EUROPEAN CONGRESS OF RADIOLOGY

ECR 2023

Book of Abstracts

Contents

EUROPEAN SOCIETY OF RADIOLOGY

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Abstracts of the ECR 2023 Scientific Programme are published as a Supplement to Insights into Imaging.

ECR 2023
Postgraduate Educational Programme

Clinical Trials in Radiology (CTiR)
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Wednesday, March 1

08:00-09:00 **Room A**

Refresher Course: Oncologic Imaging

RC 116

Normal variants and mimics in oncologic imaging

RC 116-1
Chairperson's introduction
I. Santiago; Lisbon/PT

RC 116-2
Chest imaging
M.-P. Revel; Paris/FR
(marie-pierre.revel@aphp.fr)

Learning Objectives:
1. To understand how benign pathology may mimic cancer.
2. To learn about normal variants which may resemble cancer.
3. To know how to avoid discrepancies in interpretation.
Author Disclosures:
Marie-Pierre Revel: Equipment Support Recipient: Mevis, Aidence, Coreline, Gleamer; Grant Recepient: French ministry of Health, French cancer Institute; Speaker: Bracco, GE Healthcare, MSD, Boehringer Ingelheim, Gleamer

RC 116-3
Gastrointestinal imaging
L. Curvo-Semedo; Coimbra/PT
(curvosemedo@gmail.com)

Learning Objectives:
1. To understand how benign pathology may mimic GI cancer.
2. To learn about normal variants which may resemble GI cancer.
3. To know how to avoid discrepancies in interpreting GI lesions.

RC 116-4
Female pelvis imaging
L. Manganaro; Rome/IT
(lucia.manganaro@uniroma1.it)

Learning Objectives:
1. To understand how benign pathology may mimic gynaecological cancer.
2. To learn about normal variants which may resemble gynaecological cancer.
3. To know how to avoid discrepancies in interpreting gynaecological lesions.

Panel discussion: Errors and discrepancies in oncologic imaging

08:00-09:00 **Room B**

E³ - ECR Master Class (Breast)

E³ 126

The growing role of the radiologist in breast treatment

E³ 126-1
Chairperson's introduction
M. H. Fuchsjäger; Graz/AT
(michael.fuchsjaeger@medunigraz.at)

E³ 126-2
Vacuum-assisted breast biopsy (VABB) after neoadjuvant treatment: the BISUCO trial
S. Jimenez Arranz; Madrid/ES
(sarajimenezarranz@gmail.com)

Learning Objectives:
1. To learn how to choose the best imaging modalities per breast cancer subtype to select patients for potential biopsy and elimination of surgery.
2. To understand how to identify the optimal method of minimal invasive biopsy: FNA vs core cut vs VACB/VAE in the post-NAC.
3. To analyse if the accuracy of image-guided biopsy is comparable with the gold standard surgical treatment.
4. To list the most relevant clinical trials that are omitting surgery after NAC.
Author Disclosures:
Sara Jimenez Arranz: Advisory Board: Sara Jimenez Arranz

E³ 126-3
Minimally invasive treatment of early breast cancer
N. Sharma; Leeds/UK

Learning Objectives:
1. To describe the current landscape of where we are in terms of treatment.
2. To identify the minimally invasive techniques that are currently in clinical use or part of research trials.
3. To identify the trials that are looking at the role of minimally invasive techniques in treating invasive cancers.
Author Disclosures:
Nisha Sharma: Advisory Board: BD, Hologic

E³ 126-4
Image-guided de-escalation of treatment: the PROSPECT trial paradigm shift
A. Rose; Fitzroy, VIC/AU
(allisonkrose@bigpond.com)

Learning Objectives:
1. To consider the omission of radiotherapy from current treatment protocols for early breast cancer (EBC) as de-escalation and the reasoning behind the method.
2. To reflect on the nature of early breast cancer (EBC), ipsilateral invasive recurrence (IIR) and its relationship to undiagnosed cancers occult on conventional imaging.
3. To differentiate minimal/mild BPE from moderate/marked BPE on breast MRI and predict how it will affect the identification of synchronous occult cancers and thereby impact the ability to de-escalate treatment.
4. To adapt existing knowledge of local staging of breast cancers with MRI to enable identification of unifocal EBCs for which radiotherapy may be safely omitted.

Panel discussion: Are we ready to operate in the therapeutic era?

08:00-09:00 **Room C**

Refresher Course: Cardiac

RC 103

Multimodality imaging of cardiovascular inflammation

RC 103-1
Chairperson's introduction
M. Hrabak Paar; Zagreb/HR
(maja.hrabak.paar@mef.hr)

RC 103-2
Myocarditis: update on imaging
M. Francone; Milan/IT
(marco.francone@hunimed.eu)

Learning Objectives:
1. To become aware of the pathogenesis and prevalence of acute myocarditis.
2. To review the spectrum of cardiac MRI findings characterising myocarditis and to become aware of its differential diagnoses.
3. To discuss possible imaging pathways to follow-up patients with a previous infection and recognise chronic cardiovascular sequelae of acute myocarditis.

RC 103-3
Vasculitis: which is the best test?
V. E. Sinitsyn; Moscow/RU
(vsini@mail.ru)

Learning Objectives:
1. To learn about the classification of vasculitis based on vessel size and their major clinical manifestations.
2. To become aware of the key imaging findings in vasculitis.
3. To learn about the modern recommendations for vasculitis imaging and understand the disadvantages and limitations of ultrasound, CTA, MRA, PET/CT, and PET/MRI.

RC 103-4
Endocarditis: a difficult diagnosis
R. P. J. Budde; Rotterdam/NL

Learning Objectives:
1. To discuss the role of imaging in the diagnosis of endocarditis.
2. To become familiar with the CT and PET/CT imaging findings that indicate endocarditis.
3. To discuss the role of the radiologist in the endocarditis team.
Author Disclosures:
Ricardo P. J. Budde: Research Grant/Support: Erasmus MC recieves institutional support by Heartflow and Siemens; Speaker: Bayer

Panel discussion: Is hybrid imaging the answer?

08:00-09:00 **Room D**

E³ - Young ECR Programme: Basic Sessions

Organised by the ESR

BS 1
Musculoskeletal: rheumatic diseases

BS 1-1
Chairperson's introduction
J.-L. Drapé; Paris/FR
(jean-luc.drape@aphp.fr)

BS 1-2
Imaging of rheumatoid arthritis
J. Galley; Fribourg/CH

Learning Objectives:
1. To learn about the typical imaging findings in rheumatoid arthritis.
2. To understand the impact of the different imaging modalities.

BS 1-3
Imaging of seronegative spondyloarthropathies
J. L. M. A. Gielen; Antwerp/BE

Learning Objectives:
1. To learn about the typical imaging findings in seronegative spondyloarthropathies.
2. To understand the impact of the different imaging modalities.

BS 1-4
Imaging of crystal deposition diseases
R. Sutter; Zurich/CH

Learning Objectives:
1. To learn about the typical imaging findings in crystal deposition diseases.
2. To understand the impact of the different imaging modalities.
Author Disclosures:
Reto Sutter: Author: Breitenseher Publisher; Other: Balgrist University Hospital has an academic research collaboration with Siemens Healthineers, Balzano Informatik and Bayer

08:00-09:00 **Room E1**

Refresher Course: Abdominal and Gastrointestinal

RC 101
Evaluation of liver metastases

RC 101-1
Chairperson's introduction
T. K. Helmberger; Munich/DE
(thomas.helmberger@muenchen-klinik.de)
Author Disclosures:
Thomas K. Karl Helmberger: Advisory Board: Varian; Board Member: CIRT; Speaker: Boston Scientific, SIRTEX, Term

RC 101-2
Evaluation by CT before and after chemotherapy
V. Obmann; Berne/CH
(verena.obmann@insel.ch)

Learning Objectives:
1. To understand the imaging appearance of the most frequent liver metastases in CT.
2. To learn how liver metastases can change their appearance after chemotherapy.

RC 101-3
Evaluation by MRI before and after chemotherapy
V. Vilgrain; Clichy/FR

Learning Objectives:
1. To understand the role of liver MRI according to patient resectability.
2. To know the optimal protocol of MRI in liver metastases.
3. To be aware of the different MR criteria for assessing tumor response.

RC 101-4
Liver metastases: what the surgeon needs to know
H. Alexandrino; Coimbra/PT

Learning Objectives:
1. To understand the value of preoperative imaging in planning liver surgery.
2. To summarise the key factors involved in defining resectability.
3. To integrate imaging in the multidisciplinary decision-making of patients with liver metastases.

Panel discussion

08:00-09:00 **Room E2**

Refresher Course: Chest

RC 104
Technical advances in thoracic imaging

RC 104-1
Chairperson's introduction
A. Snoeckx; Antwerp/BE
(Annemiek.Snoeckx@uza.be)
Author Disclosures:
Annemie Snoeckx: Advisory Board: Agfa

RC 104-2
Protons and more: the rise of lung MRI
H.-U. Kauczor; Heidelberg/DE

Learning Objectives:
1. To describe the current state-of-the-art of technology and methodology.
2. To integrate MRI in clinical practice for thoracic imaging.
3. To judge the future impact of current translation research.
Author Disclosures:
Hans-Ulrich Kauczor: Advisory Board: Median; Research Grant/Support: Siemens, Philips, Boehringer Ingelheim, Vertex; Speaker: Philips, Siemens, MSD, Sanofi

RC 104-3
It is not just about molecules: advances in hybrid imaging
F. Fraioli; London/UK
(f.fraioli@ucl.ac.uk)

Learning Objectives:
1. To learn about established and new tracers and emerging technology.
2. To understand how to use hybrid imaging for diagnosing and/or for response assessment of thoracic diseases.
3. To learn about therapies and how biomedical hybrid imaging influence therapy decisions.

RC 104-4
New energies: spectral imaging on the forefront?
V. Mergen; Zurich/CH
(victor.mergen@usz.ch)

Panel discussion: How do patients profit from technical advances

08:00-09:00 **Room G1**

Refresher Course: Paediatric

RC 112

Musculoskeletal and soft tissue tumours in children

RC 112-1
Chairperson's introduction
S. Díaz; Stockholm/SE
(sandra.diaz-ruiz@regionstockholm.se)

RC 112-2
Typical paediatric bone tumours
P. L. Di Paolo; Rome/IT
(pierluigi.dipaolo@opbg.net)

Learning Objectives:
1. To understand the typical imaging features of paediatric bone tumours.
2. To learn how best to use imaging modalities in differential diagnosis.
3. To learn how to combine imaging and clinical features to suggest a specific diagnosis.

RC 112-3
Typical paediatric soft tissue tumours
E. Inarejos; Esplugues de Llobregat/ES
(emilioinarejos@gmail.com)

Learning Objectives:
1. To review the use of imaging techniques for the evaluation of soft tissue tumours, including radiography, ultrasound, conventional MRI, and multiparametric MRI.
2. To describe the radiological management of soft tissue tumours.
3. To illustrate the most frequent soft tissue tumours with their corresponding key imaging features.

RC 112-4
Tumour mimics
J. M. Patsch; Vienna/AT

Learning Objectives:
1. To learn about bone entities in paediatric MSK imaging and soft tissue tumour mimics as important.
2. To understand the underlying pathophysiology leading to tumour-like appearance (of bone and soft tissue tumour mimics).
3. To appreciate the importance of bone and soft tissue tumour mimics as essential differential diagnoses for paediatric musculoskeletal masses.
Author Disclosures:
Janina Maria Patsch: Speaker: Speaker Honoraria (Canon Medical)

Panel discussion: If imaging cannot always make a definite diagnosis, when should you opt for a biopsy?

08:00-09:00 **Room K2**

Refresher Course: Neuro

RC 111

Pros and Cons: Vessel wall imaging is very helpful in daily clinical practice

RC 111-1
Chairperson's introduction
L. van den Hauwe; Antwerp/BE
(lucvdhauwe@mac.com)

RC 111-2
Pro
A. Hedjoudje; Sion/CH
(a.hedjoudje@gmail.com)

Learning Objectives:
This house believes that vessel wall imaging is very helpful in daily clinical practice

RC 111-3
Con
J. Hendrikse; Utrecht/NL

Learning Objectives:
This house believes that vessel wall imaging does not tell us what we need to know.

Panel discussion: Tips and tricks from the experts

08:00-09:00 **Room N**

Refresher Course: Genitourinary

RC 107

GU imaging and interventional techniques

RC 107-1
Chairpersons' introduction
G. Brembilla; Milan/IT
(Giorgio.brembilla@gmail.com)
I. Campo; Trieste/IT
(irenecampo11@gmail.com)

RC 107-2
MRI in characterisation and staging of testicular tumours
A. Tsili; Ioannina/GR
(a_tsili@yahoo.gr)

Learning Objectives:
1. To learn the MRI protocol and technique of testes MRI.
2. To learn the different types of tumours and the pre-operative details of testicular masses.
3. To understand the key elements for US and MRI reporting.

RC 107-3
CEUS in renal lesions
C. Nicolau; Barcelona/ES
(cnicolau@clinic.cat)

Learning Objectives:
1. To define the CEUS technique.
2. To identify imaging characteristics of the different renal tumours.
3. To be able to identify the differential diagnosis of urinary tract infection.

RC 107-4
Percutaneous renal mass ablation
J. A. Hernandez Mancera; Barcelona/ES
(jhernandez.md@gmail.com)

Learning Objectives:
1. To describe the principles of percutaneous renal mass cryoablation.
2. To compare the results and complications of the technique against partial nephrectomy.
3. To identify the current role of the technique in the different international urologic guidelines.

RC 107-5
AI: where are we and where are we going
R. Cuocolo; Naples/IT

Learning Objectives:
1. To learn how to implement AI in the medical degree.
2. To define what AI basics we should teach our residents.
3. To analyse how to implement AI in our departments.

Panel discussion: basic understanding of advanced GU imaging

09:30-10:30 **Open Forum ESR at Work**

EDiR Session

Organised by the European Board of Radiology (EBR)

EDiR 2

EDiR simulation session: real exam cases with feedback from the examiners – geriatric radiology

EDiR 2-1
Chairperson's introduction
L. Oleaga Zufiría; Barcelona/ES
(lauraoleaga@gmail.com)

EDiR 2-2
EDiR simulation
M. Vernooij; Rotterdam/NL
(m.vernooij@erasmusmc.nl)
H. Boulkhrif; Rotterdam/NL
(h.boulkhrif@erasmusmc.nl)

Learning Objectives:
1. To experience a slightly different kind of EDiR; multiple response questions, short cases, and clinically oriented reasoning evaluation (CORE) cases as you would find in an actual exam but with a focus on a subspecialty.
2. To analyse and solve theoretical and hands-on cases.
3. To become familiar with the clue patterns of the EDiR questions.
4. To gain knowledge about the most challenging cases of this simulation.
5. To understand and assimilate the fundamentals of a subspecialty.
6. To learn the most relevant EDiR educational tools.
Author Disclosures:
Meike W. Vernooij: Board Member: Chair of the EDiR Written Evaluation Committee and Member of EDiR Scientific Board

Scientific discussion and Q&A

09:30-10:30 **Open Forum Trainees**

Open Forum Session

OF 2T

Artificial intelligence: questions you wanted to ask us but didn't

OF 2T-1
Chairperson's introduction
M. Reim; Tartu/EE
(reimmartin@gmail.com)

Learning Objectives:
Part of a series of back to basics sessions reflecting the cycle of life of radiology practice. This session focusses on the future practice of radiology involving artificial intelligence.

OF 2T-2
AI, simply put
V. J. Goh; London/UK
(vicky.goh@kcl.ac.uk)

Learning Objectives:
1. To explain what AI in imaging entails.
2. To understand basic performance metrics for AI.
Author Disclosures:
Vicky Goh: Research Grant/Support: Siemens Healthineers

OF 2T-3
How should AI solutions be implemented into clinical practice?
P. Omoumi; Lausanne/CH
(patrick.omoumi@chuv.ch)

Learning Objectives:
1. To explain the ÉCLAIR guidelines.
2. To provide a framework for commercial AI implementation into clinical practice.

OF 2T-4
Artificial intelligence (AI): how to start a 'start-up'
T. Lindig; Tübingen/DE
(tobias.lindig@med.uni-tuebingen.de)

Learning Objectives:
1. To explain how to scale up AI tools from research into a product.
2. To learn about funding possibilities and finding investors for a startup.
Author Disclosures:
Tobias Lindig: CEO: AIRAmed; Founder: AIRAmed; Grant Recepient: AFI grant; Share Holder: AIRAmed GmbH; Speaker: Roche

Open forum discussion: AI in practice, what do we need for this?

09:30-10:30 **Room C**

Refresher Course: Physics in Medical Imaging

Jointly organised by the ESR and EFOMP

RC 213

MRI scanning with cardiac devices: the new routine

RC 213-1
Chairperson's introduction
I. Seimenis; Athens/GR
(iseimen@med.uoa.gr)

RC 213-2
The cardiologist's point of view
C. Allaart; Amsterdam/NL

Learning Objectives:
1. To understand the clinical need for improved provision of MRI to cardiovascular implantable electronic device (CIED) patients.
2. To describe the relative risks of MRI in patients with non-MR conditional CIEDs.
3. To describe the workflows for scanning MR conditional and non-MR conditional CIEDs.

RC 213-3
The radiologist's point of view
J. Habets; The Hague/NL

Learning Objectives:
1. To discuss challenges in cardiac MRI evaluation in patients with cardiac devices.
2. To reflect on the safety aspects of cardiac MRI imaging in patients with cardiac devices.
3. To identify available solutions to improve image quality in patients with cardiac devices.

RC 213-4
The physicist's point of view
A. McCann; Belfast/UK
(aaron.mccann@belfasttrust.hscni.net)

Learning Objectives:
1. To provide an overview of the physicist's role in MRI safety.
2. To provide an update on the current status of safety in different devices.
3. To discuss different devices in different MRI environments and safety solutions.

Panel discussion: What is the next development you most want to see?

