It is my great pleasure to welcome you to ECR 2018!

ECR 2018 celebrates the diversity of radiology

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The European Congress of Radiology has attended from all over the world – from over 140 countries and many diverse cultures. It is a multi-professional meeting where international experts can shake hands with students, medical residents, exchange ideas with physicists, and radiographers share their perspectives with industry representatives. I chose “Diverse & United” as our congress motto this year, as radiology is such a diverse specialty covering a huge range of medical and scientific topics. From ever more refined diagnostic options to image-guided minimal invasive treatment options. Alongside our diversity, as radiologists and radiographers we should also stay united, which is in the interest of our specialty and our patients. This is what our congress is something to offer for everyone, regardless of profession, cultural background or specialization.

Being Congress President in 2015 gave me the unique opportunity for re-evaluation and to implement new things that I feel strongly about as well as fine-tune features that already existed. It was generally important to me to introduce new ideas in order for those of you who’ve ever been coming to Vienna for decades, just like me, to get the chance to experience multiple innovations. MyTV is a new session format, adapting the ECR even more to these fast-moving times, and during colleagues will present their scientific thesis in just three minutes! As if this wasn’t dramatic enough, we decided to hold these speedy sessions on the Sky High Stage which overlooks the city of Vienna, as only the sky is the limit for this new generation of radiology professionals. Additionally, we created another new session format, “Coffee & Talk”, which is highly interactive with much more time for discussion than usual and in a relaxed atmosphere, with the possibility to also enjoy a coffee or other hot beverage. The interesting lectures on offer in these sessions call for an exciting exchange, bringing together different statements and opinions as well as Viennese coffee culture. For the first time, the CUBE will open its doors to you: a theme park for interventional radiology (IR), designed for residents who haven’t specialised yet. Challenges, quizzes, training and much more will be focused on IR in emergencies plus other everyday topics, including the aura, oncology, peripherals, and stroke. Without wanting to give away too much, I recommended paying the cube a visit during breaks for the main event: the daily highlight involving experts in the arena, less challenging as well as more challenging interventions and much more. Come and be part of it! I have given a strong focus on radiographers this year, whose work is crucial for every medical imaging facility. In order to underline how welcome they are at the ECR, we introduced the new Shape Your Skills Programme for radiographers at the beginning of their career who were selected based on the quality of their abstract submission. They were awarded free admission to the congress and hotel accommodation. Additionally, there is a Radiographers’ Evening on Friday night for the first time. Don’t miss it!

Our congress is well known as a particularly modern and innovative meeting with a keen eye toward the future, and therefore perfectly reflects developments in our discipline. Radiology is amongst the top drivers of innovation in medicine, so I can definitely predict a bright future. Radiology, as a specialty, is constantly growing and renewing itself and is also doing this much faster than other specialties.

A few words on artificial intelligence (AI) and machine learning: I am convinced that it is not a threat but a tool that we can use to support our work and to improve results. The radiologist’s job has constantly changed in the past and will continue to do so in the future. For one thing, the amount of data we are dealing with is even increasing. AI will help us to cope with this workload and make optimal use of our diversity, as radiologists and radiographers this year, whose work is crucial for every medical imaging facility. In order to underline how welcome they are at the ECR, we introduced the new Shape Your Skills Programme for radiographers at the beginning of their career who were selected based on the quality of their abstract submission. They were awarded free admission to the congress and hotel accommodation. Additionally, there is a Radiographers’ Evening on Friday night for the first time. Don’t miss it!

The best approach to predicting the future would be to go back ten years and have a look at what we were doing back then and where we are now. Almost everything we are using now was already there, sometimes in just a rudimentary form, and by far not everyone was convinced of those approaches back then, but many of them are now generally accepted. It is not much different today, we are looking at possible solutions, which we develop and discuss and then discard or improve upon but some of these will indeed go on to define our daily work ten years from now. At a time like this I think it is important to look beyond borders and focus more than ever on the ESR being a community of and for radiologists, radiographers and colleagues from related disciplines. Considering the U.K. vote to leave the EU, we have to admit that this certainly affects Europe and the European community. This is unfortunate but the ESR and the scientific community are beyond politics, and we will further strengthen and develop international cooperation.
Zheng Yu Jin: education is key for the advancement of radiology in China

Zheng Yu Jin is a famous professor and director of the Beijing Union Medical College and principal of the Ministry of Health. He is also director of the Beijing Union Medical College Medical Imaging Department and chairman of the Chinese Society of Radiology. Prof. Jin has been engaged in the field of radiology for more than 30 years. Currently, he has acquired new radiological techniques, such as functional artery intravenous therapy in haemoptysis, coronary artery and intracranial arterial therapy in haemoptysis, diagnostic imaging and interventionals to the specialty in leadership, education, clinical practice, and especially research. Innovation has been the driving force behind his career and the development of the Beijing Union Medical College Hospital. Many of these innovations have been commercialised and are widely used in medical care. He has devoted most of his career as a radiologist to advancing MRI, a modality which is the basis for an imaging technology that is the key to your research programme, I cherish my research programme, I cherish my research programme, I cherish my research programme, I cherish my research programme, I cherish my research programme. The diversity and wide adoption of computed tomography, ultrasound and magnetic resonance imaging and wide adoption of computed tomography, ultrasound and magnetic resonance imaging and wide adoption of computed tomography, ultrasound and magnetic resonance imaging and wide adoption of computed tomography, ultrasound and magnetic resonance imaging and wide adoption of computed tomography, ultrasound and magnetic resonance imaging and wide adoption of computed tomography, ultrasound and magnetic resonance imaging and wide adoption of computed tomography, ultrasound and magnetic resonance imaging and wide adoption of computed tomography, ultrasound and magnetic resonance imaging and wide adoption of computed tomography, ultrasound and magnetic resonance imaging and wide adoption of computed tomography, ultrasound and magnetic resonance imaging. Innovation has been the driving force behind his career and the development of the Beijing Union Medical College Hospital. Many of these innovations have been commercialised and are widely used in medical care. He has devoted most of his career as a radiologist to advancing MRI, a modality which is the basis for an imaging technology that is the key to your research programme, I cherish my research programme, I cherish my research programme, I cherish my research programme, I cherish my research programme, I cherish my research programme.
Seung Hyup Kim, radiologist, is not in it for the sake of machines.

