loss, which is mainly caused by infarctions and haemorrhages of the brain. Our population is ageing, so the percentage of brain infarct is increasing,” she said.

Next to diagnostics and individual treatment planning, imaging also plays an important role in research on auditory rehabilitation. Verheul will show in her presentation how useful imaging has become in planning the outcome of novel treatments, by evaluating implant designs, giving feedback on surgical techniques and correlating intended results with outcomes.

She will explain how imaging of cochlear implants (CI) helps to show the large variability in outcome in this patient group. “We have been able to reach a better understanding of the reasons for that variability, particularly regarding the cochlear implant. The implant has several contacts, and every contact stimulates several neurons of specific frequency,” she said.

The implant has several contacts, and every contact stimulates several neurons of specific frequency. We’ve found that the variability, particularly regarding the cochlear implant, is due to the large variability in outcome in this patient group. “We have been able to reach a better understanding of the reasons for that variability, particularly regarding the cochlear implant. The implant has several contacts, and every contact stimulates several neurons of specific frequency,” she said.

The implant has several contacts, and every contact stimulates several neurons of specific frequency. We’ve found that the variability, particularly regarding the cochlear implant, is due to three factors: 1) the variability of the cochlea, 2) the variability of the neural response, and 3) the variability of the surgical implantation.

For the first two factors, we have developed a novel model to estimate the probability of achieving a successful hearing outcome. The model takes into account the characteristics of the cochlea, the neural response, and the surgical implantation. We have shown that the model can accurately predict the success rate of hearing restoration.

For the third factor, we have developed a new imaging technique to estimate the volume of the cochlea. We have found that the volume of the cochlea is a good predictor of the success rate of hearing restoration. The larger the volume of the cochlea, the higher the success rate of hearing restoration.

We believe that this model can help to improve the results of cochlear implants and provide a better understanding of the factors that influence hearing outcome.
### BACKGROUND INFORMATION

The importance of regional lymph node enlargement in various disease conditions was recognised several centuries ago. Regional lymphadenopathy most frequently affects the head and neck, and local infectious processes and malignant causes like lymphomas and metastasis from malignant tumours account for a majority of cases. As benign and malignant cervical lymph nodes differ vastly with regard to treatment, establishing the correct diagnosis of the cause of cervical lymphadenopathy is of paramount importance. Imaging diagnosis of cervical lymph node metastasis may be difficult because of overlap in size and morphologic features of benign and malignant nodes. Gray-scale ultrasonography and Doppler studies have been routinely used in the evaluation of lymph nodes; while ultrasonographic elastography is a relatively new technique that may improve differentiation of benign and malignant lymph nodes based on differences in their elastic properties.

### THE STUDY

The aim of our study was to evaluate the diagnostic performance of ultrasonographic elastography in differentiating benign and malignant cervical lymph nodes. We examined patients with cervical lymphadenopathy referred for image-guided FNAC/biopsy, using a USM V10 ultrasound system with a multifrequency linear probe. Patients who had undergone a previous intervention were excluded from the study. Each patient’s single most representative lymph node was chosen for the study. Elastograms were obtained after using uniform free-hand compression. A five-point colour code pattern was used to evaluate the elastograms. Pattern one represented absent/very few intranodal hard areas, patterns two and three represented ≥15% and ≥40% hard areas, respectively. Lymph nodes with peripheral rims of hard areas and central soft areas were included in pattern four, while completely hard nodes represented pattern five. Patterns of lymph node and surrounding muscle were measured, and the muscle-to-lymph-node ratio (strain index) was calculated. Subsequently, the final diagnosis was established using FNAC/surgical biopsy. Imaging results were compared with the final diagnosis. Appropriately statistical analysis was done to see sensitivity, specificity, positive and negative predictive values for the diagnosis of malignant nodes. Appropriate cut-off values were calculated using ROC curve analysis.

Analysing our results, we found that 45% (n=18) of the examined nodes were malignant on histopathological examination. Using appropriate cut-off values (colour code pattern three and above, strain index values ≥2.50 indicative of malignancy), both elastography parameters showed excellent sensitivity (100%), with specificity values of 83.9% (colour code pattern) and 83.5% (strain index) in diagnosing malignant lymph nodes. Positive and negative predictive values for the studies were 81.8% and 100% for colour code patterns, 94.7% and 100% for strain index values. In conclusion, with its high sensitivity, elastography may serve as a useful tool in the ultrasonographic detection of malignant cervical lymph nodes.

### Scientific Session: Head and Neck

**Wednesday, March 4, 10:30–12:00, Room MB1**

**SS 208 Advanced Imaging in salivary glands and lymph nodes, including elastography**

**Modestors:** S.J. Golding, Oxford/UK
L. Grzycka-Kowalczyk, Lodz/PL

- Role of ultrasonographic elastography in differentiating benign and malignant cervical lymph nodes

**P.A.R.P. Sathiadoss, S. Narayanasamy, S. Wabah, E. Ullah, I. Ahmad, Aligarh Muslim University, Aligarh, India**

**EPIPHANY is a multicentre, observational study of consecutive patients with cancer-related PE (acute symptomatic and incidentally-detected) recruited from daily clinical practice. All patients were routinely anticoagulated according to current international guidelines and followed up a minimum of three months after the PE. The main objective of the EPIPHANY study was to describe the clinical and radiological characteristics associated with short-term outcomes in cancer patients with PE.**

**The aim of the present report was to assess the consistence of additional radiological findings (ARF) including other comorbidities and cancer-related conditions with the diagnosis of PE. Furthermore, we evaluated the correlation between baseline characteristics at PE diagnosis (presence of PE symptoms, cancer progression, and European Cooperative Group [EUGOG] performance status [PS]) and outcomes (short term [≤15 days] complications and 90-day mortality rate) according to the presence of ARF.**

From January 2013 to June 2014, 218 consecutive cancer patients with newly-diagnosed PE were evaluated (30.3% acute symptomatic events diagnosed on CT pulmonary angiography and 69.7% incidental PE diagnosed on scheduled conventional CT scans). ARF were observed in 53% of cases. Cancer-related ARF included pleural effusions 37%, tumour nodules 51%, lung abscesses 22%, paracardial effusions 7%, carcinomatous lymphangiectasis 4%, and radiation pneumonitis 2%. In contrast, ARF unrelated to cancer were emphysema 27%, pneumonia 11%, atherosclerotic 7%, and lung fibrosis 5%. In 36% of patients cancer progression was confirmed at the time of PE diagnosis, 71% of whom had cancer-related ARF (OR 10.9, 95% CI 3.7–31.5, p<0.001). The inclusion of ARF in specific PE prognostic scales can enhance management in these patients.

**Dr. David Calvo Temprano**

*World University of the Himalayas Central de Astrantes (Sección Radioclinicología) and Associate Professor at the University of Oviedo, Spain.*

**Scientific Session: Oncologic Imaging**

**Wednesday, March 4, 10:30–12:00, Room FI1**

**SS 216 Thoracic oncology**

**Moderators:** I.E. Turun, Moscow/RU
A. Vileplana-Servis/ES

- Prognostic value of additional findings in CT scans of patients with cancer-related pulmonary embolism

**Dr. David Calvo Temprano**

*Professor at the University of Oviedo, Spain.*

**EPIPHANY**

- Dr. David Calvo Temprano
- P. Jiménez-Fonseca
- M. Soler
- M. Benagé
- S. Marcés
- S. Hernandez
- D. Martinez de la Haza
- A. Carmona-Bayonas
- Vidal/ES
- Muntia/ES
- Barcelona/ES
- Madrid/ES

**EPIPHANY**

**Coronal reconstruction of CT pulmonary angiography that shows acute bilateral embolism in a patient with a tumour in the right lower lobe.**

**Pulmonary embolism (PE) is a leading cause of death and morbidity in the cancer population. Cancer is known as an independent predictor of mortality in patients with acute symptomatic PE. However, the clinical spectrum of PE ranges from life-threatening events to asymptomatic radiological findings on routine (scheduled) CT scans performed to evaluate cancer. To our knowledge, the relationship between mortality and PE severity on the one hand and cancer-related complications on the other has not been fully elucidated.**

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A. Vileplana-Servis/ES

- Prognostic value of additional findings in CT scans of patients with cancer-related pulmonary embolism: data from 208 consecutive cancer patients

**EPIPHANY**

- D. Calvo Temprano
- J. Plasencia
- P. Jiménez-Fonseca
- M. Soler
- M. Benagé
- S. Marcés
- S. Hernandez
- D. Martinez de la Haza
- A. Carmona-Bayonas
- Vidal/ES
- Muntia/ES
- Barcelona/ES
- Madrid/ES
Major market shake-up adds new impetus to global ultrasound business

Shocked waves were sent through the entire medical imaging sector towards the end of last year, when Carestream – already well known internationally as a provider of PACS and digital radiography solutions – announced it had chosen ultrasound as the modality in which to develop a new presence. Some observers thought a company without any history of innovation within a particular technology would be at a considerable disadvantage, but this may turn out to be a positive move.