09:30-10:30 **Room G1**

Refresher Course: Head and Neck

RC 208

Imaging Menière disease

RC 208-1
Chairperson's introduction
S. E. J. Connor; London/UK

RC 208-2
Endolymphatic hydrops and vestibular disorders from the otologist's point of view
R. Gürkov; Munich/DE

Learning Objectives:
1. To list the components of the diagnostic pyramid in the evaluation of vertigo.
2. To name the two most important indications for endolymphatic hydrops imaging.
3. To diagnose endolymphatic hydrops and identify markers of insufficient image quality.

RC 208-3
Imaging the endolymphatic hydrops
A. Bernaerts; Antwerp/BE
(Anja.Bernaerts@gza.be)

Learning Objectives:
1. To name and identify the MR anatomy of the perilymphatic and endolymphatic spaces.
2. To discuss the different MR hydrops sequences and select an appropriate MR protocol.
3. To diagnose and grade endolymphatic hydrops and blood-labyrinth barrier impairment.

RC 208-4
Update in primary and secondary hydropic ear
A. Venkatasamy; Strasbourg/FR
(aina.venkat@ihu-strasbourg.eu)
Author Disclosures:
Aïna Venkatasamy: Research Grant/Support: MITI 2 (Horizon 2022), GASDHAC (ITMO Cancer, France), LYNOP (IHU Strasbourg)

Panel discussion: Can we move away from delayed FLAIR sequences in endolymphatic hydrops?

09:30-10:30 **Room K2**

Refresher Course: Musculoskeletal

RC 210

Update in imaging rheumatology

RC 210-1
Chairperson's introduction
M. Reijnierse; Amsterdam/NL
(m.reijnierse@lumc.nl)

RC 210-2
How to avoid overdiagnosis of SpA on MRI
A. Feydy; Paris/FR
(antoine.feydy@cch.aphp.fr)

Learning Objectives:
1. To describe the MRI findings of inflammatory diseases of the axial skeleton.
2. To learn about differentials of inflammatory diseases of the axial skeleton.

RC 210-3
New insights and developments in imaging of spondyloarthropathy
W. Rennie; Leicester/UK
(wjrennie@yahoo.com)

Learning Objectives:
1. To describe how to optimise your protocol.
2. To list the potential role of dual-energy CT for the detection of inflammatory diseases in the axial skeleton.
3. To list the potential role of synthetic CT of inflammatory diseases in the axial skeleton.

RC 210-4
Advances in ultrasound of juvenile inflammatory arthropathies
I. Sudol-Szopinska; Warsaw/PL
(sudolszopinska@gmail.com)

Learning Objectives:
1. To explain the role of ultrasound in inflammatory arthropathies in children and adolescents compared to conventional radiography and MRI.
2. To list the ultrasound findings and differentials in inflammatory arthropathies in children and adolescents.

Panel discussion: The role of imaging in the diagnosis and characterisation of rheumatologic diseases

09:30-10:30 **Studio**

Round Table Session

RT 2

Diversity, equality, inclusivity (DEI) in radiology: do we need to actively promote it, and how can this be done?

RT 2-1
Chairperson's introduction
A. Brady; Cork/IE
(adrianbrady@me.com)

Learning Objectives:
1. To review current standards and practices within radiology regarding DEI.
2. To consider whether active interventions are needed or advisable to promote DEI.
2. To evaluate any potential unexpected consequences of such interventions.

RT 2-2
DEI in radiology: the UK experience
R. Sinnatamby; Cambridge/UK
(ruchira.sinnatamby@nhs.net)

RT 2-3
Has Scandinavia moved beyond the need for active attention to DEI?
A. P. Parkar; Bergen/NO
(apparkar@gmail.com)

RT 2-4
Accelerating diversity in radiology: an assessment of what works and what doesn't
G. McGinty; New York, NY/US
(geraldinemcginty@gmail.com)
Author Disclosures:
Geraldine B. McGinty: Advisory Board: Agamon Healthcare and Ryver.ai; Board Member: NextGen Healthcare

RT 2-5
Discussion
A. Brady; Cork/IE
(adrianbrady@me.com)
R. Sinnatamby; Cambridge/UK
(ruchira.sinnatamby@nhs.net)
A. P. Parkar; Bergen/NO
(apparkar@gmail.com)
Y. Anzai; Salt Lake City, UT/US
(yoshimi.anzai@hsc.utah.edu)
K. Diefenbach; Berlin/DE
(konstanze.diefenbach@bayer.com)
Author Disclosures:
Konstanze Diefenbach: Employee: Bayer AG, Pharmaceutical Division

09:30-11:00 **Room A**

Special Focus Session

SF 2

Artificial intelligence (AI) and us: exploring the societal impact of AI in healthcare

SF 2-1
Chairperson's introduction
A. G. Rockall; London/UK

SF 2-2
AI impact on the environment
A. Alberich-Bayarri; Valencia/ES
(angel@quibim.com)

Learning Objectives:
1. To learn about carbon footprint in AI, including data storage and model training.
2. To be aware of sustainable data storage options for dark data and archiving.
3. To understand the potential roles of AI in mitigating carbon footprint in imaging pathways.
Author Disclosures:
Angel Alberich-Bayarri: Board Member: Quibim; CEO: Quibim; Founder: Quibim; Share Holder: Quibim

SF 2-3
AI impact in low resource countries
A. Jiménez-Pastor; Valencia/ES
(anajimenez@quibim.com)

Learning Objectives:
1. To learn about areas where imaging AI could meet the needs of low- and middle-income countries (LMIC).
2. To be aware of the key applications of AI imaging to support radiology in LMIC.
3. To understand ways to collaborate in AI research for a positive impact in LMIC.
Author Disclosures:
Ana Jimenez-Pastor: Employee: Quibim SL

SF 2-4
AI impact on the radiologist
S. Triberti; Milan/IT
(stefano.triberti@unimi.it)

Learning Objectives:
1. To learn about a psychologist's view on AI's impact on radiologists.
2. To understand the potential for deskilling, overreliance, and automation bias.
3. To be aware of tips to mitigate potential negative impacts of AI on radiology reporting.

SF 2-5
A patient's perspective on AI in medicine
C. Justich; Vienna/AT
(cjustich@me.com)

Learning Objectives:
1. To highlight what patients want to know when we report scans using AI and to discuss if this information should be added to the report.
2. To address the predominant concerns of patients.
3. To stress the predominant hopes of patients.
Author Disclosures:
Caroline Justich: Founder: Be accepted Home of the smart 8

SF 2-6
AI and ethics
R. Geis; Fort Collins, CO/US

Learning Objectives:
1. To become aware of unique ethical issues for digital data in radiology.
2. To learn the variety of ethical challenges associated with intelligent machines.
3. To understand the need for formal verification, validation, and monitoring of AI used in clinical and department management settings.
Author Disclosures:
Raym Geis: Advisory Board: Innosphere Ventures Funds

Panel discussion: AI, the patients and us: how can we get it right?

09:30-11:00 **Room B**

E^3 - Advanced Courses: Interactive Teaching Sessions for Young (and not so Young) Radiologists

E^3 221

Imaging biomarkers of diffuse liver disease

E^3 221-1
Multiparametric MRI
L. Martí-Bonmatí; Valencia/ES
(marti_lui@gva.es)

Learning Objectives:
1. To become familiar with the MRI methods for evaluating liver fibrosis.
2. To learn how to evaluate patients with liver fibrosis at the multiparametric MRI.
Author Disclosures:
Luis Marti-Bonmati: Board Member: Quibim SL and Institut d'Investigació Biomèdica de Girona

E^3 221-2
Multiparametric US
V. Cantisani; Rome/IT
(vito.cantisani@uniroma1.it)

Learning Objectives:
1. To become familiar with the new US imaging methods for the evaluation of steatosis.
2. To learn how to manage patients with liver steatosis at multiparametric US.
Author Disclosures:
Vito Cantisani: Speaker: Bracco, Samsung

09:30-11:00 **Room D**

EuroSafe Imaging Session

EU 2

ESR iGuide: clinical decision support for imaging referrals

EU 2-1
Chairperson's introduction
B. Brkljačić; Zagreb/HR
(boris@brkljacic.com)

EU 2-2
Results of the national CT and MRI audit in Sweden
H. Ståhlbrandt; Eksjö/SE
(henriettae.stahlbrandt@rjl.se)

Learning Objectives:
1. To learn how iGuide can be applicable in retrospective appropriateness evaluation on a larger scale.
2. To appreciate the advantages and pitfalls of using this methodology.
3. To understand appropriateness at a national level.

EU 2-3
Impact of point of care CDS on patient journey, radiation dose exposure and sustainability
R. Killeen; Dublin/IE
(ronanpkilleen@gmail.com)

Learning Objectives:
1. To learn how implementing the POC CDST reduced the number of patients who simultaneously had a CT, and an MRI ordered for the same indication by 73%, p=0.006.
2. To learn if, also including those who had a CT followed by an MRI (or vice-versa), within the specified three-month timeframe, there was a reduction in multimodality ordering (CT and MRI) of 61%, p<0.0001.
3. To understand how POC CDST reduced the absolute number of CT/MRI scans in 2021 by 8.2%, p<0.0001.

EU 2-4
ESR iGuide implementation and content version upgrade at CV Vic in Spain
M. Serrallonga-Mercader; Barcelona/ES
(martaserrallonga@gmail.com)

Learning Objectives:
1. To describe how the ESR iGuide content version upgrade has been developed after the Pilot Phase implementation.
2. To consider how team commitment and alignment with strategic decisions are crucial for a successful content version upgrade.
3. To discuss and reflect on the complexity of implementing, maintaining and improving a CDS in a hospital environment.

EU 2-5
ESR iGuide implementation update: Israel
J. Sosna; Jerusalem/IL
(jacobs@hadassah.org.il)

Learning Objectives:
1. To learn about the ESR iGuide integration into a proprietary hospital information system.
2. To appreciate the role of CDS in radiology and hospital IT strategy.
3. To understand the barriers to widespread clinical implementation of CDS.

Panel discussion

09:30-11:00 **Room E1**

E³ - Advanced Courses: Radiology of the Afterlife

E³ 222

Disaster victim identification (DVI) and forensic anthropology

E³ 222-1
Chairpersons' introduction
M. D. Viner; London/UK
F. Dedouit; Toulouse/FR
(fabded2@hotmail.com)

Learning Objectives:
In mass casualties or terrorist attacks, many victims need to be identified despite the possible extensive destruction of the bodies. Radiology is essential in this process. In this session, the process is explained and illustrated with some recent disaster situations.

E³ 222-2
Radiology of the victims of the terror attacks in Norway
A. Stray-Pedersen; Oslo/NO

E³ 222-3
3D reconstructions in DVI
M. Biggs; Leicester/UK

E³ 222-4
The use of radiology for identification and DVI
T. Ruder; Berne/CH

Panel discussion: What is the best radiological protocol in DVI?

09:30-11:00 **Room N**

New Horizons Session

NH 2

Lymphangiography in children

NH 2-1
Chairperson's introduction
R. Gnannt; Zurich/CH
(ralph.gnannt@usz.ch)

NH 2-2
Clinical indications and technique of DCMRL
W. M. Klein; Nijmegen/NL
(willemijn.klein@radboudumc.nl)

Learning Objectives:
1. To understand the indication and timing of MR lymphangiography.
2. To understand the technique of dynamic-contrast MR lymphangiography.
3. To learn about technical tips and tricks for performing a contrast-enhanced MR lymphangiography in a newborn.

NH 2-3
Clinical scenarios and different imaging modalities of lymphatic flow disorders
P. Gerwins; Uppsala/SE
(par.gerwins@akademiska.se)

Learning Objectives:
1. To be familiar with the difference between common lymphatic malformations, primary lymphoedema and complex lymphatic anomalies.
2. To understand the difference between lymphoscintigraphy and contrast-enhanced MR lymphangiography.
3. To recognise several types of congenital and acquired lymph flow disorders.

NH 2-4
Minimal-invasive therapeutic options in children with chyle leakage
G. Maleux; Leuven/BE

Learning Objectives:
1. To understand how to interpret a contrast-enhanced MR lymphangiography.
2. To explain the difference between a DCMRL and a conventional lymphangiography.
3. To understand how to perform therapeutic lymphangiography and embolisation in children.
Author Disclosures:
Geert Maleux: Speaker: Cook Medical, NIPRO, Endologix; Other: proctor Sirtex, Quirem/Terumo

Panel discussion: The future of dynamic-contrast enhanced MR lymphangiography in children

11:30-12:00 **Open Forum Trainees**

Open Forum Session

Organised by the European Board of Radiology (EBR)

OF 3T

Tackle twisted cases, win your place in an EDiR examination (part 1)

OF 3T-1
Chairperson's introduction
L. Oleaga Zufiría; Barcelona/ES
(lauraoleaga@gmail.com)

Learning Objectives:
1. To dive into and experience the wonders of general radiology.
2. To prepare thoroughly for the exam while having a good time with other peers.
3. To gain deep knowledge of musculoskeletal and head and neck neuroradiology and have the opportunity to grow.

OF 3T-2
Let the games begin
L. Oleaga Zufiría; Barcelona/ES
(lauraoleaga@gmail.com)

Learning Objectives:
1. To scan and interpret two cases of today's subspecialty and possible outcomes based on the attendees' decisions.
2. To get to know and team up with peers from all over the world to help as many patients as possible.
3. To solve the quiz to win an EDiR examination place.

OF 3T-3
Pooling of conclusions and perceptions
L. Oleaga Zufiría; Barcelona/ES
(lauraoleaga@gmail.com)

Learning Objectives:
1. To jointly summarise and review what we have learned in today's session.

11:30-12:30 **Open Forum ESR at Work**

Open Forum Session

Organised by the ESR Publications Committee

OF 3E

Everything you need to know about peer review

OF 3E-1
Chairperson's introduction
L. Martí-Bonmatí; Valencia/ES
(marti_lui@gva.es)
Author Disclosures:
Luis Marti-Bonmati: Advisory Board: Member of the non-profit Scientific Advisory Boards of Quibim SL and the Girona Biomedical Research Institute

OF 3E-2
General organisation and history of of peer-review
Z. Z. Piechota; Warsaw/PL
(mz.piechota@gmail.com)

Learning Objectives:
1. To learn about the history of peer-review, and the beauty of unchangeable goals of the reviewing process.
2. To understand the editorial process, and its most crucial points.
3. To learn about the differences between open, single and double blinded review, and which option is the most preferable one.
4. To distinguish minor and major revision, and what makes the most desirable decision come true.

OF 3E-3
The perfect review
J. M. García Santos; Murcia/ES
(josem.garcia11@carm.es)
R. Girometti; Udine/IT
(rgirometti@sirm.org)

Learning Objectives:
1. To understand what reviewers and what editors should do. Reviewers and editors are different: "rights and obligations".
2. To learn about approaches to a sound review. Reviewers and authors are different: they write a manuscript; you do a critical appraisal review.
3. To distinguish open from confidential comments. Authors and editors are different: what in your comments and recommendations will be critical for them?
Author Disclosures:
Jose Maria Garcia Santos: Author: Deputy Editor; Editorial Board European Radiology
Rossano Girometti: Board Member: I am Deputy Editor of European Radiology

OF 3E-4
Peer-review as seen by in-training radiologists
G. Lembarki; Casablanca/MA
(ghizlane.lembarki@gmail.com)

Learning Objectives:
1. To understand the need for recruiting, mentoring, and monitoring early career reviewers.
2. To learn about the benefits for young reviewers.
3. To receive specific tips for early career reviewers.
4. To understand the importance of mutual feedback between mentors and mentees for the improvement of mentorship and the quality of scientific publication.

Discussion / Questions

11:30-12:30 **Open Forum Radiographers**

Open Forum Session

OF 3R

Continuing experiences with the COVID-19 pandemic for radiographers

OF 3R-1
Chairperson's introduction
D. Sipos; Kaposvár/HU
(cpt.david.sipos@gmail.com)

Learning Objectives:
1. To discuss the most recent challenges and solutions of imaging during pandemic.
2. To determine the best solutions for undertaking diagnostic imaging outside the hospital.
3. To suggest and present new imaging protocols as a response to pandemic situations.

OF 3R-2
Continuing challenges for radiographers during a pandemic
C. Walsh; Cork/IE
(CEWalsh@bonsecours.ie)

OF 3R-3
Establishing radiology services outside of the hospital department
M. Zanardo; Milan/IT
(moreno.zanardo@unimi.it)

OF 3R-4
New imaging protocols during the pandemic
A. Partner; Derby/UK
(a.partner@derby.ac.uk)

Open forum discussion

11:30-12:30 **Room A**

E^3 - The Beauty of Basic Knowledge: Screening

E^3 25A

Radiology screening: present state of play

E^3 25A-1
Chairperson's introduction
A. Brady; Cork/IE
(adrianbrady@me.com)

Learning Objectives:
At the end of this session, the participants will be aware of the latest European screening recommendations, the effect of screening on cancer mortality and the key factors for a successful implementation.

E³ 25A-2
Europe's beating cancer plan: update of the 2003 Council Guidelines on cancer screening
R. G. H. Beets-Tan; Amsterdam/NL

Learning Objectives:
1. To learn about the objectives of the Europe's beating cancer plan.
2. To get informed about the update of September 2022.
3. To understand the proposed step-by-step approach.

E³ 25A-3
What is the evidence of benefit from established programmes?
H. J. de Koning; Rotterdam/NL

Learning Objectives:
1. To learn about the benefits of breast cancer screening.
2. To learn about the benefits of colon cancer screening.
3. To learn about the benefits of cervical cancer screening.
Author Disclosures:
Harry J. de Koning: Consultant: Bayer - Review external model analyses; Speaker: TEVA/ Menarini /Astra Zeneca - Lectures at symposia

E³ 25A-4
Setting up a screening programme: UK experience with lung cancer screening
A. Devaraj; London/UK

Learning Objectives:
1. To learn about the regional experience of LCS in the UK.
2. To understand how quality control is organised.
3. To learn about the update UK recommendation for LCS.
Author Disclosures:
Anand Devaraj: Consultant: Boehringer Ingelheim, Roche, Brainomix, Vicore

Panel discussion: Is screening the way to go to reduce cancer mortality?