The prominent Korean radiologist, who uses artificial intelligence in pattern recognition, urges radiologists to use machines intelligently and take their role as imaging gatekeepers very seriously.

...Another thing close to his heart regarding the future of radiology that doctors should be prepared to budget wisely. "My belief is that we are now living in an era of healthcare excess. A more balanced and discerning approach to healthcare expenditure is necessary. Continued use of imaging should be in line for increased demand for radiology at the present time, but eventually it will hurt our profession. The challenge for us is the big challenge of all in the future if we do not perform our role as gatekeepers properly," he explained. Prof. Kim revised the national health insurance data of the government, which is no secret, in a race against the machines, but he says that this is our responsibility. And he is sure that our specialty will not be forgotten if we show the right move from image interpreter to image modeler. "But of course, who will decide what model or software around us is more useful, more efficient? Only when I decide to become a radiologist, radiologist knowledge will become smarter and our role may become even more critical," he said.

According to Seung Hyup Kim, professor of radiology and urology at Seoul National University College of Medicine, will be awarded ESR Honor- ary Membership at ECR 2018.

"I believe that every radiologist already has experience of," he continued. "Today we all radiologists carry our imaging devices using a pattern recognition approach, whether consciously or unconsciously. We also use this approach in communication with our fellow doctors teaching our residents or students."

In any, the ECR has become the largest event in Europe to review the latest developments in radiology. The congress, which is one of the many major radiological congresses in the world, is awarded the ESR's preeminent societies, KSR, just like the ESUR is one of the most important subspecialty societies of the ECR because I see what a prominent role the European Society of Urogenital Radiology (ESUR) has in both the ECR and ESUR. The Korean Society of Urogenital Radiology (KSR) is one of the most important subspecialty societies of the ESR to the rest of the world by establishing English as one of the official languages of its annual meeting. "As Korean radiologists we were very fortunate once minor leaders of the ESR had a strong belief that internationalisation, or globalisation, was the way to go."

"Nowadays, artificial intelligence is of central concern when running a green congress. Large scale congresses lead by example power hungry events, and consequent greenhouse emissions produced a just part of the problem. The solutions to greenhouse effect are many and non- exhaustion. Sea to reduce the amount of greenhouse gases and increase renewable energy by relying on the local public transport. Flip-on the municipal public transport service, is displayed on the MSO website.

Improving waste management and controlling emissions is a common goal for any congress. Reduced congress emissions achieved. The exhibitors were asked to use reusable bags and demonstrate at their booths and to avoid giving non-re- recycleable waste from the event. Exhibitors are also encouraged to avoid distributing aluminium cans or plastic bottles due to the pres- sure of waste. Fossil fuels should therefore be considered. The ECR continues to search for and implement new measures to encourage the use of existing infrastructure. "It is quite important to say that the planning of the ECR is as well as participating in non- environmentally conscious organisational framework and everyone is green ECRs in the future."

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Radiographers’ sessions continue to expand at ECR 2018

BY SHANE FOLEY

Radiographers’ sessions will be available online again this year, with a focus on research and an important focal point for radiographers in a live, real-time setting.

Content innovation at ECR has seen a number of new additions this year, including the ‘Radiographers’ Day’ which will be held on Thursday at the ECR Congress Centre. Those sessions will recognise the wins of the best radiographers in Europe and beyond for their research.

The sessions include a dedicated session on Radiographers’ work in diverse settings, a panel on radiographic training, and a session on Radiographers’ work in diverse settings, with a focus on research and education. These sessions will be held on Thursday, March 1, 16:00–17:30, Room K.

The sessions will provide an opportunity for radiographers to share their experiences and ideas, and to learn from each other. They will also provide a platform for radiographers to present their research and to network with colleagues from around the globe.

Curiosity and interest in cutting-edge technologies should be an impetus for radiologists, Bonomo says

The Italian radiologist and former ESR President Professor Lorenzo Bonomo, who will receive the Gold Medal of the ESR at ECR 2018, explains how artificial intelligence will impact radiology, and why it would make sense to fuse nuclear medicine and radiology into one common discipline.

In his interview with ECR Today, Professor Bonomo explained that artificial intelligence (AI) will be the driving force behind the future of radiology.

“AI will be the key to unlocking the potential of radiology,” he said.

Bonomo went on to explain that AI will help radiologists to make more accurate diagnoses, which will improve patient outcomes.

“I believe that AI will revolutionise radiology,” he said.