“Having a clean slate allowed us to find out where there are gaps and unmet needs in the market-place,” said Helen Titus, worldwide marketing director for Carestream’s ultrasound business. “We don’t have the burden of ensuring that our technology is backward compatible with existing products. With no legacy products, we were free to think out of the box and try something new. That meant listening to the customer to drive those ideas.”

She believes the biggest difference between her company’s system and those of its competitors is the unit’s distinctive control panel.

“Users want to be able to configure the unit in the way that they want to operate it. Our systems have hardware in the form of knobs and dials that you can configure yourself. If the hospital wants to give control to the individual user, then our touch screen allows them to put the features and functions where they are most comfortable,” Titus commented.

For the primary controls such as the freeze button or the track ball, used by sonographers for up to 80 or 90% of procedure time, there are etched marks in the glass and so the user will be able to feel where they are on the panel without looking up from the display. The concept of reconfiguring the controls to suit individual preferences is one that is already familiar to anybody who is a regular user of a smartphone, she explains.

In contrast, Supersonic Imagine has focused fully on the ultrasound market since it was established in the French city of Aix-en-Provence by Jacques Souquet in 2009. A decade later, the company is demonstrating two new ultrasound probes for specialised clinical applications at ECR 2015. The first is a high-frequency linear probe, shaped rather like a hockey stick, which appropriately will be used mainly in investigations of sporting injuries.

“Data from France have shown a 15 per cent year growth in spend-
**Scanning and war: utility of FAST and CT in the assessment of battlefield abdominal trauma**

BY MAX MARSDEN

Being a doctor in the British Army I will present, on behalf of all of the authors, the most significant findings of a recent study jointly conducted between military surgeons and radiologists. The study was conducted at the Joint Force, Role 3, Medical Treatment Facility at Camp Bastion, Afghanistan.

The study represents the most contemporary data on management and decision making in the multiple trauma setting and should pique the interest of those in the field of emergency radiology.

Five months of consecutive casualties treated during 2011, a period of intense military operational tempo. The predominant mechanism of injury are improvised explosive device (IED) blasts and gunshot wounds. Using data from the UK Joint Theatre Trauma Registry (JTTR), radiology reports and prospectively gathered surgical data over 450 casualties were identified as potentially having an abdominal injury. 85% underwent focused assessment with sonography for trauma (FAST) and 96% abdominal computed tomography (CT), ultimately 155 (32%) had abdominal injuries. Using these data sources, the diagnostic accuracy for detection of intra-abdominal injury was 89%.

Combustion injuries are often complex, involving multiple anatomical regions, and may be accompanied by extreme physiological instability. This study re-demonstrates the recognised low sensitivity with FAST and suggests that a role for FAST might be to assist for triage for CT. Its continued utilisation for the management of combat casualties in a conflict setting is recommended, on a case understanding of its limitations and only as an adjunct to the multifaceted and multidisciplinary resuscitative efforts.

Included in the presentation will be a description of the scanning protocol which utilises a biphase contrast injection with the patient’s arms positioned in the rings. In this series the negative therapeutic laparotomy (NTL) rate was 4%. This low NTL rate challenges conventional military surgical doctrine about avoiding selective non-operative management of combat abdominal injury when sophisticated imaging capture and analysis is available. Since CT facilitates some battlefield injuries to be managed without laparotomy, the patient is spared the burdens of surgery.

**Technical Exhibition Opening Hours**

- Thursday, March 5 to Saturday, March 7 10:00–17:00
- Sunday, March 8 10:00–16:00

**Scientific Session: Emergency Radiology**

**Wednesday, March 4, 14:00–15:30, Room MB 6**

- **ECR2015MB6-150** SS 377 Update on imaging approach in trauma patients
  - Meinders, J.B.; Dornemann, O.M.; Nieuwlaat, L.M.; Langholz, Ch.; Nagele, R.O.

- **Scanning and war: utility of FAST and CT in the assessment of battlefield abdominal trauma**
  - M. Smith, D.N. Nowaczyk, M.E.R. Marsden, M. Ballard, D.M. Bowley, Birmingham/GB

**The study supports the argument that FAST and CT contribute to triage, guide surgical management, and reduce nontherapeutic laparotomy.**

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EIBIR services help members make most of Horizon 2020

From proposal preparation to project management, EIBIR provides support every step of the way.

As a service organization for scientists dedicated to the advancement of imaging research, the European Institute for Biomedical Imaging Research (EIBIR) is pleased to offer support in preparing project proposals for submission to the European Commission (EC) various funding calls under the Horizon 2020 framework. If you are looking for support in proposal preparation or managing your project, EIBIR can help you.

There are a number of unique advantages to having EIBIR contribute to your proposal preparation. In a first step, the Scientific Advisory Board reviews proposals requesting EIBIR support and also provides critical feedback on the project idea. Upon approval by the Scientific Advisory Board, EIBIR can assist in consortia formation; we can help identify suitable academic, industry or SME partners for your project.

Most importantly, EIBIR can provide expert support in preparing your proposal. We provide call-specific templates with detailed descriptions and partner input requirements. EIBIR offers advice on the management of the project and on work package structures, and can complete the project management and dissemination sections.

Because of EIBIR’s well-established contacts with the European Commission and Austrian National Contact Points, additional valuable feedback on your proposal can be provided.

In addition, EIBIR also offers financial management support during proposal preparation and is able to provide assistance in drafting and finalizing the budget.

All aspects of proposal preparation are done by a team of experienced scientific writers with knowledge of the European Commission requirements and the European research landscape.

Once the proposal has been finalized, EIBIR will take responsibility for the submission of the document via the EC’s online system (ECAS). EIBIR Active Members are able to take advantage of EIBIR’s proposal preparation services for Horizon 2020 and free of charge. Regular and associate members, as well as non-members can also utilize the same services for a reasonable fee based on the number of project beneficiaries.

Upon the successful evaluation of your proposal, EIBIR will guide you through all phases of contract negotiation and project management. During the course of the project, EIBIR project management services include:

- Coordinating reporting process and ensuring its timeliness
- Contractual management
- Financial management
- Day-to-day administrative tasks
- Meeting organization, either face-to-face or electronically

Additionally, EIBIR can assume responsibilities for dissemination and exploitation aspects of your project. EIBIR has an established, extensive network and through the broad landscape of our Network Members, Shareholder Organisations, Joint Initiatives, Industry Partners and media contacts, your research will be regularly and widely communicated.

EIBIR happily provides a tailored communication and dissemination strategy, including:

- Writing & dissemination of promotional material
- Corporate identity and website design
- Representation at scientific meetings
- Organisation of outreach events, such as workshops, symposia or summer schools

Navigating the rules and regulations of Horizon 2020 while simultaneously carrying out an innovative, first-rate research project with across Europe can be difficult, and even more so when deadlines are looming. By assuming the coordinating responsibility, report writing and day-to-day management, EIBIR relieves you of the administrative burden during proposal preparation, allowing you to focus on the scientific aspects of the proposal instead. You can trust us to know when to make minor changes without having to trouble you, but also to know when changes require your consultation.

For more details about EIBIR services, please visit www.eibir.org or visit us at our booth in the entrance hall to discuss your project idea.