11:30-12:30 **Room B**

Refresher Course: Musculoskeletal

RC 310
Imaging sarcopenia

RC 310-1
Chairperson's introduction
R. Pedersen; Toensberg/NO
(pedersen70@gmail.com)

RC 310-2
Sarcopenia assessment with ultrasound
V. Vasilevska-Nikodinovska; Skopje/MK
(v_vasilevska@yahoo.com)

Learning Objectives:
1. To describe the US findings of sarcopenia.
2. To learn about differentiating muscle atrophy from sarcopenia.

RC 310-3
Sarcopenia assessment with cross sectional imaging
I. Rutten; Maastrich/NL

Learning Objectives:
1. To understand how to bring research to clinical practice.
2. To learn about the role of cross-sectional techniques in the assessment of sarcopenia.

Panel discussion: Should muscle quality be included in all radiology reports?

11:30-12:30 **Room D**

EFOMP Workshop

EF
Physics of photon-counting CT: game changer or incremental progress?

EF-1
Chairpersons' introduction
P. Gilligan; Dublin/IE
(paddygilligan@mater.ie)
L. Sukupova; Prague/CZ
(lucie.sukupova@ikem.cz)
Author Disclosures:
Paddy Gilligan: Board Member: president of efomp board member euramed

EF-2
Introduction
K. N. Bolstad; Bergen/NO

EF-3
Technical possibilities of photon-counting CT
M. Kachelrieß; Heidelberg/DE
(marc.kachelriess@dkfz.de)

Learning Objectives:
1. To learn about the technologies behind photon-counting CT.
2. To learn about new developments.
3. To become familiar with how new protocols can be implemented in a practical manner.

EF-4
Image quality and dose in photon-counting CT
L. Sukupova; Prague/CZ
(lucie.sukupova@ikem.cz)

Learning Objectives:
1. To learn about image quality implications in photon-counting CT.
2. To understand if the potential dose reductions are real or not.
3. To become familiar with how to optimise photon-counting CT in a practical manner.

EF-5
Clinical practice in photon-counting CT
D. Juskanic; Nitra/SK

Learning Objectives:
1. To describe the implementation of optimised protocols for the new clinical uses of photon-counting CT.
2. To understand the effect that this has on clinical practice.
3. To look toward future trends in this area.
Author Disclosures:
Dominik Juskanic: Research Grant/Support: National Cancer Institute, AIFP; Speaker: Boehringer Ingelheim, Roche, Novartis, Sanofi; Other: RaD Siemens, Fuji

Panel discussion: Photon-counting CT: game changer or incremental progress?

11:30-12:30 **Room K1**

ISRRT meets India

Meets 3

Radiography profession performance and future challenges in India

Presiding
H. H. Hjemly; Oslo/NO
N. Pongnapang; Bangkok/TH

Meets 3-1

Chairpersons' introduction
N. Pongnapang; Bangkok/TH
(napapong@hotmail.com)
H. H. Hjemly; Oslo/NO

Learning Objectives:
1. To understand more about the healthcare delivery system in India, the biggest democratic nation in the world and the second largest country in terms of population.
2. To learn about a newly established national commission, the NCAHP, which is to regulate and develop 54 professions in the allied health sector, including radiographers, sonographers, radiation therapy and nuclear medicine technologists, dosimetrists and medical physicists.
3. To understand of cancer burden in India and the growing role of radiation therapy technologists in their professional development through continuing education.
4. To appreciate the radiographer's post-graduation professional requirements and relevant opportunities and to keep up-to-date with evidence-based practice in imaging services.
5. To become aware of the prospects and challenges of nuclear medicine technology's professional practice and education.
6. To communicate the regulatory requirements under the atomic energy act of India for nuclear medicine facilities.

Meets 3-2

Professional regulation and development of Indian allied and healthcare sector under NCAHP, the national commission
S. Malayyath; Thrissur/IN
(sureshmalayyath@gmail.com)

Learning Objectives:
1. To understand the healthcare delivery system in India, accessibility to patients and role of AHPs in the ecosystem and the process of standardisation with prospects and challenges of AHP education in India.
2. To learn about the biggest statutory regulator in India, NCAHP and the role of ISRT in shaping a powerful piece of legislation for this, as well as the proposed exit / MQT exams for licensing and regulatory requirements of CPDs for license renewals.
3. To explain the proposed licensing system under NCAHP and credentialing process and to appreciate the complementary functioning of NCAHP and professional bodies for sustainable professional development.

Meets 3-3

Nuclear medicine facilities in India: regulatory requirements and an overview of professional prospects and challenges
D. K. Singh; Lucknow/IN
(dkpalam@gmail.com)

Learning Objectives:
1. To understand the nuclear medicine facilities' legal and regulatory framework in India, and how the Indian population have access to nuclear medicine services.
2. To explain the education and license system of nuclear medicine technologists and physicists in India.
3. To learn about the history and status of India's nuclear medicine education system and to appreciate how we prepare nuclear medicine technologists for future professional challenges.

Panel discussion: Challenges and opportunities for offering unified healthcare imaging and therapy radiation services in such a large number of populations

13:00-14:00 **Open Forum Radiographers**

E³ - Young ECR Programme: Basic Sessions

Organised by the EFRS

BS 4

Developments in interventional and cardiac radiography

BS 4-1

Chairperson's introduction
S. Svetlic; Milan/IT
(silviasvetlic@yahoo.it)

BS 4-2

Management of patient and staff doses in interventional procedures
G. Paulo; Coimbra/PT
(gpaulo@icloud.com)

Learning Objectives:
1. To explain the options available for estimating radiation doses for patients and staff in interventional radiology and cardiac catheterisation procedures.
2. To discuss mechanisms for reducing patient and staff radiation doses in interventional radiology and cardiac catheterisation procedures.
3. To appreciate the potential for European collaborations and initiatives in helping reduce radiation doses from invasive procedures.

BS 4-3

Multimodality planning for invasive procedures
C. Rosat; Lausanne/CH

Learning Objectives:
1. To explain the role of multimodality planning for interventional radiological procedures.
2. To highlight the radiographer's role in providing multimodality imaging data during interventional procedures.
3. To outline a range of procedures which require intraoperative access to multimodality imaging data.

BS 4-4

Changes to cardiac CT imaging practices: experiences from the DISCHARGE trial and implications for radiographers
F. Michallek; Berlin/DE

Learning Objectives:
1. To explain the role of the DISCHARGE trial for coronary CT angiography.
2. To provide a basic overview of the key results of the DISCHARGE trial.
3. To discuss the implications of the DISCHARGE trial for radiographers.

13:00-14:30 **Open Forum ESR at Work**

Professional Challenges Session

PC 4

CT justification: EU-JUST-CT project

PC 4-1

Chairperson's introduction
B. Brkljačić; Zagreb/HR
(boris@brkljacic.com)

PC 4-2

Introduction to EU-JUST-CT project
B. Brkljačić; Zagreb/HR
(boris@brkljacic.com)

Learning Objectives:
1. To learn about project aims and specific objectives.
2. To understand the importance of justification of CT examinations.
3. To understand how the project was developed and how it is being executed.

PC 4-3
Methodology for the EU-JUST-CT project
A. Karoussou-Schreiner; Luxembourg/LU
(alexandra.schreiner@ms.etat.lu)

Learning Objectives:
1. To learn about the common methodology and tools for carrying out the co-ordinated national/regional audits of justification of CT examinations.
2. To appreciate legal background for the project.
3. To understand the role of national radiation protection authorities.

PC 4-4
Practical issues in carrying out co-ordinated pilot audits of CT examinations
J. Sosna; Jerusalem/IL
(jacobs@hadassah.org.il)

Learning Objectives:
1. To learn about specific issues in carrying co-ordinated audits of CT examinations.
2. To appreciate the need of cooperation of auditors with national radiology societies and ESR office.
3. To understand preliminary results obtained in the project.

PC 4-5
Guidance to assist radiology departments in improving justification
S. Ebdon-Jackson; Didcot/UK

Learning Objectives:
1. To understand roles and responsibilities in the justification process.
2. To appreciate the challenges for imaging departments.
3. To propose practical approaches for undertaking and assessing justification and preparing for ist inspection.

Panel discussion: Justification of CT and audit of referrals

13:00-14:30 **Open Forum Trainees**

E³ - European Diploma Prep Session

E³ 423
Gastrointestinal and abdominal

E³ 423-1
Chairperson's introduction
S. A. Whitley; Bury St Edmunds/UK

E³ 423-2
A. Hepatobiliary system
G. Brancatelli; Palermo/IT
(gbranca@yahoo.com)

Learning Objectives:
1. To learn the congenital disorders of the hepatobiliary system.
2. To become familiar with the imaging features of diffuse liver diseases.
3. To understand the imaging features of benign and malignant focal liver lesions.
4. To learn the imaging features of benign and malignant diseases of the biliary tree.
Author Disclosures:
Giuseppe Brancatelli: Speaker: Bracco, Guerbet, Bayer

E³ 423-3
B. Pancreas and spleen
A. Schreyer; Brandenburg/DE
(andreas.schreyer@mac.com)

Learning Objectives:
1. To understand the anatomy, normal variants, and congenital disorders of the pancreas.
2. To become familiar with the causes and imaging features of benign and malignant pancreatic tumours.
3. To understand the imaging features of acute and chronic pancreatitis and its potential complications.
4. To learn the causes and imaging features of focal and diffuse splenic abnormalities.

E³ 423-4
C. Imaging of the gastrointestinal tract
S. A. Whitley; Bury St Edmunds/UK
(siobhanwhitley@yahoo.co.uk)

Learning Objectives:
1. To become familiar with the anatomy, normal variants, and congenital disorders of the gastrointestinal tract.
2. To understand the imaging features of the most commonly encountered causes of an acute abdomen.
3. To learn typical radiological manifestations of inflammatory, infective, and ischaemic bowel diseases.
4. To become familiar with the staging of tumours of the gastrointestinal tract and to understand the role of different imaging modalities in diagnosing and staging.

13:00-14:30 **Room B**

Special Focus Session

SF 4a
Do we do harm?

SF 4a-1
Chairperson's introduction
H.-J. Mentzel; Jena/DE
Author Disclosures:
Hans-Joachim Mentzel: Advisory Board: Vortragshonorare, Beratertätigkeit, Kongressunterstützung, Forschungskooperation. Bayer, Bracco, Novartis, Siemens

SF 4a-2
Specific safety issues in paediatric computed tomography
M. Wozniak; Lublin/PL
(mwozniak@hoga.pl)

Learning Objectives:
1. To identify risk factors influencing patient safety in paediatric CT.
2. To describe current dose-saving and shielding technologies in paediatric CT.
3. To discuss future potentials enabling the increase of safety in paediatric CT.

SF 4a-3
Plain films and fluoro in children: to shield or not to shield
R. A. J. Nievelstein; Utrecht/NL

Learning Objectives:
1. To summarise the shielding techniques available in conventional radiography.
2. To describe the pros and cons of shielding in conventional paediatric radiography.
3. To critically compare the use of shielding with other dose-reducing strategies in conventional paediatric radiography.

SF 4a-4
Safety in paediatric ultrasound: what is relevant for daily practice?
M. Riccabona; Graz/AT

Learning Objectives:
1. To identify potential sources of US-induced harm.
2. To discuss mechanisms of potential danger.
3. To be able to understand how risks can be avoided or minimised.
4. To give suggestions on how to conduct an US investigation safely.
Author Disclosures:
Michael Riccabona: Author: Many books and chapters articles etc.

SF 4a-5
Safety in paediatric MRI: what to know in daily practice
R. Tuura O'Gorman; Zurich/CH

Learning Objectives:
1. To recognise potential hazards related to the static magnetic field (Bo), high-frequency field (B1) and gradient fields.
2. To apply efficient MR safety measures to avoid any harm to the patient in the MR environment and during an MR examination with special consideration for the paediatric patient.
3. To describe and reflect on how to safely examine common active ad passive implants in children in MR environments.

Panel discussion: What is the safe way to gently examine children?

13:00-14:30 **Room C**

Special Focus Session

SF 4b

New GU imaging guidelines and structured reporting

SF 4b-1
Chairperson's introduction
R. Manfredi; Rome/IT
(riccardo.manfredi@unicatt.it)

SF 4b-2
Vulvar cancer staging
B. Gui; Rome/IT
(benedetta.gui@policlinicogemelli.it)

Learning Objectives:
1. To review vulvar anatomy.
2. To describe the criteria for vulvar cancer staging.
3. To understand loco-regional lymph node staging.

SF 4b-3
Cervical cancer staging: what's new?
L. Manganaro; Rome/IT
(lucia.manganaro@uniroma1.it)

Learning Objectives:
1. To describe uterine cervix anatomy.
2. To illustrate MR imaging techniques to assess cervical cancer staging.
3. To review the lymph node pattern of neoplastic diffusion and differential diagnosis with inflammatory diffusion.

SF 4b-4
Consensus on MRI imaging of the pelvic floor
R. F. El Sayed; Cairo/EG
(rania729.re@gmail.com)

Learning Objectives:
1. To learn the most recent standardized recommendations for patient preparation and sequences acquisition of MR imaging of the pelvic floor.
2. To review new updates for interpretation and reporting of pelvic floor dysfunction.
3. To illustrate new approaches for grading and diagnosing pelvic floor dysfunction based on top notched recently published expert guidelines.

Panel discussion: Which sign should we report and emphasise?

13:00-14:30 **Room D**

EIBIR Session

EIBIR 4

Paving the way for a European infrastructure for AI for health imaging

EIBIR 4-1
Chairpersons' introduction
L. Martí-Bonmatí; Valencia/ES
(marti_lui@gva.es)
G. P. Krestin; Rotterdam/NL
(g.p.krestin@erasmusmc.nl)
Author Disclosures:
Luis Marti-Bonmati: Advisory Board: Member of the non-profit Scientific Advisory Boards of Quibim SL and the Girona Biomedical Research Institute

EIBIR 4-2
EuCanImage project: towards a European cancer imaging platform for enhanced artificial intelligence in oncology
M. Starmans; Rotterdam/NL
(m.starmans@erasmusmc.nl)

Learning Objectives:
1. To learn about the EuCanImage platform for streamlining European AI research in cancer imaging from data to deployment.
2. To appreciate the value of a multi-stakeholder effort of clinicians, software developers, AI scientists, ethicists, legal experts.
3. To understand how you can use the data and services provided by EuCanImage in your research.

EIBIR 4-3
CHAIMELEON project
I. Blanquer; Valencia/ES
(iblanque@dsic.upv.es)

Learning Objectives:
1. To learn about the concept of in-situ access to data from the CHAIMELEON repository.
2. To understand the pros and cons of the centralised repository models.
3. To understand the FAIR principles and the application to medical imaging repositories.

EIBIR 4-4
Incisive project
G. Tsakou; Marousi/GR
(gianna.tsakou@maggioli.gr)

Learning Objectives:
1. To learn about the INCISIVE project and ongoing research efforts for developing AI services for decision-support of clinical experts.
2. To appreciate the importance of imaging and clinical data sharing.
3. To understand the benefits and possible hurdles of health data sharing and the role of clinical experts in this process.

EIBIR 4-5
PROCANCER-I project: AI modelling strategies with multi-centric data
N. Papanikolaou; Lisbon/PT
(nickolas.papanikolaou@research.fchampalimaud.org)

Learning Objectives:
1. To learn about AI and radiomics basic concepts.
2. To discuss the challenges in a multi-centric setting.
3. To propose best practices to increase translation from research to the clinics.
Author Disclosures:
Nickolas Papanikolaou: Owner: MRIcons LTD; Share Holder: Advantis Medical Imaging

EIBIR 4-6
PRIMAGE project
A. Alberich-Bayarri; Valencia/ES
(angel@quibim.com)

Learning Objectives:
1. To learn the architecture of an imaging platform for a paediatrics cancer imaging biobank.
2. To discover how to create e-forms for the collection of multi-omics data in cancer projects.
3. To learn how to create multi-omics AI models in oncology to predict patient outcomes.
Author Disclosures:
Angel Alberich-Bayarri: Board Member: Quibim; CEO: Quibim; Founder: Quibim; Share Holder: Quibim

EIBIR 4-7
EUCAIM project
L. Martí-Bonmatí; Valencia/ES
(marti_lui@gva.es)

Learning Objectives:
1. To learn how fragmented health data silos can be linked.
2. To understand the efforts towards big data harmonisation and structure.
3. To appreciate how federated learning can be used to construct clinical prediction models.
Author Disclosures:
Luis Marti-Bonmati: Advisory Board: Member of the non-profit Scientific Advisory Boards of Quibim SL and the Girona Biomedical Research Institute

Discussion

13:00-14:30 **Room E1**

E³ - Advanced Courses: Radiology of the Afterlife

E³ 422
Paleoradiology

E³ 422-1
Chairperson's introduction
F. Dedouit; Toulouse/FR
(fabded2@hotmail.com)

Learning Objectives:
Paleoradiology (ancient radiology) is the study of archaeological remains using radiology techniques. It brings specific new information to historical sites. In this session, several of the most remarkable findings are demonstrated.

E³ 422-2
Introduction to paleoradiology
M. Čavka; Zagreb/HR
(mislav.cavka@yahoo.com)

E³ 422-3
"Message in a bottle": radiological discoveries in jarred teratological specimens
R. J. Oostra; Amsterdam/NL
(r.j.oostra@amc.uva.nl)

E³ 422-4
Interest of the scanning of funerary urns
F. Cavalli; Trieste/IT

E³ 422-5
Radiology of mummies
F. Rühli; Zurich/CH

Panel discussion: Future directions in paleoradiology

13:00-14:30 **Room G1**

Joint Session of the ESR and ESTRO

ESR/ESTRO
Quantification of functional MRI parameters: new opportunities in radiotherapy?