Bonomo also discussed the potential of AI to improve patient outcomes, and how it could be used to improve the efficiency of radiology departments.

“AI has the potential to transform radiology, and will help us to deliver better patient care,” he said.

Bonomo concluded by saying that AI will be the future of radiology, and that radiologists should be prepared to embrace it.

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The sessions and delegates at the ECR just keep on increasing, so we have spread out into some other amazing spaces around the Austria Center and created our very own ‘ECR City’.

Explore all our locations and get to know the neighbourhood:

**Austria Center Vienna (ACV):** well-established and home to the ECR for many years the ACV and the temporary structure used for the technical exhibition are the heart of ECR City.

**M Building:** only accessible through the Austria Center, this modern conference building rented from the United Nations is a great addition to the main ACV building. The International Village (national society stands) can be found here, as well as a variety of sessions and many meeting rooms.

**The Cube:** rooms in a nearby church have been rented, a contemporary architectural gem in a cuboid form, made of dark chromium steel; hence the term ‘the Cube’. This space is exclusively dedicated to interventional radiology and conveniently located between the underground exit and the congress venue.

**Sky High Stage:** overlooking the ACV and the whole of Vienna from the top of the neighbouring Saturn Tower, this spectacular location can be reached within minutes from all other ECR City locations. Our brand new MyT3 sessions will take place here, as well as the Clinical Trials sessions.

**Transportation:** look out for our e-scooters and rickshaws that will add a bit of extra fun to cruising through ECR City.
Waking the dead: forensic imaging requires a different mindset to clinical work

To document vascular lesions linked with possible cause of death, radiologists will need to get familiar with the specific questions that the pathologist wants answered. While multi-phase post-mortem CT angiography is a simple, fast and reliable technique that the radiographer can perform in around 30 minutes, the specific signs associated with motor vehicle accidents, homicides, cardiopathies and medical liabilities are numerous and subtle.

Radiographers, too, will need to step outside their comfort zone, delegates will hear at today’s session on forensic imaging.
Imaging after terror: a light in the dark

Terror violence is causing the largest migration flow Europe has ever experienced and there is a profound impact on society. Healthcare professionals have to deal with new, challenging situations in which they increasingly rely on imaging. A panel of experts will highlight the radiologist’s role in the aftermath and call for international cooperation today in a dedicated Professional Challenges session at ECR.

‘Imaging after terror: a light in the dark’ is one of the highlights of this year’s conference. It starts at 15:30 in Room E3 and will be chaired by radiologist and radiology professor Giuseppe Lo Re.

Lo Re explained, as he would need to convince the authorities. "That night and the following day we had more casuals plus an extra quick way to identify the people who had been injured. The only way to do that was by clinical interrogation or, if they had been identified and another one was expected to be – and the peace of mind of being able to just return to a relative, someone who said they knew the identity – we were just able to identify them in the hospital and follow them out of the hospital."

Lo Re noted that the French authorities and emergency medical services had to be equipped accordingly. "The fact that LI-RADS was developed by radiologists, with different backgrounds, is why are they different? We need to make sure that the guidelines are going to be accepted to scientific progress."

LI-RADS was originally developed between 2006 and 2008 in the United States. In 2008, the LI-RADS consortium together with the American College of Radiology (ACR) and the European Association for the Study of the Liver (EASL) and the American Association for the Study of Liver Diseases (AASLD) defines diagnostic categories that reflect relative probability of malignancy in liver lesions. The categories range from LI-RADS 1, normal, to LI-RADS 5, highly suggestive of or diagnostic of HCC. The guidelines are in continuous development, and updates reflect new findings, technological advances, and improved clinical experience.

The knowledge of liver lesions and its imaging is an absolute necessity for radiologists. The LI-RADS system allows the radiologist to make a diagnosis and further imaging. The LI-RADS tool can be easily used by beginners to advanced radiologists, and its wide application is expected to have a positive impact on the healthcare system. More studies and clinical trials are needed to further improve the LI-RADS system and its applications.

To conclude, Dr. Giuseppe Lo Re said, "If we are able to do that, maybe we can reduce the burden on these forensic radiologists. That would be the goal."

Radiologists possess skills and knowledge to tackle HCC

Radiologists should lead the development of new standards for CT and MR imaging of hepatocellular carcinoma (HCC), and they are well placed to take the initiative on drafting and adopting a single set of guidelines worldwide. That’s the recommendation of Prof. Claude Sirlin, professor of radiology at the University of California, San Diego, a speaker at today’s Special Focus Session.

“Only radiologists are fully qualiﬁed to assess the liver transplanted patient who may miscon (by CT, MRI or contrast-enhanced ultrasound) that is not HCC, but it is an inﬁltrative tumor requiring surgical resection.”

Other specialties, including liver surgeons, gastroenterologists, and even hepatologists, are often not able to provide these. They have detailed knowledge about patient information to help us determine people’s age,” said Lo Re. A medical examination performed by clinical investigators is usually the first try of the process. The next step could be to examine the patient’s clinical history, later in detail, and an additional examination will be performed. This requires a lot of work for the doctors and nurses. The clinical work is performed by using ultrasound and CT/MRI/angiography. In the past, this was the only way to determine the age of the patient if the patient was not able to provide this information. Now, thanks to advances in technology, it is possible to obtain a more accurate age estimation through radiologic imaging. The LI-RADS system assigns diagnostic categories that reﬂect relative probability of malignancy in liver lesions. These categories range from LI-RADS 1, normal, to LI-RADS 5, highly suggestive of or diagnostic of HCC. The system is in continuous development, and updates react to new ﬁndings, technological advances, and increased clinical experience.

