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Satellite Symposia (D)

Wednesday, March 2

10:30 - 12:00 **Studio 2016**

jointly organised by Siemens Healthcare and Bayer HealthCare

SY 1a

Breast MRI: today and tomorrow

Moderator:
G.M. Newstead; Chicago, IL/US

Breast MRI: practical tips on performing, reading and reporting
L. Umutlu; *Essen/DE*

Since the first introduction of breast MRI, dynamic contrast-enhanced magnetic resonance imaging of the breast has gone through substantial developments of image acquisition and evaluation, evolving to become a mandatory component of breast diagnostics. Aside from high-quality MR systems and dedicated breast coils, breast MRI requires high standards of comprehension of acquisition and evaluation skills. While various organizations provide guidelines to perform breast MRI, this highly demanding imaging technique still lacks clean universally accepted standardization of imaging. Apart from standardized imaging, standardized reading and reporting is another highly important issue to enhance the clinical acceptance of breast MR imaging. The current BI-RADS® Atlas provided by the American College of Radiology constitutes an excellent guide for standardized reading and reporting of breast MRI, promoting high acceptance among clinicians, surgeons, radiologists and patients. The aim of this presentation is to give practical tips on universally accepted, high-quality breast MRI imaging as well as standardized reading in accordance with the current BI-RADS® Lexicon.
Learning Objectives:
1. To learn how to perform high-quality breast MRI in accordance with current guidelines.
2. To learn how to read and report breast MR imaging in accordance with the current BI-RADS® lexicon.

Abbreviated breast MRI: first post-contrast subtracted images and maximum-intensity projection - a novel approach to breast cancer screening with MRI
C.K. Kuhl; *Aachen/DE*

Purpose: We investigated whether an abbreviated protocol (AP), consisting of only one pre- and one postcontrast acquisition and their derived images (first postcontrast subtracted [FAST] and maximum-intensity projection [MIP] images), was suitable for breast magnetic resonance imaging (MRI) screening. Methods: We conducted a prospective observational reader study in 443 women at mildly to moderately increased risk who underwent 606 screening MRIs. Eligible women had normal or benign digital mammograms and, for those with heterogeneously dense or extremely dense breasts (n = 427), normal or benign ultrasounds. Expert radiologists reviewed the MIP image first to search for significant enhancement and then reviewed the complete AP (consisting of MIP and FAST images and optionally their non-subtracted source images) to characterize enhancement and establish a diagnosis. Only thereafter was the regular full diagnostic protocol (FDP) analysed. Results: MRI acquisition time for FDP was 17 minutes, versus 3 minutes for the AP. Average time to read the single MIP and complete AP was 2.8 and 28 seconds, respectively. Eleven breast cancers (four ductal carcinomas in situ and seven invasive cancers; all T1N0 intermediate or high grade) were diagnosed, for an additional cancer yield of 18.2 per 1,000. MIP readings were positive in 10 (90.9%) of 11 cancers and allowed establishment of the absence of breast cancer, with a negative predictive value (NPV) of 99.8% (418 of 419). Interpretation of the complete AP, as with the FDP, allowed diagnosis of all cancers (11 [100%] of 11). Specificity and positive predictive value (PPV) of AP versus FDP were equivalent (94.3% v 93.9% and 24.4% v 23.4%, respectively). Conclusion: An MRI acquisition time of 3 minutes and an expert radiologist MIP image reading time of 3 seconds are sufficient to establish the absence of breast cancer, with an NPV of 99.8%. With a reading time <30 seconds for the complete AP, diagnostic accuracy was equivalent to that of the FDP and resulted in an additional cancer yield of 18.2 per 1,000.

Perspectives in diffusion weighted breast imaging
S. Bickelhaupt; *Heidelberg/DE*