ESR/ESTRO-1
Chairpersons' introduction
D. Thorwarth; Tübingen/DE
A. G. Rockall; London/UK
Author Disclosures:
Daniela Thorwarth: Research Grant/Support: Elekta, Philips, TheraPanacea, PTW Freiburg, Kaiku Health, Dr. Sennewald

ESR/ESTRO-2
Functional MRI: introduction and applications in radiotherapy
F. Mahmood; Odense/DK
(faisal.mahmood@rsyd.dk)

Learning Objectives:
1. To define the field of functional MRI.
2. To give a brief overview of the most common functional MRI techniques.
3. To understand the current and envisioned role of functional MRI in RT.
4. To describe some relevant emerging functional MRI techniques.
Author Disclosures:
Faisal Mahmood: Equipment Support Recipient: Research contract with Philips Medical Systems, Research contract with Elekta Solutions AB; Grant Recepient: Recipient of research grants related to functional MRI; Other: Faculty member of ESTRO school (In-room MR-guided RT)

ESR/ESTRO-3
Functional MRI of the brain: individual connectomics and abnormality detection
S. Stöcklein; Munich/DE
(sophia.stoecklein@med.lmu.de)

Learning Objectives:
1. To describe the principles of assessing the individual brain connectome.
2. To describe different metrics of functional connectivity.
3. To present novel methods of quantifying individual connectivity disruptions in neuro-oncologic and neurodegenerative diseases.
4. To discuss the role of deep learning in detecting disturbances in the individual connectome using large reference samples.

ESR/ESTRO-4
Quantification of functional MRI parameters using deep learning
A. Rulseh; Prague/CZ

Learning Objectives:
1. To understand approaches to deep learning in the quantification of functional MRI parameters.
2. To be familiar with implementations of deep learning in functional MRI.
3. To discuss potential future directions in the application of deep learning in functional MRI.

ESR/ESTRO-5
Novel techniques for quantitative parameter estimation in moving targets
P. van Houdt; Amsterdam/NL

Learning Objectives:
1. To understand the effect of breathing motion on the quantification of diffusion-weighted MRI and dynamic contrast-enhanced MRI.
2. To discuss acquisition methods to minimise the effect of breathing motion.
3. To discuss analysis strategies to minimise the effect of breathing motion.
Author Disclosures:
Petra J van Houdt: Research Grant/Support: The NKI has research collaborations with Elekta AB and Philips Healthcare

Panel discussion

13:00-14:30 **Room K1**

E³ - Advanced Courses: Interactive Teaching Sessions for Young (and not so Young) Radiologists

E³ 421a
Sport injuries

E³ 421a-1
Shoulder and elbow
C. Schaeffeler; Chur/CH

Learning Objectives:
1. To become familiar with the most common clinical features and mechanisms of injury to the upper limb in athletes.
2. To learn about the use of imaging to detect sport-related injuries to the upper limb.

E³ 421a-2
Lower limb
C. Martinoli; Genoa/IT
(55904@unige.it)

Learning Objectives:
1. To become familiar with the most common clinical features and mechanisms of injury to the lower limb in athletes.
2. To learn about the use of imaging to detect sport-related injuries to the lower limb.

13:00-14:30 **Room K2**

E³ - Advanced Courses: Interactive Teaching Sessions for Young (and not so Young) Radiologists

E³ 421b

Current issues in chest radiology

E³ 421b-1
Non-COVID-19 lung infections
A. P. Parkar; Bergen/NO
(apparkar@gmail.com)

Learning Objectives:
1. To describe the radiological features of different infectious pulmonary diseases.
2. To understand the importance of clinical data for narrowing the differential diagnosis.

E³ 421b-2
Airways disease
G. Dournes; Bordeaux/FR

Learning Objectives:
1. To learn about the spectrum of radiological findings in airways disease.
2. To emphasise the importance of HRCT for a differential diagnosis.
Author Disclosures:
Gaël Dournes: Speaker: AstraZeneca, Boehringer, Vertex

13:00-14:30 **Room N**

Multidisciplinary Session

MS 4

Radiology of rare diseases: hereditary haemorrhagic telangiectasia (HHT) as an example

MS 4-1
Chairperson's introduction
A. Brady; Cork/IE
(adrianbrady@me.com)

MS 4-2
Patient contact and screening procedure
A. Brady; Cork/IE
(adrianbrady@me.com)

Learning Objectives:
1. To understand the nature, inheritance pattern, incidence and dangers of HHT.
2. To learn about the clinical screening programme and contact tracing required.
3. To learn the appropriate follow-up regime for known HHT patients.

MS 4-3
Clinical assessment and care
T. O'Connor; Cork/IE

Learning Objectives:
1. To understand the common clinical presentations of HHT patients.
2. To learn about common and uncommon manifestations of cardio-respiratory involvement.
3. To learn about available therapeutic options.

MS 4-4
Gastrointestinal and hepatic manifestations
M. Buckley; Cork/IE

Learning Objectives:
1. To understand typical GI manifestations of HHT.
2. To learn about hepatic involvement, and its possible clinical consequences.
3. To learn about potential treatments for GI and hepatic involvement by HHT.

MS 4-5
Interventional radiological aspects
A. Brady; Cork/IE
(adrianbrady@me.com)

Learning Objectives:
1. To learn about radiological findings in HHT.
2. To learn about interventional management of PAVMs.
3. To learn about potential IR contributions in manifestations of HHT on other systems.

MS 4-6
Neurovascular involvement
M. Javadpour; Dublin/IE

Learning Objectives:
1. To learn about the variety of cerebrovascular manifestations of HHT.
2. To learn about potential interventions for cerebrospinal vascular malformations.
3. To understand which cerebrospinal vascular malformations require intervention.

Panel discussion: Multidisciplinary care of complex rare diseases: how can a service be established and maintained?

15:00-16:00 **Open Forum ESR at Work**

Open Forum Session

Organised by EuroSafe Imaging

OF 5E

Local diagnostic reference levels based on clinical indications

OF 5E-1
Chairpersons' introduction
J. Damilakis; Iraklion/GR
G. Frija; Paris/FR
(guyfrija@gmail.com)

OF 5E-2
How do we establish local DRLs?
V. Tsapaki; Vienna/AT
(V.Tsapaki@iaea.org)

Learning Objectives:
1. To learn what local DRLs are and how to establish them.
2. To understand the added value of local DRLs to optimisation of imaging clinical practice.
3. To understand what could be the potential challenges in establishing DRLs and how to overcome them.

OF 5E-3
How do we use local DRLs?
R. W. R. Loose; Nuremberg/DE

Learning Objectives:
1. To learn how to use local clinical DRLs as a tool for dose optimisation in a multicenter / regional healthcare setting.
2. To appreciate how to face the challenges of making local clinical DRLs sustainable over time.
3. To understand the potential of DRLs as a dynamic tool for dose optimisation, which evolve with clinical context and technology.

Open forum discussion: Local DRLs based on clinical indications: How far have we gone?

15:00-16:00 **Open Forum Radiographers**

Open Forum Session

OF 5R

Challenges to radiographers undertaking the role of PACS manager

OF 5R-1
Chairperson's introduction
R. Decoster; Brussels/BE

Learning Objectives:
1. To discuss potential threats for cyberattacks in radiology departments.
2. To propose best practice for PACS administrators.
3. To present evidence-based models for the most efficient IT driven radiology department.

OF 5R-2
Information security challenges
K. Poelma-Tap; Groningen/NL
(k.m.poelma-tap@pl.hanze.nl)

OF 5R-3
Best work practices as a PACS administrator
M. Konstantinos; Athens/GR

OF 5R-4
Are radiology departments prepared for a potential cyber-attack?
R. Ribeiro; Lisbon/PT
(ricardo.ribeiro@estesl.ipl.pt)

Open forum discussion

15:00-16:00 **Open Forum Trainees**

Open Forum Session

OF 5T

Making the most of opportunities as a resident

OF 5T-1
Chairperson's introduction
S. Gourtsoyianni; Athens/GR

Learning Objectives:
Part of a series of sessions where distinguished professors of radiology together with their young residents are invited to share their experience, their vision, and give advice and guidance to the younger generation of radiologists about what it is to be a radiologist.

OF 5T-2
Making the most of opportunities in clinical practice
L. Oleaga Zufiría; Barcelona/ES
(lauraoleaga@gmail.com)

Learning Objectives:
1. To discuss opportunities for residents to improve clinical practice.
2. To discuss how this can benefit young residents.

OF 5T-3
Making the most of opportunities in education
M. Becker; Geneva/CH

Learning Objectives:
1. To discuss opportunities for residents to teach and be better teachers.
2. To discuss how this can benefit young residents.

OF 5T-4
Making the most of opportunities in research
M. Dewey; Berlin/DE

Learning Objectives:
1. To discuss the benefits of being active in research.
2. To discuss opportunities provided by the ESR and subspecialty societies for residents to undertake research.

Open forum discussion: Making the most of opportunities as a young radiologist

15:00-16:00 **Room B**

Refresher Course: Neuro

RC 511

Foetal neuroimaging

RC 511-1
Chairperson's introduction
C. Hoffmann; Tel Hashomer/IL
(chen.hoffmann@sheba.health.gov.il)

RC 511-2
Foetal brain MRI: examination protocols and normal findings
G. Kasprian; Vienna/AT
(gregor.kasprian@meduniwien.ac.at)

Learning Objectives:
1. To describe the "minimum standard" protocol for foetal brain MRI.
2. To recognise the characteristic anatomical features of the normal foetal brain at MRI.
3. To be able to identify normal anatomical variations without clinical relevance.

RC 511-3
Foetal brain MRI: lesions of the brain
L. Ben-Sira; Tel-Aviv/IL
(bensiraliat@gmail.com)

Learning Objectives:
1. To understand the role of MRI in differentiating various etiologies and the importance of accurate diagnosis for foetal counselling and early intervention.
2. To describe the main pathological entities involving the foetal brain.
3. To use a practical schematic approach to diagnose cortical brain malformations and list the most important genes and disrupted pathways.

RC 511-4
Foetal brain MRI: anomalies outside of the brain
A. Righini; Milan/IT
(andrea.righini@asst-fbf-sacco.it)

Learning Objectives:
1. To recognise the normal appearance of the cranial structures outside the brain during gestation.
2. To describe the main pathological entities involving the inner ear, orbit, pituitary, skull base and nasopharynx, as seen on foetal brain MRI.
3. To explain how these MRI findings contribute to the differentiation between genetic and clastic aetiology associated with brain anomalies.

Panel discussion: Challenges of foetal MRI

15:00-16:00 **Room C**

Refresher Course: Emergency Imaging

RC 517

Stroke revisited: imaging algorithms and protocols

RC 517-1
Chairperson's introduction
C. Calli; Izmir/TR
(cem.calli@gmail.com)
Author Disclosures:
Cem Çalli: Board Member: ESNR, ESER

RC 517-2
Radiological algorithms in emergency neuro-imaging
D. Byrne; Dublin/IE
(byrned9@tcd.ie)

Learning Objectives:
1. To understand the 'time is brain approach' in the imaging evaluation of patients with stroke and to define a roadmap according to the severity of symptoms and imaging findings in patients.
2. To learn appropriate usage of CT, CT angiography, CT perfusion, MRI, MR angiography and MR perfusion in stroke.
3. To be familiar with the imaging algorithm in patients presented to emergency service with ischaemic or haemorrhagic stroke.

RC 517-3
CT and MRI protocol optimisation in stroke
P. M. Parizel; Perth, WA/AU

Learning Objectives:
1. To understand how CT and MRI protocols may be optimised in emergency neuroimaging to obtain high image quality and fast scanning.
2. To review imaging protocol optimisation strategies according to presenting symptoms of patients, previous imaging findings, and further treatment planning.
3. To understand how the optimised protocol can guide writing the report in the emergency environment.
Author Disclosures:
Paul M. Parizel: Advisory Board: icoMetrix, SmartReporting, Incepto Medical, Aidoc, Agfa, Gold Standard Phantoms; Share Holder: icoMetrix, Incepto Medical, SmartReporting, Gold Standard Phantoms, GE Healthcare, Koninklijke Philips, Siemens Healthineers, Tensor Medical

RC 517-4
New imaging and post-processing techniques in emergency neuroimaging
K. H. Nieboer; Brussels/BE
(koenraad.nieboer@uzbrussel.be)

Learning Objectives:
1. To be familiar with new imaging post-processing techniques such as metabolic imaging techniques, ASPECT and flow-visualisation in stroke.
2. To appreciate the rationale and value of the different imaging modalities and sequences available for acute neurology.
3. To understand the trade-off between the time taken for a post-processing technique vs the clinical benefit in predicting the prognosis.
Author Disclosures:
Koenraad Hans Nieboer: Speaker: GE Healthcare

Panel discussion: what should radiologists know about stroke imaging?

15:00-16:00 **Room D**

Refresher Course: Breast

RC 502

Pros and Cons: the follow-up of patients with a history of breast cancer should be done with MRI/contrast-enhanced mammography (CEM)

RC 502-1
Chairperson's introduction
C. S. Balleyguier; Villejuif/FR
(Corinne.BALLEYGUIER@gustaveroussy.fr)

RC 502-2
Pro
J. Camps Herrero; Valencia/ES
(jcamps@riberasalud.es)

Learning Objectives:
This house believes that follow-up of patients with breast cancer history should be done with MRI/CEM.
Author Disclosures:
Julia Camps Herrero: Advisory Board: Becton Dickinson, Hologic, Bayer, Siemens

RC 502-3
Con
R. M. Pijnappel; Utrecht/NL

Learning Objectives:
This house believes that follow-up of patients with breast cancer history should NOT be done with MRI/CEM.

Panel discussion: Is there a role for contrast-enhanced follow-up imaging in 2023?

15:00-16:00 **Room E1**

Refresher Course: Cardiac

RC 503

Imaging patients at risk of sudden cardiac death

RC 503-1
Chairperson's introduction
J. Bogaert; Leuven/BE

RC 503-2
Assessing cardiac risk with MRI in patients with cardiomyopathies
D. O'Regan; London/UK
(declan.oregan@lms.mrc.ac.uk)

Learning Objectives:
1. To review how patients with cardiomyopathy are imaged with MRI.
2. To describe the adverse characteristics of disease on imaging.
3. To understand current and novel approaches for predicting outcomes in cardiomyopathies.

RC 503-3
Imaging before ablation of ventricular arrhythmia
H. Cochet; Pessac/FR

Learning Objectives:
1. To learn how to identify patients who will benefit from ventricular ablation.
2. To understand how to image these patients before the procedure.
3. To describe how to use imaging to guide intervention.
Author Disclosures:
Hubert Cochet: Consultant: Fineheart, Guerbet; Founder: inHEART; Share Holder: inHEART; Speaker: Siemens Healthineers, Abbott, Biosense Webster, Biotronik

RC 503-4
Cardiac devices: how to do cardiac MRI and optimise image quality
A. Esposito; Milan/IT
(esposito.antonio@hsr.it)

Learning Objectives:
1. To describe the main clinical scenarios requiring cardiac MRI in patients with cardiac devices.
2. To describe the most important safety issues when performing cardiac MRI in patients with cardiac devices.
3. To share tips and tricks for optimisation of image quality when performing cardiac MRI in patients with cardiac devices.

Panel discussion: How to determine who is at risk of sudden cardiac death?

15:00-16:00 **Room G1**

Refresher Course: Chest

RC 504

Back to basics: diffuse lung diseases

RC 504-1
Chairperson's introduction
A. Kerpel-Fronius; Budapest/HU
Author Disclosures:
Anna Kerpel-Fronius: Speaker: Boehringer Ingelheim

RC 504-2
Navigating the secondary pulmonary lobule
N. Sverzellati; Parma/IT

Learning Objectives:
1. To learn about anatomy to CT imaging correlation.
2. To understand the basic imaging patterns in CT lungs.
3. To understand the current limitations of CT imaging in ILD.

RC 504-3
How to approach nodular lung diseases
L. Ebner; Berne/CH

Learning Objectives:
1. To recognise various nodular patterns on lung imaging.
2. To understand the limitations of imaging in nodular lung diseases.
3. To learn the differential diagnosis of nodular patterns.

RC 504-4
The common challenge: increased linear lung densities
A. Devaraj; London/UK

Learning Objectives:
1. To recognise various linear patterns on lung imaging.
2. To understand the limitations of imaging in linear lung diseases.
3. To learn the differential diagnosis of linear patterns.

RC 504-5
Diagnosis of cystic lung diseases made easy
A. P. Parkar; Bergen/NO
(apparkar@gmail.com)

Learning Objectives:
1. To understand various presentations of cysts on imaging.
2. To learn when cysts are incidental and when they are pathological.
3. To learn the differential diagnosis of cystic lung diseases.

Panel discussion: The importance of a systematic approach in diffuse lung diseases

15:00-16:00 **Room K1**

Refresher Course: Genitourinary

RC 507
O-RADS MRI: where are we and where are we going

RC 507-1
Chairperson's introduction
R. Manfredi; Rome/IT
(riccardo.manfredi@unicatt.it)

RC 507-2
How to score an ovarian mass
F. E. Cuthbert; Hassocks/UK

Learning Objectives:
1. To learn the current O-RADS MRI classification of adnexal masses.
2. To appreciate the wide variation in appearances of ovarian masses.
3. To learn how to report using O-RADS MRI

RC 507-3
O-RADS MRI 3 follow up or surgery?
N. Bharwani; London/UK

Learning Objectives:
1. To define what adnexal masses need follow-up or surgery in O-RADS MRI.
2. How to deal with atypical teratomas.
3. To know what we can expect from future trials.

RC 507-4
Pitfalls of the O-RADS MRI and how to solve them
I. Thomassin-Naggara; Paris/FR
(isabelle.thomassin@tnn.aphp.fr)

Learning Objectives:
1. To learn from my most beautiful mistakes.
2. To define what imaging features can be confusing.
3. To learn how to deal with difficult masses.
Author Disclosures:
Isabelle Thomassin-Naggara: Advisory Board: Bayer, Bracco, Guerbet, Bard; Speaker: GE, Siemens, Hologic, Canon, Guerbet, Fujifilm, ICAD incepto, GSK

Panel discussion: Is O-RADS MRI changing patients with adnexal masses management?

15:00-16:00 **Room K2**

Refresher Course: Musculoskeletal

RC 510
Arthrography: direct vs indirect

RC 510-1
Chairperson's introduction
M. Adriaensen; Heerlen/NL

RC 510-2
Indirect arthrography is pointless
P. Omoumi; Lausanne/CH
(patrick.omoumi@chuv.ch)

Learning Objectives:
1. To describe the technique of indirect MR arthrography.
2. To discuss the advantages and disadvantages of indirect MR arthrography in comparison to conventional MRI and direct MR arthrography, depending on the clinical indication.