However, many factors can affect the accuracy of age estimation, such as the patient’s medical history, the quality of the imaging, and the experience of the radiologist. Therefore, ongoing efforts are needed to improve the accuracy of age estimation through radiologic imaging.

By Vivienne Bär
Long-term safety issues linger over gadolinium-based contrast agents for MRI

Communication is mandatory to a radiology department, but misconceptions are a reality that a head of department must be ready to deal with in their daily routine. A panel of experts will explain how to turn adverse events into opportunities and share management tips and tricks during the Coffee & Talk open forum today at 2 p.m.

By Katrin Miggelt

Conclusion research into the safety profile of gadolinium-based contrast agents for MRI could take about a decade to emerge because of the huge difficulty in obtaining enough valuable and objective data. In the meantime, radiologists will be dependent on newly released guidelines from the world’s health watchdogs and other reports, ECR 2018 delegates will learn at today’s Special Focus Session.

The knowledge and beliefs about MRI as a completely safe imaging modality have been completely overturned by findings that gadolinium-based contrast agents can have unexpected long-term health risks, even in patients with no abnormalities on MRI scans.

Communication is the mother of understanding. Each day we have to face more questions than what we can simply answer.

Clinicians are still trying to find answers to many questions. They know that there are gadolinium deposits in many joints and bones, and there is even a possibility of gadolinium in the brain.

To keep spirits up, communication is the mother of understanding. In the absence of communication, there will be no understanding.

The idea came up during a meeting of EuroSafe Imaging, radiation protection, radiology teaching; and auditing, decision support; undergraduate education; and research in radiology at Charité University Hospital in Berlin.

‘Our knowledge and beliefs about MRI as a completely safe imaging modality have been completely overturned by findings that gadolinium-based contrast agents can have unexpected long-term health risks, even in patients with no abnormalities on MRI scans. We now know that degradation products can be formed, but we don’t know whether gadolinium deposits occur in healthy people or the effect of gadolinium cannot be detected due to the lack of diagnostic methods or the lack of knowledge about the type of damage. Long-term consequences are also unknown.’

Special Focus Session

Wednesday, February 28, 10:00–11:30 AM, Room G

ECR launches new format to boost networking and interaction

Value-based imaging clinical audits, and radiation protection are all important topics for radiology practice, although they may not be the reason most delegates come to the ECR. ECR launches new format to drill into the heads of department with an open forum.

Menu and colleagues share recipes for fail-safe department chair and strategies for success

By Melissa Rouger

‘This will be a unique opportunity to exchange and network in Berlin. We can potentially harm the common currency. ’

Heads of department should not just come down from the top but rather bottom up. Therefore, the discussions will also tackle imaging subspecialists’ management, everyday practice, and having people reformulate their unit – and then make them change.

For many years now, the role of the radiology department as an intermediary has improved and that solidarity is a reality that heads of department must be ready to deal with in their daily routine.

Our knowledge and beliefs about MRI as a completely safe imaging modality have been completely overturned by findings that gadolinium-based contrast agents can have unexpected long-term health risks, even in patients with no abnormalities on MRI scans. We now know that degradation products can be formed, but we don’t know whether gadolinium deposits occur in healthy people or the effect of gadolinium cannot be detected due to the lack of diagnostic methods or the lack of knowledge about the type of damage. Long-term consequences are also unknown.’

Some of the answers are a total mystery not normally found in the body but when challenged to reduce toxicity it becomes a powerful generator of information. MRI and other imaging modalities are the key to understanding this.

Before we can talk to each other, we cannot understand each other’s perspective. No one can talk to us if they haven’t heard us.

My colleagues and I want to make people think. It’s hard to ask people to stop, but this is what we are doing.

The idea came up during a meeting when we discussed EuroSafe Imaging session. The take-home message is that we need to make sure we give everyone the opportunity to express his or her opinion. We gave people the chance to ask questions, and we told them what these questions mean.

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Experts to provide update on coronary imaging and treatment

Coronary artery disease (CAD) is one of the leading causes of death in advanced countries. Early detection and diagnosis of CAD play an important role in the identification of disease severity and prediction of disease outcome. Today, management of patients with CAD is increasingly dependent on less-invasive imaging modalities, including coronary CTA angiography (CTA) and cardiac magnetic resonance imaging (CMR).

As a result of technological advances, the number of available and easily accessible imaging modalities has increased substantially over the past decade, and ongoing developments in CTA, CMR, and other techniques have contributed to improved image quality and more targeted decision-making, leading to higher accuracy in diagnosis and prognosis benefiting CAD patients.

Recent developments in CTA, CMR, and other imaging technologies have been a result of technological advancements and improved algorithms, allowing for a greater degree of accuracy and reliability. However, CTA and CMR have their unique advantages and disadvantages that must be considered when choosing the appropriate imaging modality for a given patient. CTA is a non-invasive imaging modality that provides excellent soft tissue contrast, particularly useful for the visualization of coronary anatomy. CMR, on the other hand, provides excellent contrast resolution and is particularly useful for the visualization of myocardial perfusion, as well as the latest innovations in coronary artery imaging, particularly for the detection of coronary stenosis. Thus, both modalities are important for the diagnosis and treatment of coronary artery disease.