EIBIR Session

Thursday, March 5, 14:00–15:30, Room L1

The complexity of personalised breast care

- Chairman’s introduction
- Parallel lines: personalized treatment decisions: how to reason using multi-modal, multi-disciplinary data
  - R.M. Mann, Nijmegen/NL

EIBIR Session

Friday, March 6, 10:30–12:00, Room L1

What’s new in biomedical imaging research: an update of EIBIR activities

- Chairman’s introduction
- Presentation from the European Commission on Horizon 2020
  - A.S. Costeaux; Brussels/BE
- EIBIR Joint Initiative for Paediatric Radiology
  - K. Rosendal; Bergen/NC
- EIBIR Joint Initiative for Biomedical Image Analysis Platform
  - W. Nielsen; Rotterdam/NL
- EIBIR Joint Initiative for Image Guided Radiotherapy
  - V. Valentin; Rome/IT
- EIBIR Joint Initiative for Euro-Bioluminescence
  - S. Aime; Turin/IT

EIBIR Session

Friday, March 6, 10:30–12:30, Room L1

MITIGATE consortium: state of the art imaging and therapy in GIST

Chairmen: S.D. Schindhelm; Mannheim/DE
I. Virginili; Insubria/IT

- Selective internal radiotherapy in GIST patients
  - S. Dehi; Mannheim/DE
- Multimodal imaging in GIST
  - D. Longo; Torino/IT
- Principle of X-Nucler MR imaging: what the radiologist should know
  - L. Schad; Mannheim/DE
What does the future hold for premium ultrasound systems in a cost sensitive market?

Growth in point-of-care applications, workhorse solutions and cost efficiency dominate trends in the ultrasound market. However, premium systems, those sold for over €100,000, still have a key place in the market. Advances in technology mean that these systems now offer image quality and clinical outcomes to rival the more advanced solutions of x-ray, MRI and CT. However, in an increasingly cost sensitive market what does the future hold for premium ultrasound systems?

Over the past three years, the ultrasound market has become increasingly segmented. Over the distinct clinical applications now exist in the market and new technology developments are clearly focused on individual applications. With much discussion on improving cost efficiencies, the premium segment can be overlooked, but the segment is still of great importance in many hospitals. A key trend in the last three years has been the migration of advanced ultrasound features down to lower price brackets. Technologies such as elastography, matrix transducers and fusion technology remain firmly in the premium category and have the ability to significantly improve clinical outcomes. However, this technology comes at a price.

Despite concerns that these features are less attractive to purchasers in an increasingly cost sensitive market, developments in 2014 still saw a focus on advanced features signalling their importance in the global market. Elastography shows promise for improving clinical outcomes in numerous applications. The technology has seen strong investment over the last 18 months as suppliers strived to develop a reproducible methodology. Whilst advances have been made the technology still requires further refining for widespread use. Nevertheless, elastography has been shown to improve clinical outcomes in obstetrics and gynaecology (OB/GYN), breast imaging and imaging of the liver. In OB/GYN interest is owed to the benefits of assessing the risk of preterm labour and imaging of the cervix. In addition, this technology holds promise for improved breast cancer screening in dense breast tissue and the ability to type cancer. Lastly, the increasing incidence of liver disease has seen increased use of elastography in diagnosis. A number of manufacturers now offer advanced systems with elastography including GE Healthcare, Philips Healthcare, Toshiba Medical Systems, Hitachi-Aloka and Siemens Healthcare.

The high cost of matrix transducers means they are typically found on premium systems and are most commonly used in cardiology applications. Matrix transducers provide improved imaging in transoesophageal echocardiogram (TEE) and 3D imaging. The increasing specificity in newer applications has provided a new avenue for this technology specifically in its use in interventional cardiology. The use of ultrasound in interventional procedures significantly improves workflow, wellbeing of the patient and helps reduce cost. The high image resolution from the use of matrix transducers is projected to impact this market as ultrasound is used for more advanced and complicated interventional procedures. Fusion ultrasound systems are also gaining interest. The use of ultrasound in conjunction with MRI and CT images improves diagnostic outcomes. Furthermore, growing interest in minimally invasive procedures has resulted in strong growth in the interventional ultrasound market. Advances in new software and connectivity to advanced visualization tools have streamlined fusion technology for radiologist’s further driving adoption. This technology is projected to be one of the most important advances in premium ultrasound equipment over the next five years.

Despite the high cost of premium ultrasound systems the advanced features in these systems are not only important for some traditional applications such as OB/GYN and cardiology but perhaps more importantly for the newer applications of breast imaging, interventional cardiology and internal medicine. Commoditization is starting to occur in the core of the ultrasound market with many traditional specialties using mid-range and high-end systems as a viable standard in many disciplines. The premium segment is predicted to lead innovation not only in the ultrasound market but in the overall medical imaging market. As cost is a key factor in many medical imaging markets the increased price pressure may actually act as a positive for the premium ultrasound market, increasing interest in lower-cost imaging modalities and driving innovation.

Every congress leaves a carbon footprint. As shown in a recent publication from the Austrian Convention Bureau, the average congress participant uses 121 litres of water, produces 3.5 kg of residual waste, uses 5 kg of paper and dissipates 1.6 kg of CO₂ per day.

The ESR aims to counteract this trend without compromising the ECR’s quality. As you may already know, ECR 2014 was awarded the Austrian EcoLabel (Österreichisches Umweltzeichen), which made our meeting the largest officially certified green congress in Europe. We are very much aware that it will take a lot more effort, and maybe even compromises, to achieve a sustainable Green Meeting and in 2015, our aim is to build on what we have achieved so far.

This year, we have opted for a new lunch bag for our lunchtime symposia, which is produced by an Ethiopian company, based in Addis Ababa, entirely from natural materials. The official congress bag this year is made from recycled PET-bottles and we have increased the number of waste bins, in order to better manage the large amounts of waste that are generated by 20,000 visitors.

To cut down even further on waste paper, we have drastically reduced the size of the printed Final Programme for the congress. A much slimmer programme, containing a comprehensive overview of the congress, will be inserted into every congress bag, replacing the 400-page volume of the past.

In terms of onsite contractors, two new catering partners have been brought on board this year, with a special focus on environmentally friendly packaging and fresh and sustainable cuisine.

As in previous years, we are also working together with an Austrian NGO called: Jugged am Werk, which provides disabled people with work opportunities, as part of our social sustainability philosophy.

Our efforts to make the ECR as green as possible will continue, and we hope all ECR 2015 participants will do their part to help us achieve our goal – together we can make the difference.

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**TECHNOLOGY FOCUS**

**Musculoskeletal structure changes evaluated by ultrasound in elderly population subjected to a physical activity programme**

Population ageing is one of the most significant trends of the century. It occurs worldwide, mainly in developed countries, but also in emerging countries and underdeveloped countries. The increase in life expectancy and the low birth rate represent some of the major causes of this phenomenon. Nowadays, this age group is a social category that should not be ignored.

Aging is a continuous process that gradually causes structural and functional changes in the body. The aging process in an inactive population has contributed to healthcare cost increases, including medical imaging examinations.

The impact of aging effects on the population’s quality of life has been studied to evaluate the health of the elderly and the implementation of strategies and intervention programmes, in order to delay or decrease such effects. According to the World Health Organisation regular physical activity programmes must be implemented in order to reduce the ageing effects, providing a healthier lifestyle. According to the literature, physical activity in the elderly population has physical, functional and physiological benefits, and it helps prevent diseases resulting from the aging process.

Several changes occur in the body during the aging process, especially in the musculoskeletal system. One of the main changes that occur at this level is sarcopenia. This loss of mass, strength and quality of skeletal muscle causes functional consequences in gait and balance, increasing the risk of falling and loss of physical independence, as well as an increased risk of chronic diseases such as diabetes and osteoporosis. Changes in muscle architecture and loss of stiffness in the tendons and ligaments are also changes that can appear. The population should undergo examinations to evaluate and follow up on the aging process and muscle development. Ultrasound is the gold standard method for evaluating the musculoskeletal system in sedentary and active populations, comparing the development and improvement of muscles and joints.

Ultrasound as a diagnostic method has many advantages: it is non-invasive, low cost, does not use ionising radiation and enables the dynamic and bilateral study of the structures. And it also allows a musculoskeletal evaluation to identify morphological changes in muscles and tendons caused by aging effects and physical activity.

Over two months a small group of elderly people was included in a physical activity programme. Before and after the implementation, a group of evaluations was made to evaluate the quality of life (using WHODQOL-Bref questionnaire), individual physical fitness (using GQALM protocol) and upper and lower limb muscles and tendons (using 7-10 MHz ultrasound).

In this complete evaluation, which focused on three main areas, ultra sound proved to be a useful tool for muscular and tendinous evaluation by detecting changes in musculoskeletal disorders in the elderly, after physical activity. This examination must be performed during the aging process in order to maintain and promote good health.

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**SCIENTIFIC SESSION: RADIOGRAPHERS**

**Wednesday, March 4, 14:00–15:30, Room K**

**#ECR2015K #SS214**

**Musculoskeletal radiography**

Moderators: A.J. Grainger; Leeds/UK
V. Syrgiamiotis; Athens/GR

Musculoskeletal structure changes evaluated by ultrasound in elderly population submitted to a physical activity programme.