Diffusion-weighted MR imaging (DWI) has become a useful part of diagnostic MR protocols in many fields of oncology. DWI of the breast has been applied within conventional dynamic contrast-enhanced MRI (DCE-MRI) aiming to improve the accuracy of the examination, in particular with regard to reduce false-positive findings and thus increase specificity. DWI is based on visualizing the free Brownian motion of water molecules in tissue and thought to be closely related to cellularity. Depending on the sequence protocol with use of a specific set of b-values different tissue parameters can be calculated including perfusion, apparent diffusion coefficient (ADC) and kurtosis giving insights into different biologic features beyond morphology. By providing additive biophysiological information on suspicious lesions DWI might be of added value not only in DCE-MRI but also as an adjunct used in the clarification of suspicious lesions detected by conventional x-ray mammograms. Initial experiences are promising suggesting the diagnostic potential of DWI to separate benign from malignant lesions which were initially detected on x-ray mammography during screening. Since the technique does not require for intravenous contrast agent administration or long examination times, it might even be of special interest to be used as a non-invasive adjunct in breast cancer screening programs to reduce the relatively high number of false-positive lesions triggering biopsies. However, further studies and harmonization in terms of imaging parameters and quality assurance are needed prior to discuss a broader use in breast imaging.
Learning Objectives:
1. To understand how DWI might increase accuracy of conventional DCE-MRI of the breast.
2. To appreciate that, when used as an adjunct in x-ray mammography, breast cancer screening DWI has the potential to reduce the number of false positive findings.
3. To learn that implementation of DWI in clinical routine requires standardisation of DWI sequence parameters as well as sustained quality assurance.

Optimising breast MRI using novel imaging strategies, dedicated reading protocols and computer aided diagnosis
R.M. Mann; *Nijmegen/NL*

Although breast MRI has the highest sensitivity for cancer of all currently widely used methods of breast evaluation, it is not infallible. Limitations are for example long acquisition time and long reading times. In addition, in screening, cancers that are clearly visible in scans might still be missed due to overlook or interpretation errors. This implies that there is still ample room for improvement. Part of this can be achieved by novel acquisition approaches that are more tailored to the clinical question. This would enable a higher patient throughput while simultaneously reducing the workload for reporting radiologists, and decreasing the costs associated with the technique. Dedicated post-processing and simple hanging protocols will allow subsequent fast evaluation of the MRI scans. Nonetheless, this will likely not prevent all reading errors and hence either second reading, or computer-assisted lesion detection might be required to further optimize sensitivity of breast MRI. Also, to prevent an unnecessary high number of recalls, the specificity of breast MRI must be preserved. Also in this area automated image analysis can play a major role; possibly even changing the scan protocol based upon direct evaluation of image findings.
Learning Objectives:
1. To appreciate that breast MRI has a high sensitivity, but is not infallible.
2. To understand that novel acquisition protocols tailored to the clinical question might be used to increase patient throughput and decrease costs.
3. To learn that hanging protocols and CAD can be used to increase reading spead and optimise sensitivity and specificity.

12:15 - 13:45 **Studio 2016**

jointly organised by Siemens Healthcare and Bayer HealthCare

SY 1b

Multimodality lunch symposium: breast screening controversies

Moderator:
S.H. Heywang-Köbrunner; Munich/DE

Breast screening controversies: viewpoint of the IARC
S.H. Heywang-Köbrunner; *Munich/DE*

In November 2014, after extensive preparations and literature search, a working group of 29 experts from 16 countries met to assess the existing data base on breast cancer screening. For screening of mammography remains the most important method for mass screening with the highest level of evidence. Due to technical improvements of the method and the screening chain and improvement of therapy the relevance of 20-30-year-old RCTs was questioned. Most robust data stem from high-quality observational studies (mostly incidence-based cohort studies combined with appropriately corrected case-control studies. Mortality reduction per invited woman (irrespective of

participation) ranges around 23% and for truly participating women around 40%. Evidence for ages 50-74 was considered sufficient, for ages 40-49 limited. Advantages outweigh side effects like false positives or overdiagnosis (calculated to range around 6%). The data base on ultrasound screening remains inadequate for assessing mortality reduction. Proof of increased detection (for the additional use of ultrasound) was considered limited, but associated with high false-positive rates. For tomosynthesis proof of increased detection was considered sufficient, while data on mortality reduction are still lacking. Data for mortality reduction by MRI were considered inadequate, while data of improved detection for mutation carriers were considered sufficient. An extended overview of the results will be published in the IARC Handbook, scheduled for release end of 2015.