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Preoperative MRI for visualisation of facial nerve

Imagining yourself not able to whistle, not able to close one eye and only smile with one half of your face. These are some of the symptoms of facial nerve paralysis, which can be caused by infection, inflammation or trauma. One aetogenic cause of facial nerve paresis/paralysis is surgery in the parotid region. It is mostly temporary (3–64.6% of patients), but can be permanent for a considerable number of patients (up to 8%). In some cases it is unavoidable, but sometimes it occurs due to an unforeseen course of the facial nerve branches. A preoperative roadmap of the facial nerve may help the surgeon to avoid this serious complication of parotid surgery.

The initial course of the facial nerve in the mastoid is fairly straightforward with the chorda tympani as the most important branch. Outside of the facial canal, however, the facial nerve has multiple bifurcations creating a complex network of branches with a variable anatomy among patients. This makes for even more difficulty when a tumour or benign process overlaps the nerve branches. Surgeons with expertise in parotid surgery therefore know to be extremely cautious when performing parotid surgery, to avoid unforeseen damage to the facial nerve. Preoperative visualisation of the facial nerve would help the surgeon to know which areas are at risk for lesion of the facial nerve and reduce the risk of (unexpected) post-surgery facial nerve palsies.

Recently a new MRI sequence, called D-prep, has been developed to visualise peripheral nerves. This sequence is a T2-contrast-based diffusion preparation pulse, which attenuates the signal of fat, vessels and muscles while emphasising the signal of the nerve-sheath. Some researchers have been able to visualise normal anatomy of spinal cord, spinal root nerve and also the parotid region in healthy controls (Burke et al and Yoneyama et al). Our study evaluated the feasibility of a D-prep sequence to identify the smallest branches of the facial nerve branches in patients with head and neck cancer. We found that the course of the facial nerve is variable in this region. However, some small branches are only minimally discernible. The results of our study, its limitations and future perspectives will be discussed by the Netherlands Cancer Institute group at ECR 2018 during the session SS 208 today at 10:30 in Room L8. We are hopeful that preoperative imaging of facial nerve anatomy will provide the surgeon with a roadmap not only to decrease irreversible damage to the nerve, but also to counsel patients preoperatively about the risk of facial nerve damage in case transaction of the nerve is unavoidable for oncological reasons. Future developments of nerve imaging may allow for intra-operative image-guided surgery.

Dbt vs DM: early performance measures in a population-based screening programme

By Tone Hovda and Solveig Hofvind

Screening for breast cancer using digital breast tomosynthesis (DBT) showed a significantly higher detection rate than standard digital mammography (DM). The question is whether the increased detection will lead to a further reduction in mortality from the disease. The WHO, European Parliament and various health organisations recommend screening with mammography as secondary prevention of breast cancer. Despite a proven decline in breast cancer mortality, efforts to improve the screening programmes are continuously being considered, in particular by increasing the sensitivity and specificity of the screening technique.

DBT is a new mammographic imaging technique in which an accurate movement of the x-ray beam with multiple acquisitions provides three-dimensional views of the breast. Synthetic two-dimensional images can be reconstructed from the same exposure. DBT has the potential to increase the conspicuity of many lesions, as well as reduce false positive findings due to the summation of overlapping tissues. Screening with DBT in combination with DM has demonstrated a higher rate of screen-detected breast cancer compared with DM alone, and similar results are obtained by the combination of tomosynthesis and synthetic images (DBT+SM). The effects of DBT on recall rates are somewhat contrasting.

In our study, we aimed at comparing results of rates of recall and screen-detected breast cancer when using DBT+SM versus DM at BreastScreen Norway. Women screened in three adjoining Norwegian counties in 2014 and 2015 were included (37,185 women were screened with DBT+SM and 6,573 women with DM). The rate of recall for DCIS was 27% higher for DBT+SM and 21% for DBT+SM compared to DM. The rates of recall for DCIS were significantly higher for screening with DBT+SM compared to DM.

The results may indicate that screening with DBT is more effective than with standard DM, as the number of false positive recalls is reduced. Another aspect regarding the effect of DBT as a screening technique is whether the additional breast cancers diagnosed represent ‘killing cancers’, or if they are dormant or slow growing tumours.
Industry showcases latest ultrasound innovations at ECR 2018 technical exhibition

Small-parts imaging and touch-control technologies look set to dominate the ultrasound offerings in the technical exhibition at ECR 2018. With vendors seeking to enhance the image quality and power management of both handheld and compact ultrasound systems, the global market for point-of-care applications looks strong, while intuitive touchscreen interfaces are a developing trend for cart-based systems.

In a 62-year-old woman, the retraction sign was detected on coronal reconstructed images, representing an architectural distortion, which is a histological examination proved to be a radial scar (complex sclerosing lesion). Provided by GE Healthcare.

In a number of devices, including the Acuson S2000 ultrasound system and HELX Evolution with touch control. Powered by an intuitive, user-centric interface, the system promotes streamlined exam flow to improve image quality with less effort, and it helps eliminate unnecessary keystrokes and repetitive hand movements, enhancing user performance, according to the manufacturer. Also on display is the Acuson S10, which features the X:4 high-resolution touch control panel that allows for faster selection of imaging protocols. Users can obtain high-resolution images with the X:4 MHz transducer that delivers advanced superficial imaging to support disease characterization efforts. In addition, Siemens is promoting the Acuson S2000 automated breast volume scanner, which incorporates HELX Evolution with touch control. It helps clinicians to detect cancer in dense breast tissue that may be missed by mammography alone can be like looking for a snowball in a snowstorm," he said. To complicate matters further, women with the densest breasts are four to six times more likely to develop breast cancer than women with non-dense breasts. We believe in personalized breast care and supplemental ultrasound screening for women with dense breasts.