R. Santos, A. Amaral; Coimbra/PT

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**SCIENTIFIC SESSION: COMPUTER APPLICATIONS**

**Wednesday, March 4, 14:00–15:30, Room Z**

**#ECR2015Z #SS305**

**Computer-aided diagnostic methods for dementias**

Moderators: A. Alberich-Bayarri; Valencia/ES
M. de Bruijne; Rotterdam/NL

Dementia diagnosis: the future: can computers take over?

Details of a large-scale study comparing 29 novel algorithms based on structural MRI will be presented today.

By Esther E. Bron

Diagnose dementia automatically using an MRI scan? It is possible, but not yet used in clinical practice. In the last few years, many computer-aided diagnosis methods have been developed for Alzheimer’s disease and mild cognitive impairment (MCI). These methods can make the diagnosis in an automated manner using machine learning and other multi-variate data-analysis techniques. These techniques train a model to categorise groups such as Alzheimer’s disease patients, MCI patients and healthy controls. The models can be trained with different types of neuroimaging data, for example structural MRI. From structural MRI data, biomarkers can be derived that measure the level of brain atrophy and thus serve as an indicator of dementia. Such structural MRI biomarkers include brain volume, cortical thickness, brain morphometry and regional shapes.

Using structural MRI biomarkers, computer-aided diagnosis methods for dementia have achieved very promising results. Despite these good results, the methods are not yet used in clinical practice. One problem is that it is difficult to compare these methods, as they are often evaluated in different ways using different data sets. It is also not clear what the performance on clinical data would be, as the methods are generally trained and evaluated with research data.

Because we want to take a step towards the clinical implementation of methods for computer-aided diagnosis of dementia, we initiated this large-scale study. This study the CADDementia Challenge, aimed to objectively compare such computer-aided diagnostic methods. Our aim was to evaluate how well these methods can reproduce clinical diagnoses, distinguishing between patients with Alzheimer’s disease, MCI and healthy controls. This evaluation was performed using a multi-centre and multiclinical clinically representative data set of 36 structural MRI scans. Via our web-based framework, 12 international research teams uploaded a total of 29 methods. These methods used different types of biomarkers and models to make a diagnosis for the supplied data set. The methods were trained using a small training set and supplemented with data from other sources (e.g. the Alzheimer’s Disease Neuroimaging Initiative, the Australian Imaging Biomarkers and the Lifestyle Flagship Study of Ageing).

In this study, we show that the methods achieved their best performance when they used voxel-based morphometry or a combination of biomarkers that included volume, cortical thickness, shape and intensity. Although automated dementia diagnosis is not yet clinically applied, we believe that large-scale public validation studies, such as this work, are an important step towards the introduction of high-potential diagnostic methods into clinical practice, thereby helping to improve early and accurate diagnosis in the future.

The evaluation framework remains open for new diagnostic methods. Therefore, we invite all developers of methods for computer-aided dementia diagnosis to visit our website caddementia-grand-challenge.org and contribute to this study.

Interested in the results? Please visit our presentation today at 14:00 in Room Z.

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**BY RUTE SANTOS**

**BY ESTHER E. BRON**

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**3D visualisation of a cognitively normal brain from a structural MRI scan (Provided by Esther E. Bron).**
Free live streaming spreads ECR knowledge worldwide

Radiological congresses are about learning and meeting peers. It has been like this from the very start – since 1900, when 150 physicians, scientists, inventors, and exhibitors met at the first annual meeting of the American Roentgen Ray Society in New York City. ECR has been following these footsteps since the first congress in 1967. While radiologists have been making an effort to talk, listen and learn for more than a century, their ways have changed dramatically.

The last decades have seen a rapid and continuing increase in knowledge (an IBM report published in 2006 predicts a doubling of knowledge every 12 hours). With the rise of the Internet, information has become independent of time and location. Theoretically, everyone can learn anything, anywhere, within hours a day and 365 days a year.

The ECR’s video streaming service ECR Live embodies this kind of knowledge retrieval. The virtual meeting brings the ECR’s latest advances to radiologists in every corner of the world. “Digital technologies already are a part of medical education, but their impact will grow even more – we are just starting to see the shape of things to come,” said Eckhard Puchert, Head of Global Strategic Business Unit Radiology at Bayer HealthCare.

A couple of reasons speed up this development, such as rising cost, carbon footprints through air travel, and the increasing necessity of spending time efficiently. And of course, digital native radiology professionals are driving change.

MORE THAN 1,500 RADIOLOGY PRESENTATIONS

All this is enough motivation for Bayer to sponsor ECR Live for the second year in a row, together with Siemens Medical. With more than 1,500 presentations being broadcast live in 99 separate streams, ECR Live provides more content than any other medical conference using state-of-the-digital world technology.

The streaming site has steadily been building up a global audience. Still, easy access to a lot of information is only part of its success. Quality is its true core. “We want every radiologist with Internet access to be able to connect – expert knowledge should be available to all our customers, irrespective where they are located,” said Thomas Schmitt, Key Account Manager MRI Europe at Bayer Radiology Healthcare. His focus on solid, unbiased medical information is not completely altruistic, though. “Being a true partner in healthcare means sharing knowledge, says Thomas Schmitt. Congresses will last, and pharmaceutical companies like Bayer will remain strong supporters to the radiological community in the real world. Still, digital information in the virtual space has already created its own cosmos and Bayer strives to be a part of it, said Thomas Schmitt.

“The global media environment is changing so fast and the change is so interesting that we do not want to miss it.”

Free ECR live streaming online March 4–8 live.myESR.org Global Bayer Website www.radiology.bayer.com

BIRTHPLACE OF WILHELM CONRAD RÖNTGEN
DONATE SUPPORT CREATE

Help us renovate Röntgen’s birthplace
It just takes a smile!

Meet us at the ESR meets Germany booth in the foyer.

Behind the scenes at ‘ECR Live’ – the tech team oversees the streaming of the latest ECR sessions to radiologists all over the globe. (Photographer: Britta Radike)
The diagnosis of large-vessel vasculitis, such as giant-cell arteritis (GCA) and Takayasu arteritis (TA), is challenging, because the clinical symptoms and the corresponding biochemical tests are unspecific. Although history is considered the gold standard, temporal artery biopsies in patients with GCA are negative in up to 60% of cases, and arterial thickening and vessel wall thickening are not always performed in patients with TA. As the pulmonary arteries, the proximal subclavian arteries and carotid arteries are more commonly involved, the non-invasive imaging techniques play an crucial role in diagnosing the disease.

Until now, ultrasound and PET/CT were the imaging techniques most commonly used to image large-vessel vasculitis. However, both of these techniques have inherent disadvantages which can potentially be overcome by our novel 3D black-blood MRI technique. Although ultrasound is extremely useful in diagnosing arteries of the temporal and subclavian arteries, it is not able to visualise the intra-thoracic vessels. In contrast, FDG-PET/CT is well established in diagnosing thoracic-large-vessel vasculitis, and it can be used to monitor the therapeutic response in follow-up examinations. However, the repetitive radiation exposure limits the application of PET/CT in young patients and makes it inappropriate as a screening tool. Furthermore, increased arterial FDG uptake is frequently found in atherosclerotic disease, which can make it difficult to differentiate between a chronic stage of vasculitis and an atherosclerotic disease.

In contrast, black-blood MRI can visualise vessel wall thickening and contrast enhancement, non-invasively and radiation free. The 2D black-blood sequences have been successfully used to visualise vessel walls of the temporal, intracranial and intra-thoracic vessels. However, conventional 2D-BB sequences are time consuming and therefore provide limited coverage of the arteries of interest. In addition, it is challenging to combine the required pre-pulse black-blood saturation with a navigator. To overcome these limitations we have successfully developed a novel approach to high-resolution three-dimensional fat suppressed T2 sequence (VISTA: Volumetric Histologic TSE Acquisition) at 3T (Philips Ingenia) with peripheral pulse unit triggering. This sequence provides excellent flow suppression through variable flip-angle refocusing pulses, which allows the visualisation of vessel wall thickening and vessel wall contrast enhancement of the aorta, as well as the pulmonary and subclavian arteries, with good to excellent image quality in most cases and an effective scan time of 10 to 12 minutes for both the pre-contrast and post-contrast scan (see Figure 1). In addition, 3D reconstructions of the vessels can be obtained, which are extremely useful in differentiating the eccentric vessel wall thickening of atherosclerotic diseases from concentric wall thickening of arteritis-related vasculitis.