Evaluation of virtual touch tissue imaging quantification (VTIQ - 2D-SWE) in the assessment of BI-RADS® 3 and 4 lesions: can patient selection for biopsy be improved?
M. Golatta; *Heidelberg/DE*

Objective: To evaluate breast tissue stiffness with Virtual Touch Tissue Imaging Quantification (VTIQ) and to prospectively evaluate VTIQ as a new elastography method. Main focus is to improve the assessment of BI-RADS® 3 and 4a lesions by restaging patients in according to a predefined VTIQ cutoff value of 3.5 m/s (37 kPa). The aim is to reduce unnecessary benign biopsies (improvement of specificity) without a loss of sensitivity. Materials and methods: The standard BI-RADS® ultrasound (US) category (BI-RADS® 3-4c) and VTIQ values are correlated with the histological result. It is assessed whether the probabilities for malignancies predicted with US according to BI-RADS® differ from the probabilities for malignancies predicted by means of VTIQ only or by a combination of BI-RADS® and VTIQ measurements. Results: Preliminary findings and cases will be presented. Conclusion: VTIQ has been a hot topic in the last years. Few studies have evaluated Virtual Touch Tissue Imaging Quantification (VTIQ) as a new Shear Wave Elastography method in breast tissue, suggesting cutoff values for the differentiation of benign and malignant lesions, showing a high reliability and reproducibility and assessing the amount of precompression needed for optimal scanning. Improved specificity, achieved by combining standard ultrasound BI-RADS® classification with elastography, will help to eliminate unnecessary breast biopsies in the future.
Learning Objectives:
1. To give an update about the latest developments in the field of elastography (VTIQ).
2. To learn why it is helpful to do less at some points: can elastography (VTIQ) help to improve patient selection for biopsy?

Is digital breast tomosynthesis ready for mammo-screening?
S. Zackrisson; *Malmö/SE*

Digital breast tomosynthesis, DBT, is a 3D mammography where low-dose images are acquired of the breast and then reconstructed into thin slices. It reduces the effect of overlapping tissue and hence facilitates breast cancer detection. It is well known that mammography sensitivity is hampered by dense breast tissue obscuring tumours and up to 30% of the tumours are not detected at screening. The question is whether tomosynthesis may replace mammography in screening? To answer that question, large population-based trials are needed. At present, data are published from three prospective, population-based trials investigating 2-view mammography + 2-view tomosynthesis (OTST and STORM) and the MBTST investigating one-view tomosynthesis versus two-view mammography. The studies have all shown a significant increase in breast cancer detection of 30-40%, while the results on recall rates are slightly inconsistent. Furthermore, several large observational studies have been conducted in the US, where the majority showed a small or moderate increase in cancer detection although a more significant reduction of the recall rates, albeit the recall rates are substantially higher in the US compared to in Europe. The trials and observational studies will be discussed in terms of screening performance measures and what further evidence will be needed before DBT can be introduced in routine screening. None of the trials were designed or powered to assess long-term outcomes such as breast cancer mortality. An important surrogate measure will be interval cancer rates. Health economic analyses will add further knowledge.
Learning Objectives:
1. To understand the current evidence for the potential use of digital breast tomosynthesis in screening.
2. To know the differences between the prospective trials with tomosynthesis.

Modern methods for MRI screening
G.M. Newstead; *Chicago, IL/US*

Early studies involving interpretation of an abbreviated MRI protocol (AB-MR) have shown equivalent sensitivity for cancer detection when compared to a full standard MRI, with only minimal decrease in specificity. This growing evidence suggests a benefit for the expanded use of breast MRI for screening of a larger section of the female population. In addition to the AB-MR protocol devised by Kuhl et al, standard diagnostic protocols currently used in clinical practice can be shortened to accomplish an effective abbreviated protocol for screening. Additionally, new protocols, referred to as 'ultra-fast imaging', are currently under development aimed towards imaging and sampling early kinetics at a faster rate, 4-8 seconds per time-point for a bilateral scan. These new methods pose an exciting challenge. The challenge will be to develop streamlined, efficient, workflow to allow for rapid screening at a lower cost. The excitement will come from our ability to improve the detection of an increased number of small cancers, most of them node negative, for the benefit of a much larger population of women. Key to this process will be a faster MRI protocol, efficient throughput, and advanced training for radiologists in the interpretation of MRI screening studies.
Learning Objectives:
1. To review the technical challenges of breast MRI screening and learn how to overcome them.
2. To discuss the future direction of breast MRI screening and the probable impact on clinical practice.