Invenia ABUS, a 3D automated ultrasound system, is demonstrating Arietta 850, the flagship ultrasound platform that supports the company’s linear 45 capacity micromachined ultrasound transducer (CMUT) probe. The transducer 5 to 22-MHz bandwidth enables a single probe to be used for a wide range of exams. Arrieta 850’s workflow and automation features reduced examination time and key strokes, the firm said.

Elsewhere, Canon Medical Systems (formerly Toshiba Medical) is presenting its newest developments in beamforming and transducer technology that have opened the door for ultrasound examinations at frequencies well above 20 MHz in various modes, such as grey scale, colour Doppler, contrast-enhanced ultrasound and strain and shear wave imaging with spatial resolution in the range of 50 microns. The Apollo series has been equipped with this system architecture to support advanced ultra-wideband applications based on highly parallel processed transmission-and-receive algorithms on raw data. Current applications range from real-time volume imaging to ultra-high resolution gynaecology and Doppler-based flow imaging for visualizing small structures.

In ECR 2018 technical exhibition, BY INGA STEVENS
In the last couple of years, handheld ultrasound devices have made a substantial impact on the market. New devices have been developed by several companies, with a wide range of features that make them suitable for a variety of applications. However, the market is still dominated by premium systems, and the availability of lower-cost options is limited.

Several companies offer portable solutions in the form of stand-alone or tethered devices. These devices are designed to be lightweight and easy to use, allowing for convenient and flexible operation. Some of the key features of these devices include high-quality imaging capabilities, advanced diagnostic tools, and intuitive user interfaces.

The European Market for POC Ultrasound Revenue Forecast ($m), Source: Signify Research

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In conclusion, handheld ultrasound devices have the potential to revolutionize the way we approach healthcare. Their portability and ease of use make them ideal for use in various settings, from emergency rooms to the home. As the market continues to evolve, we can expect to see even more advanced and user-friendly devices in the future.
Perfusion quantification and hepatic function with Gd-EOB-DTPA: hepatic fibrosis and hepatocellular transport

The expression of the hepatic transporter was investigated by immunohistochemistry and semi-quantitatively scored according to their histologic distribution. Our pharmacokinetic modeling revealed not only the quantities of hepatic function, but also the evaluation of the hepatic function, since we could distinguish the different stages of fibrosis (Fig. 3). At MRI, increasing fibrosis was associated with progressive change from portal to arterial perfusion, a decrease in hepatic: Gd-EOB-DTPA uptake ratio, an increasing arterial washout, a decreased portal accumulation volume, and a decreased portal fraction. The hepatic uptake fraction had better diagnostic performance than the semi-quantitative hepatic enhancement parameters for staging fibrosis.

At immunohistochemistry increasing fibrosis was associated with a decreased diffusion of Gd-EOB-DTPA and MRP2 in the whole article.

The European Basic Safety Standards Directive (BSSD) – article 31 Group of Experts Medical – aims to improve patient safety in radiation protection, including the optimisation of medical exposures and the planning and delivery of care. The BSSD introduces a comprehensive approach for radiation protection, with a focus on the optimisation of medical exposures and the planning and delivery of care.

The new directive will also apply to the healthcare team looking after the patient or their representative and to the healthcare team looking after the patient in case of radiology services and all the professionals that provide them. If exposure alone is not always as planned and unexpected errors may be exposed by introducing new technologies and international scale.

Applications. He is also active in WHO and IAEA initiatives. In the current issue of the Basic Safety Standards Directive, he focuses on the importance of the Health England, having worked in Food (HFE) for the production, medical use of ionising radiation exposure. This is directive, which deals with individual medical exposures.

The BSSD has always focused on the protection of workers. The latest BSSD documents this focus by introducing lower limits for the dose of the lens of the eye. Limits of single in a single year or in total for the consecutive years (for a maximum value of $200mSv in a single year) will be required in all national legislations. These limits provide interventions for the radiological protection and an achievable or affordable protection is used. The new directive also requires that occupational and public exposure regulations for being fulfilled. Previously, the focus had been on patient exposure alone. This approach now requires that occupational and public protection is taken into account. In recent years, the focus would have been on patient protection. We conclude, therefore, that at advanced stages of liver fibrosis, the decrease in Gd-EOB-DTPA hepatic uptake may reflect either lower intracellular fibrosability of the contrast agent or any altered hepatocyte transporter functions. The modified immunohistochemical expression of the transporters was found to have an adaptive response to progressive intracellular fibrosis.

The exact reason for this lesser excretion progressively decreases. The expression of the hepatocyte transporters was investigated by immunohistochemistry and semi-quantitatively scored according to their histologic distribution. We conclude therefore that at advanced stages of liver fibrosis, the decrease in Gd-EOB-DTPA hepatic uptake may reflect either lower intracellular fibrosability of the contrast agent or any altered hepatocyte transporter functions. The modified immunohistochemical expression of the transporters was found to have an adaptive response to progressive intracellular fibrosis.