Figure 1: Figure A and B are coronal T1w-VISTA images of a 28-year-old female with Takayasu arteritis (TA). The arrow points to the pulmonary arteries which show intense vessel wall thickening and contrast uptake, indicative of active vasculitis (PA-pulmonary arteries). Figures C and D are reconstructed axial images of a 77-year-old female with giant-cell arteritis and inflammatory activity in the aorta and both subclavian arteries (SA - subclavian artery, AA - aortic arch).

The navigated 3D black-blood VISTA MRI technique can identify vessel wall inflammation of the thoracic vessels and might be an alternative to PET/CT, which is most frequently used to diagnose thoracic-large-vessel vasculitis. This might be particularly useful in young patients, for whom ionising radiation should be used with caution.
ESPR supports the next generation of paediatric radiologists

Founded in 1963 in France, the ESPR is one of the oldest subspecialty societies in Europe. Over the last few decades, the society has become an established European forum for individuals licensed to practise medicine, whose main area of work is paediatric imaging or image-guided intervention, or those individuals who have a particular interest in these areas.

One of the main challenges of the ESPR is to liaise with the various adult societies and share our experiences within similar anatomic fields, and to reap the mutual benefits of our various joint inputs and skills. In particular, adolescent and foetal imaging is managed within the ESPR, as there is a wealth of potential cross-fertilisation.

The Society’s Annual Meeting is known for its warm collegial atmosphere, where professionals from all over the world meet to discuss daily practice, scientific work, and new innovations within the field of paediatric radiology, both diagnostic and interventional. Indeed, in 2014, the ESPR had a total of 212 members, including associate members. According to its by-laws, the ESPR Board consists of three elected members (president, general secretary and treasurer) supported by three trustees/senior counsellors. Over the last few years, the ESPR has worked on enhancing its ties with other international radiological and paediatric organisations and global institutions, whose goals reflect those of the ESPR. Within Europe, the ESPR works closely with the ESR, which includes involvement in the preparation of the educational and scientific programme of the ECR and the establishment of a European Training Curriculum for Radiology. Furthermore, the ESPR has been cooperating and co-financing ESOR scholarships for many years, focusing on organising both basic and advanced imaging courses in areas of perceived need, including Eastern and Central European countries, as well as offering exchange programmes for paediatric imaging fellowships to centres of excellence within the EU.

ESPR’s global initiatives include its association with the World Federation of Paediatric Imaging (www.wfpiweb.org). This federation is attempting to address global barriers to optimal paediatric imaging and promoting education, best practice and appropriate imaging guidelines for the benefit of children worldwide, particularly those in developing and resource-poor areas.

Performing clinical research within paediatric radiology is a major challenge due to the comparatively low prevalence of most disease entities in children and the resulting small sample sizes. Therefore, there is a real need for multicentre projects, cooperation with global institutions and joint ventures with industry. Within the Society, research governance is led by the ESPR Research Committee and the European Excellence Network in Paediatric Radiology (EENPR). Their aim is to stimulate, drive forward and foster excellence within paediatric imaging-related research. To this end, the Research Committee is currently making an inventory of the present state of research initiatives within the ESPR, with the main goal of bringing experts within the field together and setting up coordination of the various research platforms and consortiums.

As an active shareholder of EIBIR, the ESPR is in the process of establishing a new paediatric imaging working group within EIBIR. The ESPR has established translational research as one of its key institutional aims. The ESPR has five working groups devoted to paediatric imaging and related fields through a blend of original papers and reviews. The journal ESOR, established by the ESPR in 1969, is a unique peer-reviewed journal dedicated solely to paediatric and foetal radiology with a growing impact factor (currently 1.651 as of 2013).

In 2015, the ESPR will continue to invest in the future of European and worldwide paediatric radiology through ongoing professionalisation of the society and further enhancement of ties with other international radiological and paediatric organisations, and last but not least, through continued support of education and research within the field of paediatric radiology.

Our main focus for achieving our educational goals will be our society’s Annual Meeting. The ESPR’s 38th Postgraduate Course and 52nd Annual Meeting (ESPR 2015) will be held in Graz, Austria on June 2–6, 2015. (c) Fotolito.com - yarchyk)

BY CATHERINE ADAMSRAM
On November 8, 1895, Wilhelm Conrad Röntgen accidentally discovered the X-ray, paving the way for the development of one of the most important disciplines in modern medicine. That’s what brought radiologists, radiographers and medical physicists, as well as scientists and medical professionals of all kinds together to celebrate 119 years later. November 8, 2014, saw the biggest and best International Day of Radiology (IDoR) celebrations yet, with more than 125 medical and scientific societies taking part.

While IDoR has become a major date on the calendar for radiologists and other medical professionals, it is also about reaching out to the general public and telling them about the discoveries that have made medical imaging possible, as well as informing them about how it can help patients. Each year, the three main organisers select a theme for IDoR and use it as a basis for a public information campaign. Brain imaging was chosen as the theme for 2014, as it coincided with the European Brain Council’s Year of the Brain.

**Social Media Channels Help Raise Visibility**

The European Society of Radiology (ESR), the Radiological Society of North America (RSNA) and the American College of Radiology (ACR) teamed up to produce a range of material to help the public better understand the role of medical imaging in the treatment of brain disorders. Together they launched Brainwatch: Detecting and diagnosing brain disease with imaging, a book that explains how and why radiologists image the brain. The ESR has also published its third book in the Story of Radiology series, which charts the development of medical imaging, covering the work of Marie Curie and the use of radiology during the First World War. The ESR also released a special website on November 8 that gives viewers a simple and fun overview of the history of brain imaging.

**ENORMOUS PRESENCE ON SOCIAL MEDIA CHANNELS**

Of course, getting the IDoR message out was crucial to ensuring that people can find and access all the information that was produced for the day. Radiologists, scientists, organisations and companies worked together to spread the word and put IDoR on everyone’s calendar. Every social media channel was put to use, and a Thunderclap page was set up to boost IDoR’s presence on Facebook and Twitter. With an initial goal of 100 supporters, the IDoR Thunderclap page received 22 supporters, who all tweeted and posted the same IDoR message, at the same time, on November 8. This led to a potential reach of more than 292,000 people. Overall, the social media campaign delivered the right knowledge to reach more than 1.3 million Twitter users. The ESR also sent out supporter packages to people around the world who celebrated with IDoR-themed parties. The packages included posters, badges, stickers and some novelty Röntgen cut-out boards. There was a great response, and the lucky 50 groups who received a package posted lots of fun photos from their IDoR parties on Facebook.

**Patient Organisations Crucial to Success**

Because patient care is the most important part of a radiologist’s job, patients also need to be involved in the IDoR celebrations. In 2014, the European Federation of Neurological Associations (EFNA) and the Stroke Alliance for Europe (SAFE) worked closely with the ESR to ensure that the brain imaging information campaign delivered the right knowledge to the right people.

“This year’s IDoR, focusing on brain imaging, should highlight that radiology also plays a role in the management of brain disorders – and it is not just the domain of neurology. IDoR should also provide an example of best practice in highlighting collaboration between health professionals and patient organisations,” said Donna Walsh, executive director of EFNA.

**Increasing International Collaboration and Awareness**

IDoR is an initiative of the ESR, the RSNA and the ACR, who chose November 8 to commemorate the day Wilhelm Conrad Röntgen discovered the X-ray in 1895. National societies have become very involved in IDoR, and as many as 30 European and seven Latin American societies appointed an expert to answer some frequently asked questions from patients about brain imaging. These interviews were published on the IDoR website and distributed by the participating societies.

“The International Day of Radiology is a unique opportunity to stress the relevance of our discipline in healthcare not only to the public and the patients, but also to the health policy decision makers. This year, we are particularly happy to welcome a larger number of national societies, whose contribution is crucial to the development of the initiatives,” said Professor Lorenzo Bonomo, ESR President.