14:00 - 15:30 **Studio 2016**

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SY 1c
Digital breast tomosynthesis out of the daily routine

Moderator:
S. Zackrisson; Malmö/SE

The role of the synthetic mammogram?
C. Van Ongeval, J. Soens, M. Keupers, S. Maeyaert, L. Cockmartin, H. Bosmans; *Leuven/BE*

Comparison of combined 2D digital mammography and digital breast tomosynthesis with synthetically reconstructed mammograms and digital breast tomosynthesis in a diagnostic setting.
Learning Objectives:
1. To describe the advantages of the combined use of synthetically reconstructed mammograms and breast tomosynthesis in a diagnostic environment.
2. To evaluate the image quality of the new synthetic mammogram Insight (Siemens) compared to 2D digital mammography.
3. To compare the diagnostic accuracy of this synthetically reconstructed mammograms with breast tomosynthesis versus 2D mammograms with breast tomosynthesis.

The challenge of reading breast tomosynthesis images
K. Lang; *Malmö/SE*

If breast tomosynthesis is to be used as a screening modality, the reading time will be one of the main challenges. It takes approximately 2-4 times longer to read a tomosynthesis image volume compared to conventional mammography (Good 2008, Gur 2009, Bernardi 2012, Astley 2013, Skaane 2013). The reading time is mainly affected by the type of imaging protocol used, i.e. one or two projections, as a stand-alone modality or combined with mammography. The average reading time has been reported to be 77 s for the so-called combination mode (mammography plus two-view tomosynthesis) compared to 33 s for mammography (Bernardi 2012), and 30 s for one-view tomosynthesis (Dustler 2013). The reading time can be influenced by different image presentations, such as slabbing, cineloop speed and image orientation. Reading strategies for conventional mammography, such as mirror image interpretation (dx vs. sin), are not necessarily applicable in the reading of tomosynthesis image volumes, but other search strategies such as the so-called drilling strategy (quickly scroll through the depth of the volume while keeping their eye position relatively constant) might be useful. However, further research is needed to find efficient search strategies and/or image presentations, where eyetracking studies on volumetric image perception could provide some answers. The utilisation of a CAD system might also be necessary to meet the increased workload on radiologists if tomosynthesis becomes the next screening modality.
Learning Objectives:
1. To understand the challenges of reading breast tomosynthesis Images.
2. To learn how to read breast tomosynthesis images efficiently.

Influence of digital breast tomosynthesis on BI-RADS classification
J. Barkhausen; *Lübeck/DE*

Mammography is the most important breast imaging technique allowing the visualization of masses and micro-calcifications. However, in conventional mammography the three-dimensional breast tissue is reduced to a two-dimensional image. Therefore, small lesion may be undetectable due to superimposed glandular tissue. Digital breast tomosynthesis (DBT) emerged as a new imaging modality to overcome this limitation. Several studies have shown that tomosynthesis improves both tumour detection and the characterization of focal masses. Due to the cross-sectional nature of DBT the techniques allows on the one hand the reliable differentiation of true focal masses from summation artefacts. On the other hand, tomosynthesis improves the detailed analysis of the lesions' border to differentiate benign lesions and carcinomas. The additional information provided by DBT has impact on the BI-RADS classification of masses. In some case DBT leads to lower BI-RADS classes reducing recall rates or avoiding unnecessary biopsies whereas in other patients DBT detects new lesions resulting in higher BI-RADS classes, thus improving cancer detection rates. However, there is still a remaining uncertainty about the diagnostic accuracy of tomosynthesis in detecting microcalcifications. We need more clinical studies demonstrating that DBT is not inferior to full-field digital mammography in the detection and characterization of microcalcifications before we can answer the question of whether DBT can replace mammography. In summary, the most recent clinical studies confirm that in both selected and screened populations, the addition of tomosynthesis to digital mammography led to improved diagnostic accuracy and an increase in cancer detection rates.
Learning Objectives:
1. To understand the influence of DBT on BIRADS classification.
2. To get familiar with the results of the most recent clinical trials.
3. To learn about use of DBT in different clinical scenarios.