RC 510-3
Direct arthrography is an unnecessary step before arthroscopy
V. Mascarenhas; Lisbon/PT
(vmascarenhas@me.com)

Learning Objectives:
1. To describe the technique of direct MR arthrography.
2. To discuss main indications of direct MR arthrography.
3. To discuss the advantages and disadvantages of direct MR arthrography in comparison to conventional MRI and indirect MR arthrography, depending on the clinical indication.

Panel discussion: when is arthrography useful, and when should we skip it?

15:00-16:00 **Room N**

Refresher Course: Imaging Informatics / Artificial Intelligence and Machine Learning

RC 505
Practical guide to image repositories and data preparation

RC 505-1
Chairperson's introduction
L. Martí-Bonmatí; Valencia/ES
(marti_lui@gva.es)
Author Disclosures:
Luis Marti-Bonmati: Advisory Board: Member of the non-profit Scientific Advisory Boards of Quibim SL and the Girona Biomedical Research Institute

RC 505-2
Setting up a large-scale image repository
L. S. Fournier; Paris/FR
(laure.fournier@aphp.fr)

Learning Objectives:
1. To learn about what image repositories are and how to set them up best.
2. To understand the impact of data management on research results.
3. To review existing data repositories, including freely accessible repositories.
Author Disclosures:
Laure S. Fournier: Board Member: Servier Grant committee; Grant Recepient: Bristol Myers Squibb; Investigator: Philips, Evolucare, ArianaPharma, Dassault Systems; Speaker: Bayer, Novartis, Janssen, Sanofi, GE Healthcare, Fujifilm, ESGAR, C-FIM, Median Technologies, Vestfold Hospital; Other: Travel support: Guerbet

RC 505-3
Data preparation for AI step-by-step
M. J. Willemink; Stanford, CA/US
(m.j.willemink@gmail.com)

Learning Objectives:
1. To review a typical data curation workflow (including privacy aspects).
2. To learn about critical steps and common pitfalls in data preparation for AI.
3. To understand the importance of data distribution and biases.
Author Disclosures:
Martin J. Willemink: Board Member: Segmed, Inc.; CEO: Segmed, Inc.; Employee: Segmed, Inc.; Founder: Segmed, Inc.; Grant Recepient: American Heart Association; Share Holder: Segmed, Inc.

RC 505-4
How to deal with data scarcity and other hurdles in setting up a repository
P. M. A. van Ooijen; Groningen/NL
(p.m.a.van.ooijen@umcg.nl)

Learning Objectives:
1. To learn about federated learning and its potential.
2. To understand the value of interactive reporting and synoptic reporting.
3. To understand the pearls and pitfalls of synthetic data generation.
Author Disclosures:
Peter M. A. Van Ooijen: Advisory Board: MedicalPHIT, ContextFlow; Board Member: EuSoMII; Speaker: Novartis, Bayer, Bracco, Siemens

Panel discussion: Common pitfalls in building image repositories and how to overcome them

16:30-17:30 **Open Forum Trainees**

Open Forum Session

Jointly organised with the European School of Radiology (ESOR)

OF 6T

Making the most of European scholarships and fellowships

OF 6T-1
Chairperson's introduction
C. Loewe; Vienna/AT
(christian.loewe@meduniwien.ac.at)

Learning Objectives:
A session dedicated to young radiologists, which will describe what young radiologists can learn and gain from involvement in European scholarship and fellowship programmes. This will start with the chairperson's introduction to ESOR opportunities.
Author Disclosures:
Christian Loewe: Speaker: GE Healthcare, Siemens Healthineers, Bracco

OF 6T-2
How to put in a successful application: tips & tricks
V. Opancina; Kragujevac/RS

Learning Objectives:
1. To describe the application process.
2. To discuss how to maximise chances of being successful.

OF 6T-3
The practicalities: how to manage moving to and working in another country
N. Bogveradze; Tbilisi/GE

Learning Objectives:
1. To describe the practical steps in sorting out a fellowship.
2. To discuss the challenges and benefits of working in a new country.

OF 6T-4
Looking back: what I gained from an ESOR scholarship/fellowship
A. Antón-Jiménez; Barcelona/ES
(alba.antonj@gmail.com)
T. Van Nijnatten; Maastricht/NL
(thiemovn@gmail.com)

Learning Objectives:
1. To describe the personal experience of undertaking a scholarship or a fellowship.
2. To discuss how an ESOR scholarship/fellowship can benefit and shape one's career.
Author Disclosures:
Thiemo Van Nijnatten: Research Grant/Support: ESOR; Speaker: GE Healthcare, Bayer

Open forum discussion: Top tips for potential ESOR applicants

16:30-17:30 **Room B**

Refresher Course: Paediatric

RC 612

Neonatal emergencies

RC 612-1
Chairperson's introduction
F. W. Hirsch; Leipzig/DE
(franzwolfgang.hirsch@medizin.uni-leipzig.de)

RC 612-2
Brain emergencies
C. Carducci; Rome/IT

Learning Objectives:
1. To identify the main neonatal brain emergencies.
2. To learn how to acquire a dedicated neonatal brain MR protocol.
3. To become familiar with the developing brain anatomy.

RC 612-3
Respiratory distress
E. Alexopoulou; Athens/GR

Learning Objectives:
1. To learn about common neonatal respiratory disease and their radiological features.
2. To recognise pathology on the neonatal chest radiograph that needs direct intervention.

RC 612-4
Gastrointestinal obstruction
S. G. F. Robben; Maastricht/NL

Learning Objectives:
1. To learn about the causes of neonatal GI obstruction.
2. To understand the radiological presentation of specific causes of GI obstruction.
3. To appreciate the value of abdominal radiographs and ultrasonography in (suspicion of) GI obstruction in neonates.

Panel discussion: How can imaging of neonatal emergencies be handled by general radiologists?

16:30-17:30 **Room C**

Refresher Course: Cardiac

RC 603

Cardiac CT for the general radiologist: why every radiologist should be cardiac capable

RC 603-1
Chairperson's introduction
I. Žuža; Rijeka/HR
(iva.zuza276@gmail.com)

RC 603-2
Acute coronary syndromes: the role of cardiac CT
M. Pirnat; Maribor/SI
(maja.pirnat@ukc-mb.si)

Learning Objectives:
1. To understand the role of cardiac CT in patients with acute coronary syndromes according to the guidelines.
2. To learn how to do coronary CTA in the acute setting.
3. To become familiar with the interpretation of cardiac CT in patients with acute coronary syndromes.
Author Disclosures:
Maja Pirnat: Advisory Board: Bayer

RC 603-3
Oncological CT: should we analyse the heart too?
K. Gruszczynska; Katowice/PL
(kgruszczynska@poczta.onet.pl)

Learning Objectives:
1. To understand the prevalence of cardiac involvement in patients with extracardiac neoplasms.
2. To become familiar with typical CT features of cardiac metastases.
3. To become familiar with other imaging modalities that could be used for the analysis of cardiac masses.

RC 603-4
Non-cardiac chest CT: how to interpret cardiac findings
T. D'Angelo; Messina/IT
(tommasodang@gmail.com)

Learning Objectives:
1. To learn which cardiac findings could be detected on a non-ECG gated chest CT.
2. To understand the major limitations of cardiac analysis on a non-ECG gated chest CT.
3. To learn how to comprehensively analyse cardiovascular structures on a non-ECG gated chest CT.

Panel discussion: Should every radiologist be able to analyse cardiac CT?

16:30-17:30 **Room D**

ESR Patient Advisory Group (ESR-PAG) Session

PA 6

Involving patients in research projects

PA 6-1
Chairpersons' introduction
G. P. Krestin; Rotterdam/NL
(g.p.krestin@erasmusmc.nl)
R. G. H. Beets-Tan; Amsterdam/NL

PA 6-2
Patients at the regulatory level in Europe
M. Mavris; Amsterdam/NL
(maria.mavris@ema.europa.eu)

Learning Objectives:
1. To learn how the European Medicines Agency involves patients in the regulatory process.
2. To appreciate that involving patients is an important decision from the European commission and parliament.
3. To understand that it is not always easy or simple to involve patients in regulatory work at the European level.
Author Disclosures:
Maria Mavris: Employee: European Medicines Agency

PA 6-3
Patients' involvement at the EORTC
I. Shakhnenko; Brussels/BE

Learning Objectives:
1. To learn how patients are involved in the work done by the EORTC.
2. To appreciate that involving patients has led to changes in clinical trials.
3. To understand that involving patients at EORTC requires a balance between patient representatives and the EORTC.

PA 6-4
Patients' involvement at the member-state regulatory level
C. Lahorte; Brussels/BE
(christophe.lahorte@fagg-afmps.be)

Learning Objectives:
1. To learn how patients are involved at the member-state level in the regulatory process, with Belgium as an example.
2. To appreciate that it requires preparation to involve patient representatives.
3. To understand that it is not an easy matter to involve patients in regulatory work at the member-state level.

PA 6-5
Involvement of patients in REQUITE
C. Talbot; Leicester/UK
(cjt14@leicester.ac.uk)

Learning Objectives:
1. To learn how REQUITE involved patients in the project.
2. To appreciate the lessons learned from this project and the involvement of patients.
3. To understand the benefit of patient participation brought to the researchers.

PA 6-6
From expert patient to patient advocate, who to choose?
E. Briers; Hasselt/BE
(erikbriers@telenet.be)

Learning Objectives:
1. To learn that patients can educate themselves to become expert patients and patient advocates.
2. To appreciate that educated patients can be involved in basic research and clinical trials, not as included patients but at the trial management level.
3. To understand that patient involvement does not mean that patients will take the decisions; patients will contribute and share their opinions.

Panel discussion: Will involving patients in research be an improvement or a waste of time?

16:30-17:30 **Room E1**

Refresher Course: Musculoskeletal

RC 610

Imaging of the knee

RC 610-1
Chairperson's introduction
A. C. Vieira; Porto/PT
(anacfsvieira@gmail.com)

RC 610-2
Imaging the menisci pre- and post-operative
A. Alcalá-Galiano; Madrid/ES
(aalcalagaliano@gmail.com)

Learning Objectives:
1. To describe the normal anatomy and MRI appearances of the pre- and post-operative menisci.
2. To explain the challenging findings of post-operative meniscus.

RC 610-3
Knee ligaments
A. P. Parkar; Bergen/NO
(apparkar@gmail.com)

Learning Objectives:
1. To describe the normal anatomy and MRI appearances of an ACL repair and graft reconstruction.
2. To explain the imaging appearances of normal maturation and pathological conditions involving ligament repair.
3. To list the most valuable imaging findings that correlate with clinical complications.

RC 610-4
Oedema in bone and soft tissues of the knee
E. H. G. Oei; Rotterdam/NL
(e.oei@erasmusmc.nl)

Learning Objective:
1. To learn how to recognize bone oedema patterns and related soft tissue injuries.
Author Disclosures:
Edwin Oei: Research Grant/Support: GE Healthcare

Panel discussion: Are we imaging too many knees with MRI?

16:30-17:30 **Room E2**

Refresher Course: Neuro

RC 611
T2 hyperintensities in the brain

RC 611-1
Chairperson's introduction
J. Boban; Novi Sad/RS
(jasmina.konstantinovic@gmail.com)

RC 611-2
The specific ones
T. Tourdias; Bordeaux/FR
(thomastourdias@yahoo.fr)

Learning Objectives:
1. To analyse the shape and location of brain T2 hyperintensities to identify specific features.
2. To detect characteristics of T2 hyperintensities by analysis of MR diffusion, susceptibility-weighted sequences, and post-gadolinium images to identify specific features.
3. To improve the characterisation of specific T2 hyperintensities in the brain by combining all the available information.

RC 611-3
The non-specific ones
J. Bladowska; Wroclaw/PL
(joanna.bladowska@umw.edu.pl)

Learning Objectives:
1. To define the non-specific T2 hyperintensities in the brain.
2. To list and describe the most common entities (including normal variants, perivascular spaces, and white matter hyperintensities during normal ageing) and discuss the key findings that may be useful for differential diagnosis.
3. To be able to identify possible outliers and pitfalls in imaging.

RC 611-4
How to tell the difference between the two
M. Vernooij; Rotterdam/NL
(m.vernooij@erasmusmc.nl)

Learning Objectives:
1. To summarise imaging characteristics of specific and non-specific T2 hyperintensities in the brain, and how to distinguish the two entities.
2. To discuss the clinical relevance of so-called "non-specific" or "age-related" T2 hyperintensities, and their relation to stroke and dementia.
3. To describe advances in image acquisition and image processing that may help provide more insight into the etiology and relevance of T2 hyperintensities.

Panel discussion: What, how, and when to report

16:30-17:30 **Room G1**

Refresher Course: Physics in Medical Imaging

RC 613
Considerations on radiation doses and associated risks in a lifelong patient journey

RC 613-1
Chairperson's introduction
M. Kortesniemi; Helsinki/FI
(mika.kortesniemi@hus.fi)

RC 613-2
A case study: paediatric patients with bone sarcoma
M. Duczkowski; Warsaw/PL

Learning Objectives:
1. To understand the nature of osteosarcomas and the predicted impact on the patient's lifelong journey.
2. To learn about recommended imaging during staging, treatment and follow-up of bone sarcomas.
3. To appreciate the justification and optimisation approaches in the follow-up process, with particular attention to low-dose chest CT.

RC 613-3
Recurrent radiological imaging procedures in children and adults
J. N. Vassileva; Vienna/AT
(J.N.Vassileva@gmail.com)

Learning Objectives:
1. To evaluate which procedures and clinical pathways involve high cumulative risks.
2. To learn about the occurrence of recurrent radiological imaging in children and adults.
3. To understand how to manage cumulative doses to set priority in patient dose optimisation.

RC 613-4
Dose tracking systems: are they suitable for assessing radiation risks at different ages?
M. Brambilla; Novara/IT

Learning Objectives:
1. To learn how derived quantities are calculated in dose tracking systems.
2. To understand how to correlate cumulative dose indices with cumulative risks.
3. To be able to increase the effectiveness of using your RDMS.

Panel discussion: What is the correct use of cumulative dose information?

16:30-17:30 **Room K1**

Refresher Course: Radiographers

RC 614

Emerging technologies for improving radiographic practices

RC 614-1
Chairpersons' introduction
R. Ribeiro; Lisbon/PT
(ricardo.ribeiro@estesl.ipl.pt)
J. Biederer; Heidelberg/DE
(juergen.biederer@gmx.net)
Author Disclosures:
Jürgen Biederer: Research Grant/Support: Siemens, Bayer; Speaker: Roche, Boehringer Ingelheim, Fuji

RC 614-2
Emerging opportunities for spectral CT
A. Kaučič; Golnik/SI

Learning Objectives:
1. To define spectral CT imaging.
2. To distinguish the difference between dual-energy CT and true spectral CT.
3. To describe how spectral CT can benefit their daily clinical workflow.

RC 614-3
EOS whole-body imaging
A. Gonzalez; Lausanne/CH

Learning Objectives:
1. To describe the technical specifications of the EOS imaging system and its radiological advantages.
2. To list the main applications of the sterEOS workstation measurement system and judge its impact on overall patient care.
3. To realise the added value of well-trained operators for patients and orthopaedic surgeons.

RC 614-4
Value and future role of cone-beam computed tomography (CBCT) for extremity imaging
M. Barry; Dublin/IE
(meallabarry@mater.ie)

Learning Objectives:
1. To understand the potential of cone-beam computed tomography (CBCT) in extremity imaging.
2. To evaluate the evidence for CBCT of the extremities in comparison to other imaging modalities.

Panel discussion: How to introduce new technologies in the radiology department

16:30-17:30 **Room K2**

Refresher Course: Oncologic Imaging

RC 616

Artificial intelligence (AI) in oncology: where do we stand in 2023?

RC 616-1
Chairperson's introduction
L. Martí-Bonmatí; Valencia/ES
(marti_lui@gva.es)
Author Disclosures:
Luis Marti-Bonmati: Advisory Board: Member of the non-profit Scientific Advisory Boards of Quibim SL and the Girona Biomedical Research Institute

RC 616-2
AI in oncological screening
W. J. Niessen; Rotterdam/NL

Learning Objectives:
1. To understand how AI may help in cancer screening.
2. To learn if and which solutions are available.
3. To know where AI may contribute to cancer screening in the workflow.
Author Disclosures:
Wiro J. Niessen: Consultant: Until 31/1/2023 I was scientif lead of Quantib (detachment from Erasmus MC); Founder: I am founder of Quantib BV; Grant Recepient: I received multiple EU grants and grants of the national science foundation in The Netherlands in recent years; Share Holder: Until January 2022 I had shares in Quantib BV

RC 616-3
AI in diagnosis and tumour characterisation
D. Pinto dos Santos; Cologne/DE
(daniel.pinto-dos-santos@uk-koeln.de)

Learning Objectives:
1. To understand how AI may help tumour diagnosis and characterisation.
2. To learn if and which solutions are available.
3. To know where AI may contribute to tumour diagnosis and characterisation in the workflow.
Author Disclosures:
Daniel Pinto dos Santos: Advisory Board: cook medical; Author: AMBOSS GmbH; Speaker: Bayer

RC 616-4
AI in treatment response prediction and evaluation (including radiomics)
R. Woitek; Cambridge/UK
(rw585@cam.ac.uk)

Learning Objectives:
1. To understand how AI may help evaluate tumour response to therapy.
2. To learn if and which solutions are available.
3. To know where in the workflow AI may contribute to evaluating tumour response to therapy.