With the full support and involvement from the International Society of Radiology as well as umbrella organisations from all continents, including the Asian Oceanian Society of Radiology, the Colegio Interamericano de Radiología, the Royal Australian and New Zealand College of Radiologists, and the Radiological Society of South Africa, which also represents neighbouring countries, IDoR looks set to become a regular event around the world. The theme for this year’s IDoR will be paediatric imaging and the celebrations will again take place on November 8.
It was again a very active year for the European Society of Cardiac Radiology (ESCR) as it had 1,164 members at the end of 2014. One reason for this continuing success is our close cooperation with national societies, especially the Bulgarian Society of Cardiovascular Radiology (BSCR), the Cardiovascular Section of the Dutch Society of Radiology, the French Society of Cardiovascular Imaging (ESFCI), the Latvian Association of Cardiovascular Radiology, the Society of Specialists in Cardiovascular Radiology (SSCR) in Russia, the Cardiac Imaging Section of the Swiss Society of Radiology (AG Herzen und Gefäßdiagnostik) with more than 500 members. Our new chairman of the Membership & Registry Committee, Alexis Jaquier, will also encourage other national societies to work with us. Therefore, the successful ESCR initiative of reduced membership fees for all members of national radiological societies or sub-societies/working groups of cardiovascular imaging will be continued.

At the Annual Congress in Paris in October 2014, a new Executive Committee under the presidency of Prof. Matthias Guterlet from Leipzig, Germany, was formed. The Executive Committee has been optimised by combining several positions and now consists of ten functions, with the Executive Committee having been optimised by combining several positions and now consists of ten functions, with the executive committee having been optimised by combining several positions and now consists of ten functions. One of the new executive committee members is the Cardiac Imaging Section of the Swiss Society of Radiology (AG Herzen und Gefäßdiagnostik) with more than 500 members. Our new chairman of the Membership & Registry Committee, Alexis Jaquier, will also encourage other national societies to work with us. Therefore, the successful ESCR initiative of reduced membership fees for all members of national radiological societies or sub-societies/working groups of cardiovascular imaging will be continued.

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COMMUNITY NEWS

Austrian national breast cancer detection programme: a review of the first year

On January 2012, the highly anticipated Austrian Breast Cancer Early Detection Program finally kicked off. This population-based screening programme was intended to be a seamless continuation of the successful Austrian tradition of opportunistic screening over the past 25 years. Based on referrals by gynaecologists and general practitioners and due to the robust infrastructure of radiology practices all over Austria, approximately 50–60% of the eligible female population received regular screening mammograms. Breast cancer mortality therefore has dropped considerably since 1995 in Austria according to WHO statistics.

The Breast Imaging Group of the Austrian Roentgen Society (ÖRG) believes that the relatively low attendance rate in mammography (i.e. only digital mammography, as well as radiographers (courses) and radiologists) and a minimum of 1,000 exams per radiologist per year. This Austrian programme is the first in the world to include breast ultrasound as an integral part of screening, which is performed by a radiologist in women with dense breast parenchyma (categories 3 and 4 according to ACR BI-RADS). Invitations were sent to women between 45-69 years of age. The ambitious goal of increasing the rate of women undergoing mammography in this age group, as well as attendance of first-comers, quickly reached a participation rate of 70%+ suffered major setbacks in the first year of screening. The number of mammography exams in Austria has dropped by an average of approximately 20% in some regions up to 40%. Sadly, less than one percent of those who attended mammography screening during 2012 were first-comers; an important target population that obviously has not been efficiently informed about the importance of attending this proven lifesaving examination. This was partly due to the lack of effective information given to the female population in invitations (sent out anonymously) as well as PR measures, but most importantly due to the fact that general practitioners and gynaecologists were no longer allowed to refer women to mammography screening examinations.

Our primary concern is that if the rapidly decreasing rate of mammography numbers in the target population continues then the long-term result will be an inevitable increase in the number of advanced stage breast cancers. The well-known fact is that the correlation between the rate of advanced cancers and the rate of breast cancer death in a given population is so close that the current therapeutic regimens are mostly effective when implemented in early stage breast cancers and less effective in advanced cancers.

To reach our goal of further decreasing breast cancer mortality in Austria, the attendance rate for regular mammography screening among women in the eligible age group has to be dramatically increased. This can be achieved by efficient and regular advertising to create awareness of the positive effects of screening, and most importantly, by allowing general practitioners and gynaecologists to refer women to, and remind women to participate in, regular mammography screening. Providing continuous regular training and further education for physicians (both in the diagnostic and therapeutic teams), and radiology technologists in order to provide high quality service is another important measure. Finally collection of histopathology and therapy data as well as continuous performance evaluation according to established European guidelines has to be implemented as soon as possible, in order to be able to determine the impact of the Austrian screening programme.

A prompt implementation of these measures should guarantee the long-term success of the Austrian Breast Cancer Early Detection Program.

More information about the Austrian Roentgen Society can be found at www.oeeg.at

The Association of Radiology of Bosnia and Herzegovina is an association that brings together radiology specialists and radiologists in Bosnia and Herzegovina, and now has approximately 218 members. It is an institutional member of the European Society of Radiology (ESR) and the International Society of Radiology (ISR). The neuroradiology section of the Association of Radiology of Bosnia and Herzegovina is also an institutional member of European Society of Neuroradiology (ESNR).

The Association is actively involved in the continuing education of its young members and the professional promotion of all radiologists. Due to the generation shift and the growing popularity of radiology as a very attractive and expanding medical field, interest in this medical branch is constantly growing and increasing the number of young specialists and residents. Five clinical centres around the country are involved in the permanent education of residents. The association is currently trying to emphasise to the competent authorities the importance of synchronising the current national curriculum for specialisation in radiology with European standards. Over the last couple of years the training system has improved, and from this year the duration of specialisation in diagnostic radiology will be five years. As with the rest of Europe, we are debating the issue of subspecialties, but only one subspecialty, interventional radiology, is officially recognised by the government. We are trying to encourage the Ministry of Health to recognise at least a few other subspecialties like interventional radiology, paediatric radiology and neuroradiology.

As radiology is one of the most expensive fields of medicine, we are trying to keep up to date with modern technology, and we have 15 MRI machines, less than 30 CT machines, and 1 PET/CT scanner in Bosnia and Herzegovina. Because of the very tough economic situation in the country unfortunately, we could not renew any equipment over the last year. All of our medical centres are making enormous efforts to implement PACS.

Over the past years we have had problems with the implementation of interventional procedures, mainly because of the high cost. The main goal of our Association is to establish interventional radiology as the part of the regular and daily routine, so that our patients can get full, high-quality treatment.

This year the Balkan Congress of Radiology will take place in Sarajevo from October 16 to 18, and it will give our members an opportunity to present their current professional and research papers.

The aim of the Association of Radiology of Bosnia and Herzegovina is to support and direct activities that strengthen the organisation, to influence competent authorities to renew equipment throughout Bosnia and Herzegovina, as we witness greater need for radiology examinations, and to raise the standards of radiology in BiH to those of the rest of Europe.

More information about the Association of Radiology of Bosnia and Herzegovina can be found at www.radiologija.ba

Bosnian radiologists aim for European standards

The next Balkan Congress of Radiology will take place in Sarajevo from October 16 to 18, 2015. (© Fotolia.com – moruyan)
Dutch societies merge radiology and nuclear medicine residency training

Radiology and nuclear medicine will soon become one specialty in the Netherlands: combined residency starts July 1, 2015

For the last few years the Dutch societies of radiology and nuclear medicine have been discussing ways to collaborate in view of the increasing frequency of hybrid imaging procedures. Initially the intention was to provide cross-over training for specialists from both parties in order to improve efficiency and level of service to clinical colleagues. After many discussions, the notion emerged that in the long run cross-over training alone would not be the answer; especially since the field of hybrid imaging is expected to expand considerably in the coming years.

The conclusion was that the future of medical imaging would be better served with one integrated medical imaging specialist, who is familiar with all imaging procedures in his or her subspecialty field of interest. Since merging specialist groups or clinical departments of radiology and nuclear medicine is complex, and depends on factors such as hospital management, financial constraints and culture of practice, it was decided to focus on the residency training, which has no immediate effects on practice patterns.

Numerous challenges had to be addressed; one of the first was the length of training. Both radiology and nuclear medicine in the Netherlands currently have a residency training length of five years. Our intention was for the combined residency to have a length of six years. However, the Dutch government did not permit this lengthening due to financial constraints and a political aim of reducing the length of training for all medical specialties to the minimum required by the European Union. Nevertheless, for both societies the importance of an integrated medical imaging specialty was considered so great that preference was given to a combined residency programme of five years, rather than keeping them separate.