Diagnostic performance of digital breast tomosynthesis in the detection and characterisation of microcalcifications
M. Bernathova; *Vienna/AT*

Detection and evaluation of microcalcifications are an important part of mammographic analysis. Microcalcifications are present in about half of the cases of non-palpable breast malignancies and simultaneously they are responsible for detection of almost 95 % of DCIS in screening. Introduction of tomosynthesis offers a new 3D aspect in detection and assessment of microcalcifications. Digital mammography and tomosynthesis are similar techniques in their origin, but different in their approach, thus it is fundamental to know the technical background of both and their consequent influence on the image quality in imaging of microcalcifications. Technical developments are very promising regarding new processing tools for more efficient detection and more accurate assessment of microcalcifications.
Learning Objectives:
1. To understand the usefulness of DBT in a screening setting.
2. To understand the usefulness of DBT in a clinical setting.
3. To know the different approaches of DBT.

Evaluation of different approaches of tomosynthesis examinations
L.J. Pina Insausti; *Pamplona/ES*

Since its introduction, digital breast tomosynthesis (DBT) has become an important adjunct tool to digital mammography (DM). According to some studies, DBT could even substitute DM. DBT has been used in two different settings: screening setting: three prospective population-based trials have been evaluated (Mälmo, Oslo and STORM trials). The first one compared DBT alone in one view (MLO) vs. DM, and the detection rate increased by 43% with DBT. The other trials compared the combination DM + DBT (two views MLO and CC) vs. DM, showing an increase of the detection rate (31% and 33%). All the trials demonstrated an important increase in the detection of invasive cancers (59%, 40%, 49%). According to these results, breast cancer screening should be performed with DM + additional DBT or even with DBT alone. However, a 2D view is thought to be necessary for comparison with previous mammograms and for a quick overview of the case. Clinical setting: DBT has been found to be useful as a problem solving technique; DBT is at least as good as spot compression for the evaluation of breast lesions; DBT is useful to evaluate non-calcified breast lesions (better evaluation of the shape and margins of breast masses, better evaluation of architectural distortions and asymmetries); DBT can play a role in the evaluation of microcalcifications.
Learning Objectives:
1. To understand the usefulness of DBT in a screening setting.
2. To understand the usefulness of DBT in a clinical setting.
3. To know the different approaches of DBT.

16:00 - 17:00 **Studio 2016**

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SY 1d

Multimodality discussion of clinical cases: breast imaging for therapy control

Moderator:
C. Van Ongeval; Leuven/BE

Breast MRI perspective
E. Wenkel; *Erlangen/DE*

Costs, radiation dose and available time are generally in conflict with the need for frequent, dedicated and detailed information on treatment progression. Monitoring therapeutic success is typically performed where there is still a measurable tumour presence, such as during neo-adjuvant chemotherapy in primary cancer treatment. Another typical clinical setting is the early detection of loco-regional breast cancer recurrence. In both cases, ongoing but unsuccessful courses of treatment can be modified or new treatment strategies initiated on the basis of breast imaging results, and clinical examinations, mammography/tomosynthesis, ultrasound or MRI can be performed to show the tumour burden. The time frame and order of these examinations depend to some extent on specific guidelines but are also partially dictated by the preferences of referring physicians. Additionally, if a patient is part of a clinical study, then the frequency and choice of imaging modality can further be contingent on any particular study requirements. Selecting the correct imaging modality and follow-up scheme to monitor the effect of neo-adjuvant therapy on breast cancer and patients has a significant impact on diagnostic accuracy as well as on treatment delay times and costs.
Learning Objectives:
1. To discover the advantages of basic imaging methods such as ultrasound and breast tomosynthesis.
2. To establish when only basic examinations are sufficient and from what point additional breast MRI is warranted.

Mammography/tomosynthesis perspective
M. Bernathova; *Vienna/AT*

Please refer to the abstract of E. Wenkel; Erlangen/DE

Ultrasound perspective
M. Golatta; *Heidelberg/DE*

Please refer to the abstract of E. Wenkel; Erlangen/DE

12:30 - 13:30 **Room O**

organised by MINT Medical

SY 2

Programme not available by date of publication

12:30 - 13:30 **Room N**

organised by SuperSonic Imagine

SY 3

Programme not available by date of publication

12:30 - 13:30 **Room L8**

organised by Mindray

SY 4

Programme not available by date of publication

Thursday, March 3

12:30 - 13:30 **Room O**

organised by Siemens Healthcare

SY 5

Programme not available by date of publication

12:30 - 13:30 **Room N**

organised by Siemens Healthcare

SY 6

First clinical experiences with new Twin Robotic X-ray imaging

Moderator:
A. Hebecker; Erlangen/DE

The Multitom Rax - the new versatility in diagnostic imaging: experiences from the first installed system
W. Wüst; *Erlangen/DE*

With the new Multitom Rax x-ray, fluoroscopy and angiography examinations can be performed with one diagnostic system. Flat panel detector technology allows visualisation of bone with high spatial resolution and the integrated 3D tool imaging of the head and neck region like DVT systems. We report the first clinical experiences with this prototype with the emphasis on the multifunctionality of this new system.