Panel discussion: Implementing AI in oncological imaging: bottlenecks and solutions

16:30-17:30 **Room N**

Refresher Course: Head and Neck

RC 608

Imaging of the "complex" larynx before and after surgery

RC 608-1
Chairperson's introduction
E. Vassallo; Msida/MT
(edithvassallo@gmail.com)

RC 608-2
MR imaging of laryngeal cancer
T. Beale; London/UK

Learning Objectives:
1. To understand how to optimise MRI imaging in laryngeal cancer.
2. To identify the common patterns of laryngeal cancer.
3. To be able to identify laryngeal cartilage and extra laryngeal tumour extension.
Author Disclosures:
Timothy Beale: Speaker: Samsung ultrasound; Other: speaker and given honorarium by Samsug to talk about head and neck ultrasound

RC 608-3
MR imaging in the follow-up of laryngeal cancer
D. Farina; Brescia/IT
(davide.farina@unibs.it)

Learning Objectives:
1. To become familiar with the normal postoperative findings after Transoral Laser Microsurgery (TOLM), partial laryngectomies, total laryngectomy, and chemo-radiotherapy (CRT).
2. To learn about the possible complications of treatment.
3. To understand the most common patterns of failure and the technical tips to increase diagnostic accuracy.

RC 608-4
Pitfalls in imaging of the larynx
R. Hermans; Leuven/BE
(Robert.Hermans@uzleuven.be)

Learning Objectives:
1. To summarize the technical requirements for optimal CT evaluation of the larynx.
2. To identify important imaging findings in staging laryngeal cancer.
3. To illustrate variants and benign lesions that may mimic or hide laryngeal malignancy.

Panel discussion: CT versus MR in imaging of the larynx

Thursday, March 2

08:00-08:30 **Open Forum Trainees**

Open Forum Session

Organised by the European Board of Radiology (EBR)

OF 7T

Tackle twisted cases, win your place in an EDiR examination (part 2)

OF 7T-1
Chairperson's introduction
L. Oleaga Zufiría; Barcelona/ES
(lauraoleaga@gmail.com)

Learning Objectives:
1. To dive into and experience the wonders of general radiology.
2. To prepare thoroughly for the exam while having a good time with other peers.
3. To gain deep knowledge of subspecialty neuroradiology and have the opportunity to grow.

OF 7T-2
Let the games begin
M. Vernooij; Rotterdam/NL
(m.vernooij@erasmusmc.nl)

Learning Objectives:
1. To scan and interpret two cases of today's subspecialty and possible outcomes based on the attendees' decisions.
2. To get to know and team up with peers from all over the world to help as many patients as possible.
3. To solve the quiz to win an EDiR examination place.
Author Disclosures:
Meike W. Vernooij: Board Member: I am Chair of EDiR's Written Evaluation Committee and Board Member of EDiR Scientific Board

OF 7T-3
Pooling of conclusions and perceptions
M. Vernooij; Rotterdam/NL
(m.vernooij@erasmusmc.nl)

Learning Objectives:
1. To jointly summarise and review what we have learned in today's session.

08:00-09:00 **Open Forum Radiographers**

E³ - Young ECR Programme: Basic Sessions

Organised by the EFRS

BS 7

Career development: extending roles for radiographers

BS 7-1
Chairperson's introduction
C. Sá dos Reis; Lausanne/CH

BS 7-2
MR safety officer: developing appropriate education
K. Van Belle; Brussel/BE
(kurt.vanbelle@odisee.be)

Learning Objectives:
1. To explain the context of the MR safety officer within MR practices across Europe.
2. To outline the next for a central MR safety officer curriculum.
3. To discuss the benefits and limitations of standardising a curriculum for an MR safety officer.

BS 7-3
Radiation protection (RP) safety officer: progressing the role for the future
J. Santos; Coimbra/PT
(joanasantos@estescoimbra.pt)

Learning Objectives:
1. To outline the current roles of RP safety officers across Europe.
2. To discuss the advantages and disadvantages of the RP safety officer's role.
3. To discuss the potential future role of the RP safety officer.

BS 7-4
Research radiographer: benefits of clinical-academic collaboration
B. R. Mussmann; Odense/DK
(bo.mussmann@rsyd.dk)

Learning Objectives:
1. To outline the opportunities for radiographers working in joint clinical academic appointments.
2. To discuss the advantages in terms of career progression for undertaking clinical-academic collaboration.
3. To predict the role of the clinical-academic radiographer in the future.

BS 7-5
Clinical audit: a role for all radiographers
E. Metsala; Helsinki/FI
(eija.metsala@metropolia.fi)

Learning Objectives:
1. To explain the value of clinical audit within radiology.
2. To outline why the clinical audit plays a role for all professionals working within radiology.
3. To discuss the potential of the clinical audit in the future.

08:00-09:00 **Room A**

Refresher Course: Abdominal and Gastrointestinal

RC 701

The obesity pandemic

RC 701-1
Chairperson's introduction
M. Staunton; Cork/IE

RC 701-2
What are the obesity numbers and how can we reduce them?
M. Krebs; Vienna/AT
(michael.krebs@meduniwien.ac.at)

Learning Objectives:
1. To describe major determinants of current and prospective epidemiological trends of obesity worldwide.
2. To list two currently approved drugs for obesity.
3. To describe commonly used surgical methods used to treat obesity.
Author Disclosures:
Michael Krebs: Advisory Board: Sanofi, Lilly; Research Grant/Support: AstraZeneca and Fit for Me; Speaker: Lilly, Takeda, Ipsen and Sanofi

RC 701-3
Imaging in the obese patient: which modality to choose?
R. Cannella; Palermo/IT

Learning Objectives:
1. To discuss the technical challenges of diagnostic imaging in obese patients.
2. To describe the role of different imaging modalities in obese patients with their strengths and limitations.
3. To summarise the diagnostic performance of imaging modalities for assessing steatosis and other clinical outcomes.
Author Disclosures:
Roberto Cannella: Research Grant/Support: Siemens Healthcare; Other: Support for attending meetings from Bracco and Bayer; co-funding by the European Union - FESR or FSE, PON Research and Innovation 2014-2020 - DM 1062/2021.

RC 701-4
What are the important findings in the liver?
M. M. França; Porto/PT
(mariamanuela.franca@gmail.com)

Learning Objectives:
1. To review the imaging findings of fatty liver disease and the signs of advanced liver disease.
2. To understand the role of different imaging techniques for assessing liver steatosis, highlighting the strengths and limitations of each technique, in different clinical scenarios.
3. To discuss the role of imaging biomarkers of liver steatosis, inflammation, and fibrosis, and their role in diagnosing and monitoring Nonalcoholic Fatty Liver Disease (NAFLD) or Nonalcoholic Steatohepatitis (NASH).
Author Disclosures:
Manuela M. França: Advisory Board: QUIBIM

Panel discussion: When to go from clinical follow-up to imaging?

08:00-09:00 **Room B**

Refresher Course: Breast

RC 702
Artificial intelligence (AI) in breast imaging: where do we stand in 2023?

RC 702-1
Chairperson's introduction
I. Sechopoulos; Nijmegen/NL
(ioannis.sechopoulos@radboudumc.nl)
Author Disclosures:
Ioannis Sechopoulos: Advisory Board: Koning Corp.; Research Grant/Support: Canon Medical, Siemens, ScreenPoint, Volpara, Lunit, Sectra, iCAD, Hologic; Speaker: Siemens

RC 702-2
Studies of AI in breast imaging: an overview
F. Strand; Stockholm/SE
(Fredrik.strand@ki.se)

Learning Objectives:
1. To understand different implementations of AI in screening.
2. To know the registered prospective trials that are ongoing.
3. To learn about the results from early prospective trials.
Author Disclosures:
Fredrik Strand: Speaker: Lunit Inc

RC 702-3
AI in mammography and tomosynthesis
M. Álvarez-Benito; Córdoba/ES
(marinaalvarezbenito@telefonica.net)

Learning Objectives:
1. To describe the different ways to use AI to interpret mammography and tomosynthesis studies.
2. To identify the benefits of incorporating AI in reading mammograms and tomosynthesis.
3. To compare the results of the interpretation of mammography and tomosynthesis studies with AI with other mammographic reading strategies.
4. To reflect on how AI can help you in your work environment.

RC 702-4
AI in ultrasound
T. Sella; Jerusalem/IL
(tamarse@hadassah.org.il)

Learning Objectives:
1. To understand the limitations of AI in breast ultrasound.
2. To discuss image analysis and computer-aided diagnosis (CADx) in the US application of AI.
3. To discuss the current state of AI in breast ultrasound and future directions for its development and implementation.
4. To learn about the impact of AI in breast ultrasound and its potential to improve patient outcomes.

RC 702-5
AI-enhanced breast MRI
K. Pinker-Domenig; New York, NY/US
(pinkerdk@mskcc.org)

Learning Objectives:
1. To understand the concept of AI-enhanced breast MRI.
2. To list the use cases of AI-enhanced breast MRI.
3. To identify the challenges and limitations of clinical implementation of AI-enhanced breast MRI.

Panel discussion: How to integrate AI in everyday practice?

08:00-09:00 **Room C**

Refresher Course: Chest

RC 704
Chameleons in thoracic radiology

RC 704-1
Chairperson's introduction
F. Gleeson; Oxford/UK

RC 704-2
Atypical manifestations of lung cancer
D. Byrne; Dublin/IE

Learning Objectives:
1. To know when to suspect atypical imaging presentations of lung cancer.
2. To understand which further imaging to suggest for clarification.
3. To know how to confidently differentiate between lung cancer and other causes.

RC 704-3
Lung metastases: not always as it seems
C. M. Schaefer-Prokop; Amersfoort/NL

Learning Objectives:
1. To recognise when lung nodules may be metastatic.
2. To understand which further imaging to suggest for clarification.
3. To know how to confidently differentiate between lung metastases and other causes.
Author Disclosures:
Cornelia M. Schaefer-Prokop: Author: Elsevier; Speaker: Canon, Philips

RC 704-4
Benign diseases mimicking a thoracic malignancy
L. Calandriello; Rome/IT

Learning Objectives:
1. To understand which infections mimic malignancies.
2. To understand which granulomatous diseases mimic malignancies.
3. To understand when to biopsy and when to suggest "wait and see".

Panel discussion: How to approach uncertainties in thoracic oncology

08:00-09:00 **Room D**

Refresher Course: Genitourinary

RC 707
Pros and Cons: Prostate MRI should only be reported by quality-certified radiologists in accredited centres

RC 707-1
Chairperson's introduction
V. Logager; Copenhagen/DK

RC 707-2
Pro
P. Puech; Lille/FR
(puech@dicomworks.com)

Learning Objectives:
This house believes that prostate-MRI reporting should only be done by quality-certified radiologists in accredited centres.
Author Disclosures:
Philippe Puech: Consultant: Bracco France

RC 707-3
Con
A. R. Padhani; London/UK
(anwar.padhani@talk21.com)

Learning Objectives:
This house believes that prostate-MRI reporting can be reported by radiologists without a quality certification in any centre.
Author Disclosures:
Anwar R. Padhani: Advisory Board: Siemens Healthineers; Equipment Support Recipient: Siemens Healthineers; Share Holder: Lucida Medical; Speaker: Siemens Healthineers

Panel discussion: Will all the centres need quality-certified radiologists to report Prostate-MRI?

08:00-09:00 **Room E1**

ESR meets Romania

Meets 7

The essence of flight in the cycle of life: a film produced by Romanian imagists

Presiding
A. Brady; Cork/IE
I.-A. Gheonea; Craiova/RO

Meets 7-1
Welcome and introduction
A. Brady; Cork/IE
(adrianbrady@me.com)
I.-A. Gheonea; Craiova/RO
(iagheonea@gmail.com)

Meets 7-2
Overview of interventional radiology in hepatocellular carcinoma (HCC) treatment in Romania
B. Popa; Bucharest/RO

Learning Objectives:
1. To present the experience of main Romanian centres specialised in the interventional treatment of HCC.
2. To assess the role of interventional procedures in treating hepatocellular carcinoma.
3. To underline the indications and limits of interventional treatment in hepatocellular carcinoma.
Author Disclosures:
Bogdan Popa: Consultant: Celonova, Boston Scientific

Meets 7-3
Imaging and interventional radiology in liver transplantation: more than 20 years of experience in Romania
M. Grasu; Bucharest/RO
(mugur.grasu@gmail.com)

Learning Objectives:
1. To present our experience regarding the role of imaging in patient selection for a liver transplant.
2. To discuss the role of interventional radiology in preoperative patient management.
3. To synthesise imaging protocols used to detect early and late complications in liver transplantation.
4. To highlight our experience regarding interventional radiology's role in treating liver transplant complications.

Meets 7-4
Breast cancer management in Romania
M. Lesaru; Bucharest/RO

Learning Objectives:
1. To present actual challenges in breast cancer management in Romania.
2. To overview the breast imaging methods available in Romania to answer the clinical issues in breast cancer management.
3. To demonstrate the involvement of breast radiologists in multidisciplinary therapeutic decisions.
4. To present future projects in breast cancer in which the Romanian breast imaging society is involved.

Meets 7-5
Present and future of artificial intelligence (AI) in Romanian radiology: a sequence in the big picture
I.-A. Gheonea; Craiova/RO
(iagheonea@gmail.com)

Learning Objectives:
1. To provide an overview of the current status of AI worldwide.
2. To present and discuss the role of AI in radiology in Romania.
3. To share our experience using AI as a tool for a multidisciplinary approach.
4. To show AI and other novel technologies for advanced diagnosis.

Panel discussion

08:00-09:00 **Room G1**

Refresher Course: Head and Neck

RC 708

Artificial intelligence and radiomics: applications and challenges in the head and neck

RC 708-1
Chairperson's introduction
P. Touska; London/UK

RC 708-2
AI and radiomics in the head and neck: basic techniques and challenges
L. V. van Dijk; Groningen/NL
(l.v.van.dijk@umcg.nl)

Learning Objectives:
1. To obtain an overview of radiomics feature extraction for head and neck image modalities.
2. To implement standardization of radiomics and AI initiatives in your research.
3. To identify challenges and potential solutions in head and neck radiomics AI researc

RC 708-3
Applications of radiomics in the head and neck
A. Iannessi; Nice/FR
(antoineiannessi@gmail.com)

Learning Objectives:
1. To know the key clinical regions of interest in the head and neck and the best corresponding modality to consider for radiomic applications.
2. To understand the promise of radiomics for personalized treatment of head and neck cancer.
3. To learn the characteristics of imaging biomarkers to effectively incorporate radiomic data into clinical decision-making for head and neck applications
Author Disclosures:
Antoine Iannessi: Employee: Mediantechnologies SA (imaging CRO)

RC 708-4
Applications of AI in head and neck cancer
L. Ugga; Naple/IT
(lorenzo.ugga@gmail.com)

Learning Objectives:
1. To summarise AI methods pertinent to head and neck imaging.
2. To describe possible applications of AI to head-neck imaging.
3. To present current clinical implementations and limitations of AI in the study of head-neck neoplasms.

Panel discussion: Practical uses and challenges of radiomics and AI in head and neck radiology

08:00-09:00 **Room G2**

Refresher Course: Emergency Imaging

RC 717

Faster, cheaper and better: cardiac CT in emergency imaging

RC 717-1
Chairperson's introduction
M. Francone; Milan/IT
(marco.francone@hunimed.eu)

RC 717-2
Use it or lose it: rationale and clinical results
R. Salgado; Antwerp/BE
(rodrigo.salgado@uza.be)

Learning Objectives:
1. To understand the importance of learning cardiac imaging for emergency radiologists.
2. To know how cardiac imaging may be crucial in cardiac emergencies.
3. To learn how to introduce and make cardiac CT survive in an emergency radiology unit.

RC 717-3
Morphological vs functional imaging of acute myocardial ischemia: added value of CT perfusion
R. Vliegenthart; Groningen/NL
(r.vliegenthart@umcg.nl)

Learning Objectives:
1. To understand when myocardial perfusion evaluation has value.
2. To describe CT acquisition protocols and scan evaluation for myocardial ischemia.
3. To appreciate current evidence on myocardial CT evaluation in acute chest pain.
Author Disclosures:
Rozemarijn Vliegenthart: Research Grant/Support: Institutional research grants, Siemens Healthineers; Speaker: Bayer, Siemens Healthineers

RC 717-4
How to set up a 24/7 cardiac imaging service in an emergency department
C. Loewe; Vienna/AT
(christian.loewe@meduniwien.ac.at)

Learning Objectives:
1. To learn the equipment and personnel requirements for 24/7 cardiac imaging service in emergency radiology.
2. To be familiar with cardiac CT protocols and optimisation of protocols in emergency settings.
3. To review the entire emergency cardiac CT process with a case example.
Author Disclosures:
Christian Loewe: Speaker: GE Healthcare, Siemens Healthineers, Bracco

Panel discussion: pearls and pitfalls in emergency cardiac imaging

08:00-09:00 **Room K1**

Refresher Course: Radiographers

RC 714

Latest developments in dental radiography

RC 714-1
Chairpersons' introduction
A. England; Cork/IE
(aengland@ucc.ie)
I. Rozylo-Kalinowska; Lublin/PL
(rozylo.kalinowska@umlub.pl)

Learning Objectives:
1. To describe the latest developments in dental radiography equipment and practice.
2. To understand the principles and indications for cone-beam CT in dental imaging.
3. To discuss best practices in radiation protection and infection control with regard to modern dental imaging.
Author Disclosures:
Andrew England: Board Member: EFRS; Other: ECR 2023 PPC

RC 714-2
How to achieve the best image quality and low radiation dose in dental cone-beam computed tomography (CBCT)?
G. Oman; Ljubljana/SI
(gasperoman123@gmail.com)

Learning Objectives:
1. To describe the issue of high doses in CBCT imaging, especially in comparison with other dental diagnostics.
2. To apply several options for reducing the dose in CBCT imaging.
3. To describe the minimum standards of image quality that need to be reached.

RC 714-3
Infection control practices for dental radiography
K. Borg Grima; Msida/MT
(karen.borg-grima@um.edu.mt)

Learning Objectives:
1. To apply the general principles of patient care to dental radiography.
2. To analyse the infection control risks involved in performing routine dental imaging.
3. To demonstrate the principles of correct waste disposal in dental radiography.

RC 714-4
Imaging in the management of osteonecrosis of the jaw
K. Fitzgerald; Cork/IE
(Kate.Fitzgerald3@hse.ie)

Learning Objectives:
1. To identify the risk factors associated with the development of osteoradionecrosis in an Irish population.
2. To recognise the significance of pre-radiation therapy bone surgery as a risk factor for developing osteoradionecrosis.
3. To understand and reflect on the recommendations for future radiation treatment planning for head and neck cancer patients.