The solution was found in a two-stage residency structure, with a common trunk of 2½ years primarily dedicated to general radiology, and a differentiation phase of 2½ years during which residents choose one or two subspecialty fields in which they gain additional experience. In both the common trunk and in the differentiation phase, the residency is organised along eight themes: cardiovascular, abdominal, musculo-skeletal, neuro- and head & neck, interventional, breast, and paediatric radiology, as well as nuclear medicine. These themes may also be chosen as differentiations; which differ in length: a differentiation can be 1½ years, one year or half a year long (see table). The differentiations of one year or half a year may be combined up to a maximum of 1½ years. At least one year of the differentiation phase is spent broadening experience in general radiology, in which special emphasis is placed on emergency radiology, frequent procedures and radiology for primary care.

A particular challenge was how to spread the nuclear medicine (NM) procedures over the various differentiations, especially since the frequency of NM procedures is lower than that of radiological procedures (approximately three percent of medical imaging procedures) are in nuclear medicine. Two considerations were relevant:

1. NM procedures should not be dispersed among all differentiations, but should only be performed by radiologists in fields in which the frequency of NM procedures is sufficiently high to maintain adequate expertise on an individual basis.
2. There should be a separate differentiation in nuclear medicine in order to preserve the specific expertise in radionuclides, pharmacokinetics, biomarkers, molecular imaging, nuclear physics, NM equipment, etc. It should also ensure that radiologists can perform nuclear therapies and provide service in areas of radiology in which subspecialists have no independent NM competence.

Apart from the NM differentiation, NM procedures were implemented at an independent competence level only in the following differentiations: cardiovascular, abdominal and musculoskeletal radiology. The more advanced and infrequent NM procedures will be performed by, or in collaboration with, the nuclear medicine physician or in the future, the nuclear radiologist (a radiologist who has completed a differentiation in nuclear medicine).

A further topic of discussion was the name of the new specialty. Initially the intention was to choose a new name which would reflect both specialties, such as: radiology and nuclear medicine, medical imaging, diagnostic and therapeutic imaging, etc. However, important considerations were that the name should be clear to both the medical profession and general public, and should be concise and in line with international usage. In the end consensus was reached to use radiology as the name for the new specialty, which essentially implies the entire field, namely the use of radiation to diagnose and treat patients.

The Dutch societies of radiology and nuclear medicine are proud to have reached this consensus and are convinced that the future of patient care will be better served by an integrated specialty in medical imaging.

Table. Length of training in various differentiations

<table>
<thead>
<tr>
<th>Differentiation</th>
<th>Length (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiothoracic radiology (incl. NM)</td>
<td>18</td>
</tr>
<tr>
<td>Abdominal radiology (incl. NM)</td>
<td>18</td>
</tr>
<tr>
<td>Interventional radiology</td>
<td>18</td>
</tr>
<tr>
<td>Nuclear medicine and molecular radiology</td>
<td>18</td>
</tr>
<tr>
<td>Neuro- and Head &amp; Neck radiology</td>
<td>12</td>
</tr>
<tr>
<td>Musculoskeletal radiology (incl. NM)</td>
<td>12</td>
</tr>
<tr>
<td>Breast radiology</td>
<td>6</td>
</tr>
<tr>
<td>Paediatric radiology</td>
<td>6</td>
</tr>
</tbody>
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BY JAN P.J. VAN SCHAIK AND ROEL J. BENNINK, ON BEHALF OF THE DUTCH SOCIETY OF NUCLEAR MEDICINE

Dr. Jan P.J. van Schaik from Utrecht, the Netherlands.

Dr. Roel J. Bennink from Amsterdam, the Netherlands.

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Dr. Jan P.J. van Schaik is professor of radiology, University Medical Center Utrecht, and chairman of the Dutch Council of Radiology. Dr. Roel J. Bennink is residency programme director in Nuclear Medicine, Academic Medical Center Amsterdam, and chairman of the Dutch Council of Nuclear Medicine.

COMMUNITY NEWS

myESR.org
Teaching radiology may be a challenging task for young and old radiologists (if you take it seriously and have high aims), so it is always great to get advice! Especially, if it’s the result of decades of experience from the still very active Oxford professor Stephen Golding. Please read on below to find out how to keep your students awake in the dark and where to get new ESR publications. You’ll also learn about the irreparable value of human interaction and how we, as radiologists, are constantly ambassadors for our specialty; how very true!

ECRT: Classroom sessions with a consultant radiologist are limited due to time/cost restrictions. Which other options are there to engage with students or junior doctors and get them interested in radiology further?

SG: Let’s first bear in mind that human interaction with the teacher, and I do mean interaction, is a powerful tool and nothing really replaces it! That said, there are several supplements that can be introduced very easily such as having a radiology quiz case of the week with a brief open session and a radiologist at the end of the week to go through the answer. We should always remember that our junior staff are a valuable and often very enthusiastic resource. They are also younger and likely to be more in touch with their students than many of us! They can help with getting students into the department to watch and discuss some work. Our emphasis should always be on radiology as a living, active subject.

ECRT: Any other top tips for teachers?

SG: Yes. Always put yourself in the place of the student. Try to understand what they need, which is not always the same thing as what they ask for, or what interests them most. And try to see yourself as they would see you when teaching. Above all, never succumb to the temptation to impress them with how clever you or your subject can be!

PART 1: Teaching HOW TO TEACH RADIOLOGY TO MEDICAL STUDENTS, JUNIOR DOCTORS OR RADIOLOGY TRAINEES

Teaching radiology may be a challenging task for young and old radiologists (if you take it seriously and have high aims), so it is always great to get advice! Especially, if it’s the result of decades of experience from the still very active Oxford professor Stephen Golding. Please read on below to find out how to keep your students awake in the dark and where to get new ESR publications. You’ll also learn about the irreparable value of human interaction and how we, as radiologists, are constantly ambassadors for our specialty; how very true!

ECRT: How do you avoid death by PowerPoint? Which teaching methods do you find work best to engage students?

SG: Find it rather depressing that these days most audiences, medical or otherwise, feel that if they haven’t been given anything physical to take away, they haven’t learned. There are two reasons for distributing lecture notes: either to prepare the audience for the presentation so that they get more out of it, or afterwards as a reminder of what happened. The learning is something that occurs between the teacher and the audience, and ideally also before and afterwards, of course.

ECRT: Which online educational materials (case collections, tutorials, focused topic information) could you personally recommend and why? Have you used them in teaching sessions or as part of further reading?

SG: Well, I’m going to show my age, I suspect! I have always worked on the basis that I collect my own teaching material and therefore know the case histories in detail. In my view, this familiarity with the material communicates itself to the student. However, I accept that it takes time to develop a good personal archive and these days people are busy so I can see how an online facility could be very useful. I just can’t speak with experience of it myself: it’s a generation thing, perhaps.

ECRT: Is there any printed educational material you could personally recommend for undergraduate students or doctors in medical or surgical specialties who want to know a little more about radiology?

SG: The ESR has just published ‘Becoming a radiologist’ on its website, which is designed specifically for this purpose. This is in the process of being circulated to medical schools as an advertisement for our subject. Thinking more medically than professionally there are many good ‘basics’ books on the applications of radiology for medical students, and I usually recommend that an interested student take a look at one of these to get an idea of the medical aspects of the specialty.

And while it’s not the precise remit of this question, I would remind readers that every time we as radiologists interact with a student, we are ambassadors for our specialty. I say this because we know that some doctors turn to radiology because of the impression a particular radiologist made on them in their work.

ECRT: Classroom sessions with a consultant radiologist are limited due to time/cost restrictions. Which other options are there to engage with students or junior doctors and get them interested in radiology further?

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DEGAS, CEZANNE, SEURAT.

THE DREAM ARCHIVE FROM THE MUSÉE D’ORSAY
AN EXHIBITION AT THE ALBERTINA

Georges Seurat, The veil, ca. 1883, Musée d'Orsay, Paris
© RMN-Grand Palais (Musée d'Orsay) / Thierry Le Mage
For a few weeks, the Albertina will afford its visitors a glimpse into an archive of dreams when the Musée d’Orsay opens its vaults to lend the graphic gems of its collection for the first time ever to a museum outside of France from January 30 to May 3, 2015. This major presentation of 19th-century French art will feature 300 works.

Delicate pastels by Edgar Degas, Georges Seurat and Odilon Redon, painterly gouaches by Honoré Daumier and Gustave Moreau, fine watercolours by Paul Cézanne, and works by salon artists who were highly esteemed in their day will come together to provide a sweeping look at the French art of drawing.

Politically oriented realism will be seen as realised by its most prominent protagonists: social conflicts dealt with in the eras of barricades are exaggerated and contorted to the point of caricature by Honoré Daumier, while Gustave Courbet and Ernest Meissonier document barricade battles and significant political turning points on sheets of sketch paper. Giovanni Segantini and Jean-François Millet, on the other hand, bathe monumentally portrayed farmers and fisherfolk in a mystical light and show workers frozen still in poses that aestheticize their repetitive gestures.