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Medical imaging is continually evolving in a rapidly emerging field with new technologies that are advancing at a dizzying pace and revolutionizing the nature of care.
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Interventional oncology brings a new future for radiologists, says Caseiro Alves

The Portuguese radiologist Professor Filipe Caseiro Alves sees a bright future for radiology as he looks forward to being presented with the Gold Medal of the European Society of Radiology at ECR 2018.

The future for radiologists is not gloomy, according to Filipe Caseiro Alves, head of the imaging department at Coimbra University Hospital and full professor of radiology at the Faculty of Medicine, University of Coimbra.

Thanks to the emergence of interventional oncology in particular, there is light on the horizon. “With the development of minimally invasive therapies, especially in the field of oncology, I strongly believe that radiologists will act much more as clinical partners in the future, and not only as service providers. Interventional oncology is a clear light on the horizon, as far as I can see,” he said.

Radiologists will certainly have to adapt to new paradigms, such as the advent of artificial intelligence (AI), which will change a substantial part of their workload, Prof. Caseiro Alves believes.

“At will change what we consider to be the ‘bread and butter’ daily tasks of the radiologist. We will have to adapt to new forms of delivering our work to stay at the forefront of medical services. It is clearly not enough to produce descriptive reports from 9 to 5. On the contrary, radiology will prevail if research and new imaging tools continue to be developed as they are currently,” he said.

Radiologists will also have to overcome a number of difficulties, including unregulated teleradiology services and a loss of visibility from both the patient and clinical partner perspectives, he believes. “The radiologist should adopt a sub-specialization practice in line with the needs of their institution and be conversant on all the relevant aspects of that specific field. For example, we cannot deliver good oncology services if we are not involved in and knowledgeable about all aspects of the oncology process,” he said.

After a lifetime dedicated to advancing MRI and liver specific contrast agents, Prof. Caseiro Alves is now investigating quantification issues such as liver perfusion for tumour response evaluation, and the use of surrogate markers on MRI to detect liver fibrosis and inflammation.

His passion for MRI dates back to 1983, when he moved to France to work under Prof. Didier Mathieu in one of the first MRI centres. “Prof. Mathieu was a liver sub-specialist and a great mentor. From then on, I was drawn to this imaging modality, and the fact that diagnostic information is heavily dependent on a sound knowledge of MR physics,” he recalled.

Prof. Caseiro Alves chose radiology because it seemed to call for a great balance between internal medicine and imaging interpretation skills. “When I joined radiology, cross-sectional imaging was in its infancy. I was very fortunate to share in its initial discoveries and progressive clinical development. Those were certainly exciting times,” he added.

In his opinion, MRI and volumetric CT have had the greatest impact on radiology practice. “There were in my view the most exciting imaging modalities, which enabled me to explore new frontiers of imaging including the development of tumour response evaluation metrics,” he said.

Radiology is still an intellectually stimulating discipline, but it is also very demanding – a reality medical students should be prepared for if they choose the specialty. “You shouldn’t go into radiology expecting a quiet life, minimal patient interaction and easy financial rewards. Radiology should not be viewed as a commodity. Students should be curious, not afraid to ask questions, complete their palette of radiology skills and, above all, be active and proactive in all the steps of patient care, especially in relation to proposing or delivering minimally invasive treatments,” he said.

Regarding international cooperation, Prof. Caseiro Alves believes it offers the opportunity to gain critical mass in shared projects, network with other teams and benchmark yourself against others. “It is a fundamental step in a society where isolation is no longer a reasonable clinical or research practice,” he said.

At ECR, radiologists can take the opportunity to meet and learn from more than 20,000 colleagues from all over the world. “The quality of the scientific content is constantly improving and its pivotal role in worldwide radiology education is now established and widely recognised,” he said.

The EU funded project for the development of a new biomarker for diffuse liver disease quantification (RADICAL). 

A screenshot of the parametric colour coded map and its biometric result with quantification of liver inflammation and fibrosis (liver score) and liver fat content. Images provided by Prof. Filipe Caseiro Alves.

A joint session of a multidisciplinary hepatobiliary team meeting was held in Coimbra together with the Barcelona liver group, led by Dr. Carmen Ayuso and Dr. Maria Rey.
The French radiologist Professor Nicolas Grenier will continue his fight to defend and improve clinical research, but urges young radiologists to take up the baton.

In the age of BIG Data, the challenge is not to keep up with the patients, but to be a part of the collective effort that is required to improve clinical research. The question is not, ‘Where do you begin when dictating the case of a complex patient?’ but rather ‘Where do you begin when you are dictating the case of a patient who has asymptomatic renal failure?’

Professor Grenier, who is professor of radiology at the University Hospital in Bordeaux, said that the role of the radiologist is to maintain a high level of expertise and stimulate exchange of all aspects of radiology. The tougher ones among us are those who want a qualification in a minor field of radiology. For those who want a qualification in a minor field of radiology, we will have to maintain a high level of expertise and stimulate exchange of all aspects of radiology.

The Voice of EPOS

The Voice of EPOS presents this year’s language in 21 posters!

ECR 2018 features the third edition of the Voice of EPOS, the chance for authors to pick up the microphone and present their audience to the congress of radiologists.

The Voice of EPOS falls in a truly global gathering with top-tier radiologists from all over the world coming to ECR in London to present their latest research and emerging topics.