Back to the future with 3D roentgenography: a travelogue of a journey into the third dimension and an outlook of what may lie ahead
R.M. Benz; *Basel/CH*

For the new Multitom Rax equipped with cone beam technology, a novel 3D imaging tool was developed and integrated into a conventional x-ray unit to permit acquisition of 3D data sets. We report our first scientific and clinical experiences with this prototype in a clinical setting with a focus on musculoskeletal applications. We aim to give an insight into image quality and clinical image aspect. Based on our initial experiences we will take a look ahead and discuss promising future applications.

First experience with the Multitom Rax
F. Jensen; *Malmö/SE*

Abstract not available by date of publication

12:30 - 13:30 **Studio 2016**

organised by GE Healthcare

SY 7

Programme not available by date of publication

12:30 - 13:30 **Room E1**

organised by Bracco

SY 8

Programme not available by date of publication

12:30 - 13:30 **Room K**

organised by Toshiba

SY 9

Programme not available by date of publication

12:30 - 13:30 **Room G**

organised by Samsung

SY 10

Programme not available by date of publication

12:30 - 13:30 **Room M 2**

organised by Bayer Pharma

SY 11

Update and understanding on Gd deposits

Moderator:
V.M. Runge; Berne/CH

Gd deposits in preclinical perspective
H. Pietsch; *Berlin/DE*

Abstract not available by date of publication

What do we know from the clinical research?
A. Radbruch; *Heidelberg/DE*

Abstract not available by date of publication

12:30 - 13:30 **Room M 5**

organised by Bayer HealthCare

SY 12

Dose registries: strength in numbers for quality management, DRLs and research

Moderator:
M. Forsting; Essen/DE

Concept and goals for the 1st patient-dose-register in Germany
M. Forsting; *Essen/DE*

Abstract not available by date of publication

Setting the course for practical DRLs: a regional dose registry in Switzerland
S.T. Schindera; *Basle/CH*

Abstract not available by date of publication

Friday, March 4

12:30 - 13:30 **Room O**

organised by Philips

SY 13

Programme not available by date of publication

12:30 - 13:30 **Room N**

organised by Siemens Healthcare

SY 14

Extending the boundaries of ultrasound

Moderator:
C.F. Dietrich; Bad Mergentheim/DE

The fortuitously discovered focal liver lesion
C.F. Dietrich; *Bad Mergentheim/DE*

The incidentally discovered liver lesion is a common problem. Consensus might be expected in terms of its work-up, and yet there is none. This stems in part from the fact that there is no preventive campaign for the early detection of liver tumours other than for patients with known liver cirrhosis and oncological patients. The work-up (detection and differential diagnosis) of liver tumours comprises theoretical considerations, history, physical examination, laboratory tests, standard ultrasound, Doppler ultrasound techniques, contrast enhanced ultrasound (CEUS), computed tomography (CT) and magnetic resonance imaging (MRI) as well as image-guided biopsy. Contrast enhanced ultrasound techniques have proved to be the most pertinent method. Contrast enhanced ultrasound techniques became part of the clinical routine about 10 years ago in Europe and Asia and are used for a variety of indications in daily clinical practice. CEUS is in many cases the first and also decisive technical intervention for detecting and characterising liver tumours. This development is reflected in many CEUS guidelines, e.g. in the EFSUMB guidelines 2004, 2008 and 2012 as well as the WFUMB-EFSUMB guidelines recently published. This presentation sets out considerations to make a structured work-up of incidental liver tumours feasible.