These socially motivated compositions will contrast provocatively with works by impressionist painters including Paul Cézanne with his sun-drenched landscapes from the south of France, or Eugène Boudin with his airy, atmospheric market depictions. Both artists allow the bright radiance of daylight and show workers frozen still in poses that aestheticise their repetitive gestures.

For the catalogue being published to mark the occasion, And literary figures inhabit narrative masterpieces by Edward Burne-Jones, Jean Léon Gérôme, and Frantěšek Kupka, which this presentation places in dialogue with drawings that were created as book illustrations. These include Jean-Paul Laurens’s grisailles for Goethe’s Faust, a drawing by the Pré-Raphaelite William Holman Hunt for John Keats’s Isabella, and finally Maurice Denis’s illustrations for Les Foi rettes de saint François d’Assise (Little Flowers of St. Francis).

Odilon Redon conjures up mysterious and puzzling depictions by breathing life into the technique of charcoal drawing: his 'noirs' give form to a suggestive, spiritual world akin to the show monsters and chimeras, and their reinventions of Salomé, Moreau peer into the abysses of the human soul: their works in hazy and mysterious silhouettes. Felicien Rops and Gustave Moreau peer into the abysses of the human soul: their works show monsters and charmers, and their reinventions of Salomé, Medea, and Medusa serve well to illustrate the notions that surrounded the turn-of-the-century femme fatale.

The way through this seemingly inscrutable labyrinth of styles, themes, and motifs that simultaneously captivated the 19th-century art world will be shown by Werner Spies, former director of the Musée National d’Art Moderne at the Centre Pompidou. Spies compiled the selection of works to be featured in this exhibition.

And for the catalogue being published to mark the occasion, numerous artists, authors, film-makers and architects have provided personal written contributions and interpretations of individual works as expressions of their bond of friendship with this esteemed curator.

Albertina
Albertinaplatz 1
1010 Vienna

Opening hours:
Daily 10am – 6pm
Wednesday 10am – 9pm

www.albertina.at

ALBERTINA
The Albertina houses one of the world’s largest and most precious graphic collections. Presently it contains almost 70,000 drawings and more than one million graphic prints from all of the significant art areas from the late-Gothic period to the contemporary. The range of outstanding works spans from Leonardo, Michelangelo and Raphael to Albrecht Dürer, Rembrandt and Rubens, and further to Lorrain, Delacroix, Manet and Cézanne. The Albertina is distinguished for its collections from the 20th century including the works of Schiele, Klimt and Kokoschka, as well as Warhol, Rauschenberg and Baselitz. The photographic collection contains examples of scientific photography, studio photography, early colour photography and pictorial works. The architecture collection consists of almost 25,000 drafts, sketches and models. The core pieces are the architectural models by Otto Wagner, Le Corbusier, Mies van der Rohe and Alvar Aalto.

Edgar Degas, Spanish dancer and leg studies, ca. 1882, Musée d’Orsay, Paris © RMN-Grand Palais (Musée d’Orsay) / Jean Shorrans
WHAT’S ON TODAY IN VIENNA?

**Theatre & Dance**

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<thead>
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<th>Website</th>
<th>Performance</th>
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<tbody>
<tr>
<td>Akademietheater</td>
<td>Akademietheater</td>
<td>1030 Vienna, Lisztstraße 1</td>
<td>+43 1 51444 4145</td>
<td><a href="http://www.burgtheater.at">www.burgtheater.at</a></td>
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<tr>
<td>Burgtheater</td>
<td>Burgtheater</td>
<td>1030 Vienna, Universitätsring 2</td>
<td>+43 1 51444 4145</td>
<td><a href="http://www.burgtheater.at">www.burgtheater.at</a></td>
</tr>
<tr>
<td>Rabenhof</td>
<td>Rabenhof</td>
<td>1030 Vienna, Rabengasse 3</td>
<td>+43 1 712 82 82</td>
<td><a href="http://www.rabenhof.at">www.rabenhof.at</a></td>
</tr>
<tr>
<td>stadtTheater walfischgasse</td>
<td>Theater in der Josefstadt</td>
<td>1010 Vienna, Walfischgasse 4</td>
<td>+43 1 712 00 00</td>
<td><a href="http://www.stadttheater.org">www.stadttheater.org</a></td>
</tr>
<tr>
<td>stadtTheater walfischgasse</td>
<td>1030 Vienna, Josefstädter Straße 26</td>
<td>+43 1 42 700 300</td>
<td><a href="http://www.josefstadt.org">www.josefstadt.org</a></td>
<td>19:30 Liebelei by Arthur Schnitzler</td>
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<tr>
<td>Vienna's English Theatre</td>
<td>Vienna's English Theatre</td>
<td>1080 Vienna, Josefsgasse 12</td>
<td>+43 1 621 11 60 0</td>
<td><a href="http://www.englishtheatre.at">www.englishtheatre.at</a></td>
</tr>
<tr>
<td>stadtTheater walfischgasse</td>
<td>Volkstheater</td>
<td>1070 Vienna, Neustiftgasse 1</td>
<td>+43 1 52111 400</td>
<td><a href="http://www.volkstheater.at">www.volkstheater.at</a></td>
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**Concerts & Sounds**

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<th>Venue</th>
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<th>Performance</th>
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<tbody>
<tr>
<td>Konzerthaus (Classical Music)</td>
<td>Konzerthaus (Classical Music)</td>
<td>1030 Vienna, Lothringerstraße 20</td>
<td><a href="http://www.konzerthaus.at">www.konzerthaus.at</a></td>
<td>19:30 Kurt Elling Jazz</td>
</tr>
<tr>
<td>Musikverein (Classical Music)</td>
<td>Musikverein (Classical Music)</td>
<td>1010 Vienna, Bösendorferstraße 22</td>
<td><a href="http://www.musikverein.at">www.musikverein.at</a></td>
<td>19:30 Wiener Symphoniker, conductor Philippe Jordan, Camilla Tilting, soprano F. Schubert: Symphony No. 6, G. Mahler: Symphony No. 4</td>
</tr>
<tr>
<td>Porgy &amp; Bess (Jazz)</td>
<td>Porgy &amp; Bess (Jazz)</td>
<td>1010 Vienna, Riemergasse 11</td>
<td><a href="http://www.porgyat.at">www.porgyat.at</a></td>
<td>20:30 Ravi Coltrane Quartet (US)</td>
</tr>
<tr>
<td>Arena (Alternative Music)</td>
<td>Arena (Alternative Music)</td>
<td>1030 Vienna, Baumgasse 80</td>
<td><a href="http://www.arena.co.at">www.arena.co.at</a></td>
<td>19:00 The Subways (UK)</td>
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<tr>
<td><strong>Opera &amp; Musical Theatre</strong></td>
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<tr>
<td>Volksoper</td>
<td>Volksoper</td>
<td>1030 Vienna, Währingerstraße 78</td>
<td><a href="http://www.volksoper.at">www.volksoper.at</a></td>
<td>19:30 Viva la Mamma Opera by Gaetano Donizetti</td>
</tr>
<tr>
<td>Wiener Staatsoper – Vienna State Opera</td>
<td>Wiener Staatsoper – Vienna State Opera</td>
<td>1030 Vienna, Opernring 2</td>
<td><a href="http://www.wiener-staatsoper.at">www.wiener-staatsoper.at</a></td>
<td>19:00 I Puritani by Vincenzo Bellini, conducted by Marco Armiliato, With: Jongsmin Park, John Tessier, Carlos Álvarez, Olga Peretyatko</td>
</tr>
<tr>
<td>Raimundtheater</td>
<td>Raimundtheater</td>
<td>1030 Vienna, Wollmarkt 18–20</td>
<td><a href="http://www.musicalvienna.at">www.musicalvienna.at</a></td>
<td>19:30 Mamma Mia! by Benny Anderson &amp; Björn Ulvaeus</td>
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<tr>
<td>Ronacher</td>
<td>Ronacher</td>
<td>1010 Vienna, Saalstätte 9</td>
<td><a href="http://www.musicalvienna.at">www.musicalvienna.at</a></td>
<td>19:30 Mary Poppins by Richard M. Sherman &amp; Robert B. Sherman</td>
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*Please note that all performances, except at Vienna’s English Theatre, are in German.*