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Czech radiology: imaging in the heart of the Europe

There are several important streams in the development of Czech radiology – interventional radiology, oncological imaging and treatment, hybrid imaging and magnetic resonance research.

Czech interventional radiology is the country's flagship subspecialty and is proud to have a history of iconic personalities with visionaries and eminences such as Josef Fleischhacker. His influence can be seen in the Czech Republic through the foundation of one of the world's first interventional radiology programmes.

The evolving programme involving Centrosanet's radiology centre has created a network of elements providing care for patients suffering from interventional stroke, who can receive endovascular treatment within fifteen minutes of deteriorating stroke. This important activity of the Czech interventional radiology community is working in several centres, including ones with the highest technology and the highest level of training.

Czech radiology performances radiographic frequency procedures not only to the best, but also to others in the region, and in recent years, other centres in the country have also introduced such techniques. However, the development of minimally invasive procedures also required a significant dose of innovation and creativity.

The implementation of hybrid technology is a significant part of this process. Hybrid technology has found its way into the Czech radiology scene, and this is also reflected by the fact that the Czech Republic is one of the largest users of hybrid systems in Europe.

The development of hybrid systems in the Czech Republic is an important aspect of modern radiology, as it allows for the combination of different imaging modalities and treatment procedures.

The Czech Republic has two hybrid systems available, one in the Department of Radiology at the University Hospital Plzeň and the other in the Department of Radiology at the University Hospital Brno. The combination of CT, MRI and ultrasound imaging allows radiologists to perform a wide range of procedures, including tumour staging, intervention planning, and follow-up imaging.

A new generation of medical students, interested in the fascinating world of medical imaging and diagnosis, are working to develop a lecture programme on hybrid technology, using PET/MRI into daily practice.

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The Croatian Society of Radiology (CSR) embraces different sections: conventional radiology group has also recently taken is the adaptation of radiation safety standards in diagnostic radiology. We are also taking lessons from the change. This year, we are considering offering a postgraduate degree in radiology and nuclear medicine, which will help us to work more efficiently.

Radiology is a relatively young branch of medicine, which constantly strives to improve its quality. This process is closely monitored by national and international organisations. The CSR is a member of several international organisations, which set the standards for medical imaging and interventional radiology.

The greatest achievement for us in the past year has been the opening of the new radiology department at the Clinical Hospital Centre in Rijeka. This new facility will provide state-of-the-art equipment and facilities for patients and healthcare professionals. As a relatively small society, we are very ambitious and well-organised. After joining the European Society of Radiology, we have accessed significant training and development opportunities, which have been hugely significant for us.

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WHAT’S ON TODAY IN VIENNA?

WEDNESDAY, FEBRUARY 28, 2018

THEATRE & DANCE

Die Komödie der Irrungen
By William Shakespeare
BURGTHEATER | 19:30
1010 Vienna, Universitätsring 2
Phone: +43 1 51444 4145
www.burgtheater.at

All About Eve
By Christopher Hampton
KAMMERSPIELE DER JOSEFSTADT | 19:30
1010 Vienna, Rotenturmstraße 20
Phone: +43 1 42 700 300
www.josefstadt.org

Ein Körper für jetzt und heute
By Mehdi Moradpour
SCHAUSPIELHAUS | 20:00
1090 Vienna, Porzellangasse 19
Phone: + 43 1 317 01 01
www.schauspielhaus.at

Weiße Neger sagt man nicht
By Esther Muschol
TAG – THEATER AN DER GUMPENDORFER STRASSE | 20:00
1060 Vienna, Gumpendorfer Straße 67
Phone: + 43 1 5865222
www.dastag.at

Fremdenzimmer
By Peter Turrini
THEATER IN DER JOSEFSTADT | 19:30
1080 Vienna, Josefstädter Straße 26
Phone: +43 1 42 700 300
www.josefstadt.org

CONCERTS & SOUNDS

Wiener Symphoniker
Conductor Alain Altinoglu
Renaud Capucon, violin
M. Ravel: Pavane pour une infante défunte;
E. Lalo: Symphonie espagnole d minor op.21;
J. Brahms: Symphonie No. 2 d major op. 73
MUSIKVEREIN | 19:30
1010 Vienna, Bösendorferstraße 12
www.musikverein.at

Shlomit & Amina Figarova
(Austria/Azerbaijan/Netherlands/US)
PORGY & BESS (JAZZ) | 20:30
1010 Vienna, Riemergasse 11
www.porgy.at

OPERA & MUSICAL

Der Opernball
Operetta by Richard Heuberger
VOLKSOPER | 19:00
1090 Vienna, Währingerstraße 78
www.volksoper.at

Eugen Onegin
By Piotr I. Tchaikowsky
Conductor Louis Langrée
With Olga Bezsmertna, Mariusz Krzecian, Rolando Villazón, Ferruccio Furlanetto
WIENER STAATSSPOR | 19:30
1010 Vienna, Opernring 2
www.wiener-staatsoper.at

I Am From Austria
Musical with songs by Rainhard Fendrich
RAIMUNDBHOUNKRAM | 18:30
1060 Vienna, Wallgasse 18-20
www.musicalvienna.at

Tanz der Vampire
Musical by Michael Kunze and Jim Steinman
RONACHER | 18:30
1010 Vienna, Seilerstätte 9
www.musicalvienna.at

Please note that all theatre performances are in German.