Normal, fibrosis or cirrhosis? NICE guidelines on VTq assessment and cost-effectiveness
P.S. Sidhu; *London/UK*

The use of non-invasive techniques to pre-assess patients with underlying diffuse liver disease is paramount in the work-up, with the potential to reduce the number of diagnostic liver biopsies, and to reduce healthcare costs. A number of serological markers are employed to predict the presence of fibrosis or cirrhosis, with both ultrasound and magnetic resonance imaging assuming an increasingly important role. Ultrasound machines now incorporate point shear wave technology, using acoustic radiation force impulse (ARFI) imaging (VTq™, Siemens) to document the stiffness of the liver by measuring the velocity of a 'lateral shear wave' and translate this to the degree of liver fibrosis (commonly using the Metavir Score). A quantitative measure allows for the avoidance of biopsy when normal values are obtained, and when values clearly indicate advanced disease. Studies demonstrate that VTq is a reliable non-invasive technique for liver fibrosis assessment, and the National Institute of Clinical Excellence (NICE) of the United Kingdom has issued guidelines to indicate the usefulness of the technique and compared the cost-effectiveness of deploying the method in the workup of diffuse liver disease. The review reported favourably for cost savings and accuracy. The ability to differentiate normal from advanced fibrosis and cirrhosis is clear, early fibrosis remains a challenge.

The role of a new tissue strain analytics technology VTIQ together with contrast enhanced ultrasound in testicular lesions
D.-A. Clevert; *Munich/DE*

Ultrasound is a sensitive and accurate technique for the evaluation of testicular abnormalities, and is widely accepted as the first-line imaging technique and the gold standard for many common and uncommon testicular diseases but does not provide a histological diagnosis. Due to the continuous development of modern ultrasonography such as high frequency transducers, color Doppler and Real-time Elastography, ultrasonography and contrast enhanced ultrasound is considered the imaging modality of choice in small parts and scrotal disorders. Real-time Elastography has been introduced over 20 years ago for making non-invasive measurements of the mechanical properties of tissue and for imaging the elasticity of biological tissue. Virtual touch tissue imaging quantification (VTIQ) is a new imaging modality that together with contrast enhanced ultrasound estimates tissue stiffness and tissue perfusion in real time.

12:30 - 13:30 **Studio 2016**

organised by GE Healthcare

SY 15

Women's health imaging: advances in screening and diagnostic procedures

Moderator:
L. Katz; Buc/FR

DBT vs mammography in a randomised population-based screening trial: initial results
P. Pattacini; *Reggio Emilia/IT*

Abstract not available by date of publication

3D automated breast-ultrasound (ABUS) combined with digital mammography: a responsible approach for screening women with dense breasts
L. Tabar; *Falun/SE*

Abstract not available by date of publication

MRI for women with a high risk of breast cancer
L. Martincich; *Candiolo/IT*

Abstract not available by date of publication

12:30 - 13:30 **Room E1**

organised by Bracco

SY 16

Programme not available by date of publication

12:30 - 13:30 **Room F2**

jointly organised by Siemens Healthcare and Bayer HealthCare

SY 17

Synergies in CT for better patient care

Moderator:
J.E. Wildberger; Maastricht/NL

Individualised contrast enhanced CT scans in clinical practice - challenges and solutions
J.E. Wildberger; *Maastricht/NL*

Abstract not available by date of publication

TwinBeam dual energy - clinical relevance in daily routine
B. Jankharia; *Mumbai/IN*

Abstract not available by date of publication

Latest news on dual source CT - imaging without compromises
T.G. Flohr; *Forchheim/DE*

Abstract not available by date of publication

12:30 - 13:30 **Room K**

organised by Bracco

SY 18

Programme not available by date of publication

12:30 - 13:30 **Room G**

organised by Guerbet

SY 19

Brain gadolinium retention related to whole body multiple injections in MRI

Moderator:
A.J. van der Molen; Leiden/NL

Experts:
M.M. Thurnher; *Vienna/AT*

T.H. Helbich; *Vienna/AT*

T. Leiner; *Utrecht/NL*

This session will be in the form of a debate.