Panel discussion: How involved are radiographers in dental imaging across Europe?

08:00-09:00 **Room K2**

Refresher Course: Neuro

RC 711

Top neuroradiology "do not touch" lesions

RC 711-1
Chairperson's introduction
Z. Rumboldt; Rovinj-Rovigno/HR

RC 711-2
Brain
I. N. Pronin; Moscow/RU
(pronin@nsi.ru)

Learning Objectives:
1. To describe the spectrum of "do not touch lesions" of the brain.
2. To understand the key imaging features that lead to the correct diagnosis.
3. To appreciate the clinical relevance and importance of advanced neuroimaging techniques in the differential diagnosis.
Author Disclosures:
Igor Nikolaevich Pronin: Author: Pronin Igor

RC 711-3
Skull base
K. Surlan Popovic; Ljubljana/SI

Learning Objectives:
1. To recognise the imaging patterns of the "do not touch" skull base lesions.
2. To differentiate between certain types of "do not touch" skull base lesions.
3. To differentiate between "do not touch" skull base lesions and those that need treatment.

RC 711-4
Spine
J. Vandevenne; Genk/BE
(Jan.Vandevenne@zol.be)

Learning Objectives:
1. To identify anatomical variants, congenital lesions and dysplasias, variants of development and growth, imaging artefacts, treatment changes and benign tumours of the spine that should not be touched on.
2. To distinguish the above-mentioned "do not touch" spine lesions from lesions with similar imaging presentation that definitely do need further attention.
3. To formulate the report to the referring physician with a sound judgement and recommendation to leave the lesion alone or not.

RC 711-5
Panel discussion: "Do not touch" lesions in children
A. Rossi; Genoa/IT
(andrearossi@gaslini.org)

08:00-09:00 **Room M**

Joint Session of the ESR and EFSUMB

ESR/EFSUMB

New ultrasound flow techniques: advances and potential

ESR/EFSUMB-1
Chairpersons' introduction
C. Ewertsen; Copenhagen/DK
P. S. Sidhu; London/UK
(paulsidhu@btinternet.com)

Learning Objectives:
1. To review the advances in new ultrasound vascular techniques.
2. To discuss the advantages of microflow imaging compared to CEUS and other imaging modalities.
3. To review the newest advances in ultrasound vascular techniques from researchers.

ESR/EFSUMB-2
Ultrasound microflow imaging: technique and application
A. K. P. Lim; London/UK
(a.lim@imperial.ac.uk)
Author Disclosures:
Adrian K. P. Lim: Advisory Board: Canon Medical systems; Equipment Support Recipient: Philips, Siemens; Research Grant/Support: Philips, Siemens, Canon; Speaker: Canon, Bracco

ESR/EFSUMB-3
Novel ultrasound techniques for color, vector and 3D flow imaging
P. Tortoli; Florence/IT
(piero.tortoli@unifi.it)

ESR/EFSUMB-4
Potential of new ultrasound vascular techniques in comparison to CT and MRI
V. Cantisani; Rome/IT
(vito.cantisani@uniroma1.it)
Author Disclosures:
Vito Cantisani: Speaker: Bracco, Samsung

ESR/EFSUMB-5
Super-resolution ultrasound imaging
I. Taghavi; Lyngby/DK

08:00-09:00 **Room N**

Refresher Course: Oncologic Imaging

RC 716

Interventional: new techniques for cancer treatment

RC 716-1
Chairperson's introduction
R. G. H. Beets-Tan; Amsterdam/NL

RC 716-2
High intensity focused ultrasound (HIFU): technique, indications, and evidence
M. F. Boomsma; Nigtevecht/NL
(m.f.boomsma@isala.nl)

Learning Objectives:
1. General technical aspects of MR-HIFU.
2. Update on clinical oncological applications of MR HIFU.
3. Update on the FURTHER-Trial.

RC 716-3
Cryoablation, microwave, and radiofrequency: technique, indications, and evidence
R. Iezzi; Rome/IT
(roberto.iezzi.md@gmail.com)

Learning Objectives:
1. To understand thermal ablation techniques.
2. To learn the indications and criteria of success for thermal ablation.
3. To learn about the evidence for thermal ablation techniques in terms of risk-benefit and discuss potential combination with systemic therapy.

RC 716-4
Vascular therapies: technique, indications, and evidence
A. Bharadwaz; Aarhus/DK
(arindambz@gmail.com)

Learning Objectives:
1. To understand vascular therapies in cancer treatment.
2. To know indications and success criteria for vascular therapy for cancer treatment.
3. To learn about the evidence for vascular therapies in terms of risk-benefit.
Author Disclosures:
Arindam Bharadwaz: Speaker: Arindam Bharadwaz

Panel discussion: Are we ready to de-escalate surgery treatments?

09:30-10:00 **Room A**

Plenary Lecture

PL 1

Plenary Lecture

Presiding
A. Brady; Cork/IE
(adrianbrady@me.com)

PL 1-1
Sustainable radiology
S. Sheard; London/UK
(sarahlucysheard.bury@gmail.com)

10:30-11:30 **Open Forum ESR at Work**

Open Forum Session

Organised by the ESR Publications Committee

OF 8E

The Hitchhiker's guide to social media for radiologists

OF 8E-1
Chairperson's introduction
D. Pinto dos Santos; Cologne/DE
(daniel.pinto-dos-santos@uk-koeln.de)
Author Disclosures:
Daniel Pinto dos Santos: Advisory Board: cook medical; Author: AMBOSS GmbH; Speaker: Bayer

OF 8E-2
Utilising social media to increase the visibility of your published article
B. Baeßler; Würzburg/DE
(bettina.baessler@googlemail.com)

Learning Objectives:
1. To learn about social media accounts of journals and publishers.
2. To understand how to best promote your own scientific works on social media.
3. To appreciate the potentially added visibility and how to benefit from it.
Author Disclosures:
Bettina Baessler: CEO: Lernrad GmbH; Founder: Lernrad GmbH; Speaker: Bayer Vital GmbH

OF 8E-3
How to build your presence and engage with other users and your followers
F. Vernuccio; Padova/IT
(federicavernuccio@gmail.com)

Learning Objectives:
1. To provide tips and tricks for a strategy to build your presence as a radiologist in social media.
2. To learn about the possibilities of direct interaction with other users.
3. To appreciate the potential of networking through social media.

OF 8E-4
DOs and DON'Ts in social media
M. Smits; Rotterdam/NL
(marion.smits@erasmusmc.nl)

Learning Objectives:
1. To understand what defines good content in a professional setting and what which pitfalls to avoid.
2. To learn about trolling, shitstorms, etc..
3. To learn about how to best react to hurtful comments and trolling.
Author Disclosures:
Marion Smits: Consultant: Bracco (paid to institution); Speaker: GE Healthcare, Auntminnie (paid to institution)

Discussion / Questions

10:30-11:30 **Room B**

Transatlantic Course of ESR and RSNA (Radiological Society of North America): Imaging of Neurodegenerative Disorders

TC 828

Basics of neuroimaging in neurodegeneration

TC 828-1
Chairpersons' introduction
M. Vernooij; Rotterdam/NL
(m.vernooij@erasmusmc.nl)
F. Barkhof; Amsterdam/NL

Learning Objectives:
Structural and molecular imaging techniques can demonstrate the onset of neurodegenerative and dementing disorders years before the onset of symptoms. This educational course will discuss the structural MRI changes that occur with normal ageing and how they relate to specific neurodegenerative disorders. Molecular imaging probes for PET imaging will be discussed that can dissect the molecular pathology associated with neurodegenerative diseases, including parkinsonian syndromes. At the end of the course, the participants will better understand the sequences of molecular and structural imaging findings that may herald the onset of dementia and other neurodegenerative disorders.

TC 828-2
MR imaging standards, methods, normal findings, mimics
Y. Anzai; Salt Lake City, UT/US
(yoshimi.anzai@hsc.utah.edu)

TC 828-3
Molecular imaging standards, methods, normal findings, mimics
J. Arbizu; Pamplona/ES
Author Disclosures:
Javier Arbizu: Research Grant/Support: Siemens, General Electric, Life Molecular Imaging; Speaker: Roche; General Electric; Biogen; Advanced Accelerator Applications-Novartis

TC 828-4
Role of imaging biomarkers in clinical routine and trials, guidelines and consensus
F. Barkhof; Amsterdam/NL
(f.barkhof@vumc.nl)
Author Disclosures:
Frederik Barkhof: Advisory Board: Biogen, Merck, Combinostics, Prothena, Eisai; Board Member: Queen Square Analytics; Consultant: Celltrion, IXICO, Roche; Grant Recepient: EU-IMI, EPSRC, UK-MSS; Research Grant/Support: GE healthcare, Merck, Biogen

10:30-11:30 **Room D**

EIBIR Session

EIBIR 8

European efforts to improve quality and safety in imaging and therapy

EIBIR 8-1
Chairperson's introduction
G. P. Krestin; Rotterdam/NL
(g.p.krestin@erasmusmc.nl)

EIBIR 8-2
i-Violin project
C. Hoeschen; Magdeburg/DE
(christoph.hoeschen@ovgu.de)

Learning Objectives:
1. To learn about the i-Violin approach for optimising oncological imaging by evaluating image quality and exposure relation in CT imaging, improving parameters, and harmonising the approaches for procedure optimisation.
2. To learn about the tools that will be provided and how these can be used in hospitals through appropriate education and training on image quality and dose assessment as well as optimisation strategies.
3. To understand the importance of optimisation of oncological imaging throughout Europe in terms of radiation protection and how automatic exposure and image quality assessment can help with this.

EIBIR 8-3
SimpleRad project: a study on the implementation of the Euratom and the EU legal bases with respect to the therapeutic uses of radiopharmaceuticals
B. Krause; Rostock/DE

Learning Objectives:
1. To understand the ambition and structure of Simplerad, a European collaborative project wihtin the framework of the Strategic Agenda for Medical Ionizing Radiation Applications (SAMIRA).
2. To present an analysis of the inter-relations between EU pharmaceutical legislation and Council Directive 2013/59/Euratom.
3. To survey the implementation of relevant European legal requirements for therapeutic nuclear medicine.
4. To describe how the Simplerad project will advance the coherent implementation of European legal requirements for therapeutic nuclear medicine.

EIBIR 8-4
AlternativesToGd project
R. Katz-Brull; Jerusalem/IL

Learning Objectives:
1. To learn about the alternatives to the Gd research project.
2. To learn about the development of metal-free alternatives to GBCAs.
3. To understand the pros and cons of hyperpolarised MRI agents.

EIBIR 8-5
EIBIR activities and upcoming opportunities
K. Krischak; Vienna/AT
(kkrischak@eibir.org)

Learning Objectives:
1. To learn about EIBIR activities and support services.
2. To understand how EIBIR can increase funding success.
3. To become familiar with European research funding opportunities, in particular, Horizon Europe.

Discussion

10:30-11:30 **Room K2**

Joint Session of the ESR and UEMS

ESR/UEMS

The Accreditation Council in Imaging: tools for the learning cycle

ESR/UEMS-1
Chairpersons' introduction
C. Loewe; Vienna/AT
(christian.loewe@meduniwien.ac.at)
M. Adriaensen; Heerlen/NL
Author Disclosures:
Christian Loewe: Speaker: GE Healthcare, Siemens Healthineers, Bracco

ESR/UEMS-2
The importance of CME and CPD across Europe
J. Grenho; Lisbon/PT

Learning Objectives:
1. To understand the differences between continuing medical education (CME) and continuing professional development (CPD).
2. To learn about the European Accreditation Council for Continuing Medical Education (EACCME).
3. To know the value of European CME credits (ECMEC).

Author Disclosures:
Joao Grenho: Other: HEAD OF EACCME

ESR/UEMS-3
The Accreditation Council of Imaging: past, present, and future
P. Ricci; Rome/IT
(paolo.ricci@uniroma1.it)

Learning Objectives:
1. To learn about the Accreditation Council in Imaging (ACI).
2. To mention the ACI activities in figures and numbers.
3. To explain all steps in the reviewing process.
4. To explain quality assurance and training of reviewers.

ESR/UEMS-4
Webinars and other online options as CME tool: trending and necessary
H. Prosch; Vienna/AT
(helmut.prosch@meduniwien.ac.at)

Learning Objectives:
1. To learn about the trends of webinars as an online CME tool.
2. To understand other online options to gain ECMEC.
3. To appreciate the advantages and disadvantages of the online CME.

ESR/UEMS-5
The providers perspective: how to successful start a webinar programme, including CME accreditation
A. P. Parkar; Bergen/NO
(apparkar@gmail.com)

Learning Objectives:
1. To learn how to establish a successful webinar programme.
2. To understand how to apply for CME accreditation.
3. To appreciate the feedback of participants.

ESR/UEMS-6
Impact of COVID-19 on training and education
L. Oleaga Zufiría; Barcelona/ES
(lauraoleaga@gmail.com)

Learning Objectives:
1. To understand the impact of COVID-19 on radiology residency.
2. To understand the impact of COVID-19 on the EDiR.
3. To learn about the evolution of the EDiR since the start of the pandemic.

ESR/UEMS-7
Subspecialisation in radiology: status and continuing professional education and development (CME-CPD) in Europe
M. Adriaensen; Heerlen/NL

Learning Objectives:
1. To learn about the currently available European subspecialty radiology exams.
2. To understand the diversity in recognising radiological subspecialties within European countries.
3. To understand the diversity in CME and CPD in the learning cycle of a subspecialised radiologist within Europe.
Author Disclosures:
Miraude Adriaensen: Board Member: Dutch delegate to the UEMS Radiology Section; Member-at-large of the Board of the UEMS Radiology Section; Chair and UEMS representative to the Policy Committee of the Accreditation Council of Imaging; UEMS representative to the Standards Committee of the European Board of Radiology; Member of the Executive Committee of the European Society of Musculoskeletal Radiology, Councillor; Member and past chair of the Educational Committee of the European Society of Musculoskeletal Radiology; ESR Education Committee Delegate representing the European Society of Musculoskeletal Radiology

Panel discussion: Do radiologists need CME and CPD in their learning cycle?

10:30-11:30 **Room N**

Refresher Course: Genitourinary

RC 807

Guided interventions of the prostate

RC 807-1
Chairperson's introduction
G. M. Villeirs; Ghent/BE
Author Disclosures:
Geert M. Villeirs: Advisory Board: AGFA Clinical Advisory Board

RC 807-2
Prostate embolisation for benign prostatic hyperplasia (BPH)
M. Barral; Paris/FR
(matthiasbarral@gmail.com)

Learning Objectives:
1. To define the technique and how it is performed.
2. To identify men suitable for this procedure.
3. To learn possible complications of the procedure.

RC 807-3
Direct in-bore interventions
P. De Visschere; Ghent/BE
(Pieter.devisschere@ugent.be)

Learning Objectives:
1. To define the technique and how it is performed.
2. To identify men suitable for this procedure.
3. To learn possible complications of the procedure.

RC 807-4
US-MRI-fusion techniques
T. Fischer; Berlin/DE
(thom.fischer@charite.de)

Learning Objectives:
1. To define the technique approach.
2. To identify men suitable for this procedure.
3. To describe the role of radiologists in the multi-disciplinary management of these patients.
Author Disclosures:
Thomas Fischer: Advisory Board: Siemens, Canon, Bracco; Equipment Support Recipient: Canon, Siemens; Speaker: Siemens, Canon, Bracco

RC 807-5
Focal therapy in localised prostate cancer: IRE, HIFU, cryoablation
O. Rouvière; Lyon/FR

Learning Objectives:
1. To learn the value of different modalities for local treatment.
2. To learn which technique to use depending on the clinical situation.
3. To define how to control these patients with imaging techniques after treatment.
Author Disclosures:
Olivier Rouviere: Consultant: EDAP-TMS

Panel discussion: To define which technique is suitable for the different patients

10:30-11:30 **Studio**

Round Table Session

RT 8

Data sharing fueling AI development

RT 8-1
Chairperson's introduction
E. Kotter; Freiburg/DE

Learning Objectives:
1. To discuss the current environment for data sharing for AI applications.
2. To understand the technical and ethical issues governing AI data sharing.
2. To consider means of enhancing data sharing and availability for AI development.
Author Disclosures:
Elmar Kotter: Advisory Board: contextflow GmbH, Vienna; Grant Recepient: BMBF, DFG; Speaker: Siemens Healthineers, abbvie

RT 8-2
How can AI data sharing enhance radiologist workflow and efficiency?
R. Abramson; Sydney/AU
(rick.abramson@annalise.ai)
Author Disclosures:
Rick Abramson: Employee: Annalise-AI, Pty, Ltd

RT 8-3
Radiology research in AI: potential from multi-source data sharing
L. Martí-Bonmatí; Valencia/ES
(marti_lui@gva.es)
Author Disclosures:
Luis Marti-Bonmati: Advisory Board: Member of the non-profit Scientific Advisory Boards of Quibim SL and the Girona Biomedical Research Institute

RT 8-4
European initiatives to enhance data-sharing for radiology AI
L. S. Fournier; Paris/FR
(laure.fournier@aphp.fr)
Author Disclosures:
Laure S. Fournier: Board Member: Grant scientific committe: Institut Servier; Grant Recepient: Bristol Myers Squibb; Investigator: Philips, Evolucare, ArianaPharma, Dassault Systems; Speaker: Bayer, Novartis, Janssen, Sanofi, GE Healthcare, Fujifilm, ESGAR, C-FIM, Median Technologies, Vestfold Hospital; Other: Travel support: Guerbet

RT 8-5
Discussion
E. Kotter; Freiburg/DE
R. Abramson; Sydney/AU
(rick.abramson@annalise.ai)
L. Martí-Bonmatí; Valencia/ES
(marti_lui@gva.es)
L. S. Fournier; Paris/FR
(laure.fournier@aphp.fr)
M. J. Willemink; Stanford, CA/US
(m.j.willemink@gmail.com)
P. M. A. van Ooijen; Groningen/NL
(p.m.a.van.ooijen@umcg.nl)
Author Disclosures:
Elmar Kotter: Advisory Board: contextflow Vienna; Grant Recepient: DFG, BMBF; Speaker: Siemens Healthineers, AbbVie
Rick Abramson: Employee: Annalise-AI, Pty, Ltd
Laure S. Fournier: Research Grant/Support: Bristol-Myers-Squibb, Philips, Evolucare, ArianaPharma, Dassault Systems; Speaker: Bayer, Novartis, Janssen, Sanofi, GE Healthcare, Fujifilm, ESGAR, C-FIM, Median Technologies, Vestfold Hospital; Other: Scientific committee: Institut Servier, Congress support: Guerbet
Martin J. Willemink: Board Member: Segmed, Inc.; CEO: Segmed, Inc.; Employee: Segmed, Inc.; Founder: Segmed, Inc.; Grant Recepient: American Heart Association
Peter M. A. Van Ooijen: Advisory Board: MedicalPHIT, ContextFlow; Board Member: EuSoMII; Speaker: Novartis, Bayer, Bracco, Siemens

10:30-12:00 **Open Forum Trainees**

E³ - European Diploma Prep Session

E³ 823

Principles of imaging and radiation protection

E³ 823-1
Chairperson's introduction
C. J. Caruana; Msida/MT
(carmel.j.caruana@um.edu.mt)

E³ 823-2
A. Principles of computed tomography
E. Castellano; London/UK
(elly.castellano@rmh.nhs.uk)

Learning Objectives:
1. To understand the physical basis of image formation of computed tomography and of the physics of helical, multidetector, and dual-source CT.
2. To learn the scale of Hounsfield units and the principle of window centre and width.
3. To become familiar with modern CT technology.
4. To understand the principles of optimising CT protocols with a focus on patient dose reduction.