12:30 - 13:30 **Room M 3**

organised by HIMSS (Healthcare Information and Management Systems Society)

SY 20

Programme not available by date of publication

14:00 - 15:30 **Room C**

organised by Hologic

SY 21

High volume screening with 3D mammography

Moderators:
B. Martins; Brussels/BE
P. Skaane; Oslo/NO

Programme not available by date of publication

14:00 - 15:30 **Room Z**

organised by Bayer HeathCare Russia

SY 22

Standards, guidelines and protocols improving diagnostic results in CT and MRI neuroimaging

Moderators:
I.N. Pronin; Moscow/RU
I.E. Tyurin; Moscow/RU

Introduction
I.E. Tyurin; *Moscow/RU*

Advances in contrast-enhanced MRI and CT of the brain and spine including advanced imaging techniques
M. Essig; *Winnipeg, MB/CA*

There have been recent advances in structural and functional neuroimaging that enable a better integration of the imaging results into the differential diagnostic, treatment decision and planning process as well as the follow-up assessment of CNS disease. Functional of physiologic imaging techniques have gained great interest in the management of different CNS diseases and in oncologic imaging. The use of contrast media is an important component of modern CNS imaging protocols and we have to understand the differences in contrast media performance and safety profiles. The presentation will give an overview on the use of contrast media in modern CNS protocols and challenges in respect of their safety and efficacy.

Recommendations, protocols and modern technologies in neurooncology and neurotrauma (part I)
I.N. Pronin; *Moscow/RU*

N. Zakharova; *Moscow/RU*

Modern neuroimaging technologies permit us to reveal brain tumours, their localization, extension, structure and, moreover, tumour blood supplying and malignancy degree. These possibilities help in differential diagnosis and postoperative imaging. Following the standard protocols does not exclude an individual approach to each patient. Neuroradiologists can modify standard protocols adding necessary advanced MRI-sequences or CT methods. Modern neuroimaging protocols for brain tumours and traumatic brain injury studies will be presented in this lecture. Routine (including contrast- enhanced imaging), advanced CT and MRI technologies will be also discussed. The essential use of contrast media for differential diagnostics will be emphasized. Neuroimaging protocols for intracerebral, extracerebral, metastatic tumours will be highlighted, and recommendations for their differential diagnosis will be given. Today CT is a method of choice for the acute traumatic brain injury. But in diffuse axonal injury it is necessary to use MRI in generally accepted and widespread sequences (T1, T2, T2-FLAIR, DWI), and advanced sequences such as gradient echo (SWI, SWAN) and diffusion tensor imaging (DTI).

Non-oncologic neuroimaging: standards, protocols and recommendations
V. Fokin; *St. Petersburg/RU*

Various ways of MR neuroimaging in different clinics can cause inaccuracy in data interpretation and further disunity in the diagnostic and treatment process. Besides, dynamic observation requires a common approach. The aim is optimise diagnostic protocols in non-tumour diseases by means of their standardisation. The imaging protocol must be adapted to the equipment that is available (field strength, gradient performance, available sequences, etc.). The use of contrast media is an important component of modern neurovisualisation. In a patient with acute stroke, the imaging protocol should include non-contrast CT for differentiation of haemorrhage or ischemic stroke and/or DWI, that can reveal regions of acute cerebral infarction within minutes after symptoms onset. Perfusion-weighted imaging (PWI) can identify regions of brain with decreased perfusion and can be used to select candidates for endovascular therapy. The characteristic abnormalities of MS in the brain consist of multiple white-matter lesions with a high signal intensity on FLAIR, PD- and T2-WI and low signal intensity on T1-WI. It is important to assess presence of lesions in corpus callosum by means of sagittal T2-WI or FLAIR. Precontrast and postcontrast T1-WI must be made at least in axial plane, or T1 MPRAGE can be performed. 5-20 minute delay is also necessary to provide sufficient time for GD to leak through the BBB. Alzheimer's disease is one of the most common of all dementing disorders in the elders. It is a disease of gray matter, which demonstrates loss of cells from the cerebral cortex. T1 MPRAGE is a sequence, that can provide very accurate gray matter volume or cortical thickness estimation using special postprocessing software. In patient with epilepsy, caused by hippocampal abnormalities it is important to visualise these structures in different planes with at least T1- and T2-WI, to find if any signal intensity or atrophy take place. Thus, standardisation of diagnostic protocols will help to improve the quality of diagnostic and treatment process in non-tumour diseases.

Remarks and conclusions
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14:00 - 15:30 **Room O**

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14:00 - 15:30 **Room G**

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SY 24

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14:00 - 15:30 **Room M 3**

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SY 25

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Saturday, March 5

12:30 - 13:30 **Room C**

organised by GE Healthcare

SY 26

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12:30 - 13:30 **Room O**

organised by Philips

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12:30 - 13:30 **Room N**

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SY 28

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12:30 - 13:30 **Studio 2016**

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12:30 - 13:30 **Room K**

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