E³ 823-3
B. Principles of magnetic resonance imaging
G. Hagberg; Tübingen/DE
(gisela.hagberg@tuebingen.mpg.de)

Learning Objectives:
1. To become familiar with the physical basis of image formation in MRI, including the principles of pulse sequences and relaxation times.
2. To become familiar with the typical appearance of tissues, organs, and main pathological processes of the most commonly used sequences in MRI.
3. To learn typical artefacts on MRI and to discuss their respective causes.
4. To understand absolute or relative contraindications against MRI and safety issues in the MR environment with regard to patients and staff.

E³ 823-4
C. Radiation protection
J. Damilakis; Iraklion/GR

Learning Objectives:
1. To understand the phenomena of x-ray interaction with matter and their effect on image quality and dose.
2. To provide an overview of patient and staff dosimetry in diagnostic and interventional radiology.
3. To understand the basic principles of radiation protection as outlined by the ICRP (International Commission on Radiological Protection).
4. To become familiar with the concepts and tools for dose management in radiology with regard to adult and paediatric patients.

10:30-12:00 **Room A**

State of the Art Symposium

SA 8

Cardiovascular anomalies throughout the cycle of life: CT and MR imaging

SA 8-1
Chairperson's introduction
M. Pirnat; Maribor/SI
(maja.pirnat@ukc-mb.si)
Author Disclosures:
Maja Pirnat: Advisory Board: Bayer

SA 8-2
Foetal cardiovascular MRI: a review of technical advancements and challenges
C. W. Roy; Lausanne/CH

Learning Objectives:
1. To name and identify the main practical challenges of imaging the foetal heart with MRI.
2. To list the most recent techniques for foetal cardiovascular MRI and understand their use.
3. To describe and reflect on how cardiovascular MRI may complement existing clinical routines for imaging the foetus.

SA 8-3
Paediatric cardiac CT and MRI: considerations for the general radiologist
M. Gutberlet; Leipzig/DE
(matthias.gutberlet@helios-kliniken.de)

Learning Objectives:
1. To name and identify the most common indications for paediatric cardiac CT and MRI according to the ESCR MR/CT registry.
2. To learn when and how to perform cardiac CT or cardiac MR in paediatric patients.
3. To become familiar with the most common pitfalls in paediatric cardiac CT and cardiac MR.
Author Disclosures:
Matthias Gutberlet: Advisory Board: Bayer; Author: Bayer; Board Member: ESCR, Working Group CVI of German Roentgen Society; Grant Recepient: DFG, EU; Speaker: Siemens, Bayer, Bracco, Edwards, Circle CVI

SA 8-4
Imaging of adult congenital heart disease
T. P. Willems; Groningen/NL
(tinekepetrawillems@hotmail.com)

Learning Objectives:
1. To notify the new insights in the current guidelines for cardiovascular imaging in congenital heart disease patients.
2. To get an overview of evolving technologies e.g. computational modelling, 3D printing, artificial intelligence in congenital heart disease care.

Panel discussion: Which techniques are essential in assessing patients with congenital heart disease?

10:30-12:00 **Room C**

Special Focus Session

SF 8

Reporting in emergency radiology: RADS, scores and facts

SF 8-1
Chairperson's introduction
M.-A. Weber; Rostock/DE

SF 8-2
CT score of ischaemic stroke
C. Calli; Izmir/TR
(cem.calli@gmail.com)

Learning Objectives:
1. To learn about clinically feasible CT scores of ischaemic stroke and how to use them.
2. To become familiar with the Alberta stroke programme early CT score (ASPECTS).
3. To get knowledge about scoring systems for use in the posterior circulation.
Author Disclosures:
Cem Çalli: Board Member: ESNR, ESER; Speaker: Bayer

SF 8-3
Grades and scores in blunt abdominal trauma
F. Iacobellis; Naples/IT
(iacobellisf@gmail.com)

Learning Objectives:
1. To learn about clinically feasible scoring systems for intra-abdominal injury diagnosis after blunt trauma and how to use them.
2. To become familiar with the blunt abdominal trauma scoring system (BATSS).
3. To learn when to safely discharge blunt abdominal trauma patients.

SF 8-4
CT severity index in pancreatitis
A. Blanco Barrio; Murcia/ES
(anablancowhite@gmail.com)

Learning Objectives:
1. To learn about clinically feasible severity indices in pancreatitis and how to use them.
2. To become familiar with the computed tomography severity index (CTSI) and modified CT severity index (MCTSI) in assessing the severity of acute pancreatitis.
3. To appreciate the special aspects in children.

SF 8-5
Chest CT scores in COVID-19 pneumonia
G. Cowell; Glasgow/UK
(Gordon.Cowell@ggc.scot.nhs.uk)

Learning Objectives:
1. To learn about clinically feasible chest CT severity scores in COVID-19 pneumonia and how to use them.
2. To get knowledge about structured reporting systems, such as the RSNA chest CT classification system for COVID-19, CO-RADS, and COVID-RADS.
3. To learn about the correlation between chest CT severity scores and clinical parameters of patients with COVID-19 pneumonia.

Panel discussion: Which grading or scoring systems are necessary to use in emergency radiology reporting?

10:30-12:00 **Room E2**

E³ - Advanced Courses: Radiology of the Afterlife

E³ 822

Postmortem imaging of foetuses, neonates and infants

E³ 822-1
Chairperson's introduction
O. J. Arthurs; London/UK

Learning Objectives:
This session on the postmortem imaging of foetuses, neonates, and infants helps to understand why this subspecialty of radiology is needed, how the logistics work, and how the imaging fits in the process of postmortem investigations. Also, the perspective of the parents is discussed.

E³ 822-2
The additive value of postmortem imaging of the foetal and neonatal brain
D. Prayer; Vienna/AT
(daniela.prayer@meduniwien.ac.at)

E³ 822-3
Radiology findings in sudden unexpected death in infants (SUDI)
S. C. Shelmerdine; London/UK

E³ 822-4
Imaging of the embryo and foetus
B. S. de Bakker; Amsterdam/NL

E³ 822-5
The NODOK procedure in the Netherlands
W. M. Klein; Nijmegen/NL
(willemijn.klein@radboudumc.nl)

Panel discussion: How can postmortem imaging help the counselling of the parents?

10:30-12:00 **Room G1**

E³ - Advanced Courses: Interactive Teaching Sessions for Young (and not so Young) Radiologists

E³ 821

Imaging of metastatic renal tumours

E³ 821-1
Staging strategies
G. Ivanac; Zagreb/HR
(gordana.augustan@gmail.com)

Learning Objectives:
1. To illustrate the TNM system for staging renal cancer.
2. To review the best imaging protocols for evaluating metastatic renal tumours at CT/MRI.
3. To learn how to integrate different imaging techniques.

E³ 821-2
Evaluation of medical treatment
O. Nikolic; Novi Sad/RS
(olivera.nikolic@mf.uns.ac.rs)

Learning Objectives:
1. To illustrate the challenges in assessing the response to medical treatment of metastatic renal cancer.
2. To learn how to apply different objective response criteria for categorising treatment responses.
3. To discuss the role of radiogenomics in predicting treatment response and prognosis.

10:30-12:00 **Room G2**

ESR QuADRANT Session

ESR QuADRANT

Quality improvement through audit in diagnostic radiology, radiotherapy and nuclear medicine. An ESR-led project on behalf of the European Commission: project outcomes and implications

ESR QuADRANT-1
Chairperson's introduction
A. Brady; Cork/IE
(adrianbrady@me.com)

ESR QuADRANT-2
QUADRANT: project overview and key findings
D. C. Howlett; Eastbourne/UK

Learning Objectives:
1. To review existing clinical audit guidelines, publications and core definitions.
2. To overview the aims of the project.
3. To summarise and discuss the project findings and recommendations.

ESR QuADRANT-3
QUADRANT: examples of clinical audit good practices in radiology
B. Brkljačić; Zagreb/HR
(boris@brkljacic.com)

Learning Objectives:
1. To discuss European radiological involvement in QUADRANT.
2. To summarise clinical audit good practices as identified in QUADRANT.
3. To review varying models of national clinical audit practice in radiology.

ESR QuADRANT-4
The European Commission perspective
G. Simeonov; Luxembourg/LU
(georgi.simeonov@ec.europa.eu)

Learning Objectives:
1. To discuss the role of QUADRANT in relation to the European Commission SAMIRA initiative.
2. To appreciate the importance of clinical audit as part of the broader improvement in quality and safety.
3. To provide an update on the latest activities to support the implementation of clinical audit in the EU.

ESR QuADRANT-5
The ESR perspective
A. Brady; Cork/IE
(adrianbrady@me.com)

Learning Objectives:
1. To appreciate the challenges to clinical audit implementation within European radiology.
2. To discuss the role of the ESR in establishing a European clinical audit infrastructure.
3. To consider the broader implications of QUADRANT for European radiology.

Panel discussion: Can QuADRANT make a difference in European radiological clinical audit uptake and implementation?

10:30-12:00 **Room K1**

EFRS Workshop

EFRS WS
Career progression

EFRS WS-1
Chairpersons' introduction
A. England; Cork/IE
(aengland@ucc.ie)
G. Paulo; Coimbra/PT
(gpaulo@icloud.com)

Learning Objectives:
1. To highlight the importance of career progression and role extension for European radiographers.
2. To describe opportunities for radiographers to advance and extend their careers within radiography.
3. To discuss the challenges to radiographer career progression.
Author Disclosures:
Andrew England: Board Member: EFRS; Speaker: ECR 2023

EFRS WS-2
What does the future role of the radiographer look like?
J. McNulty; Dublin/IE
(jonathan.mcnulty@ucd.ie)

EFRS WS-3
What does career progression for radiographers across Europe currently look like?
D. Catania; Milan/IT

EFRS WS-4
Postgraduate training requirements for radiographers: do we need a European consensus?
F. Zarb; Msida/MT
(francis.zarb@um.edu.mt)

EFRS WS-5
What opportunities are there for advancing practice and how do we embrace these?
T. O'Regan; London/UK
(Tracyo@sor.org)
Author Disclosures:
Tracy Jane O'Regan: Employee: The Society and College of Radiographers

Panel discussion: How do we continue to advance the radiography profession?

10:30-12:00 **Room O**

Trainees in Focus

IF 8
Beyond description: the importance of imaging-based classification and grading systems for cancer

IF 8-1
Chairperson's introduction
M. Ronot; Clichy/FR
(maxime.ronot@aphp.fr)

Learning Objectives:
In this session, residents will learn why it is important to understand the international classification systems for oncologic diseases. Some common oncologic diseases are selected as examples for teaching and discussion. A practical approach to using the imaging-based classifications and grading systems is presented, emphasising specific imaging features for category assessment and their importance for the multidisciplinary diagnostic work-up and therapeutic approach.

IF 8-2
Imaging-based classification and grading of breast cancer
M. H. Fuchsjäger; Graz/AT
(michael.fuchsjaeger@medunigraz.at)

Learning Objectives:
1. To become familiarised with BI-RADS and the specific imaging features for category assessment.
2. To appreciate the clinical importance of imaging-based classification of breast cancer.

IF 8-3
Imaging-based classification and grading of liver tumours
M. Ronot; Clichy/FR
(maxime.ronot@aphp.fr)

Learning Objectives:
1. To understand the key imaging features for classifying and grading primary hepatic tumours.
2. To appreciate the impact of imaging on the management of primary liver tumours.

IF 8-4
Imaging-based classification of prostate cancer
H. C. Thoeny; Fribourg/CH
(harriet.thoeny@h-fr.ch)

Learning Objectives:
1. To understand the key imaging features for grading prostate cancer.
2. To appreciate the impact of MRI on the management of prostate cancer.
Author Disclosures:
Harriet Thoeny: Advisory Board: Guerbet SA

Panel discussion: Is radiologic disease classification and grading useful or simply time-consuming?

12:30-13:30 **Open Forum ESR at Work**

Open Forum Session

Organised by the ESR Publications Committee

OF 9E
101 ways to get your manuscript rejected

OF 9E-1
Chairperson's introduction
A. Varga-Szemes; Charleston, SC/US
Author Disclosures:
Akos Varga-Szemes: Consultant: Bayer, Elucid Bioimaging; Grant Recepient: Siemens

OF 9E-2
Most common methodological mistakes
F. Sardanelli; San Donato Milanese/IT
(francesco.sardanelli@unimi.it)

Learning Objectives:
1. To become aware of the relevance of the study design whose quality is the main driver of the quality of your manuscript.
2. To understand the difference between internal and external validity of a research.
3. To know the principal biases influencing the internal validity (e.g., protocol violations, reference standard application, weak measurements, readers' independence).
4. To know the principal biases influencing the external validity (e.g., subjects selection, outdated technology).

OF 9E-3
Most common statistical errors
C. Monti; Milan/IT
(caterina.monti@unimi.it)

Learning Objectives:
1. To understand the topic of data distribution (normal versus non-normal), to choose the appropriate way of presentation and statistical testing.
2. To become familiar with the essentials of statistical power, including assumptions on differences, sample size calculation, and p-value interpretation.
3. To grasp the concept that a table or a graph is better than 100 words of free text, in order to maximize the clarity and impact of study results.
Author Disclosures:
Caterina Beatrice Monti: Other: Travel Support, Bracco

OF 9E-4
Most common presentation errors
Y. Menu; Paris/FR
(yves.menu@aphp.fr)

Learning Objectives:
1. To learn why clear introduction, simple key points and straightforward discussion are essential.
2. To understand why the author's and the reader's views at the manuscript are different and to draw some lessons for writhing Material /Methods and Results sections.
3. To be aware of the most common errors that may disqualify a manuscript, despite good scientific content.

Discussion / Questions

12:30-13:30 **Open Forum Radiographers**

Open Forum Session

OF 9R
Imaging of cervical cancer

OF 9R-1
Chairperson's introduction
P. Cornacchione; Rome/IT
(patriziacornacchione@gmail.com)

Learning Objectives:
1. To discuss the best protocols for evaluating cervical cancer using MRI: the radiographers' perspective.
2. To discuss the best protocols for evaluating cervical cancer using MRI: the radiologists' perspective.
3. To discuss the best protocols for evaluating cervical cancer using PET/CT: the radiographers' perspective.
4. To discuss the best protocols for evaluating cervical cancer with PET/CT: the radiologists' perspective.

OF 9R-2
MR protocols for cervical cancer staging: what radiographers need to know
J. Kihlberg; Linköping/SE

OF 9R-3
MR protocols for cervical cancer staging: what radiologists need to know
J. Sammon; Cork/IE

OF 9R-4
PET/CT techniques of cervical cancer stages: what radiographers need to know
A. Geão; Lisbon/PT
(ana.r.geao@gmail.com)

OF 9R-5
PET/CT techniques of cervical cancer stages: what radiologists need to know
K. O'Regan; Cork/IE
(kevin.oregan1@hse.ie)

Open forum discussion

12:30-13:30 **Open Forum Trainees**

Open Forum Session

OF 9T
Becoming a good radiologist: top tips from the professors

OF 9T-1
Chairperson's introduction
M. Klontzas; Iraklion/GR

Learning Objectives:
Part of a series of sessions where distinguished professors of radiology together with their young residents are invited to share their experience, their vision, and give advice and guidance to the younger generation of radiologists about what it is to be a radiologist.

OF 9T-2
What makes a good radiologist?
L. K. Blomqvist; Stockholm/SE

Learning Objectives:
1. To define what makes a 'good' clinical radiologist.
2. To discuss what steps can be taken by residents towards this goal.
Author Disclosures:
Lennart K. Blomqvist: Founder: Collective Minds Radiology; Share Holder: Collective Minds Radiology

OF 9T-3
How can radiologists become good educators?
L. Martí-Bonmatí; Valencia/ES
(marti_lui@gva.es)

Learning Objectives:
1. To discuss the benefits of becoming a good educator in radiology practice.
2. To discuss what steps can be taken by residents towards this goal.
Author Disclosures:
Luis Marti-Bonmati: Advisory Board: Member of the non-profit Scientific Advisory Boards of Quibim SL and the Girona Biomedical Research Institute

OF 9T-4
How can radiologists become leaders?
H. Hricak; New York, NY/US

Learning Objectives:
1. To discuss the benefits of becoming a leader in radiology practice.
2. To discuss what steps can be taken by residents towards this goal.
Author Disclosures:
Hedvig Hricak: Advisory Board: CCC, Johns Hopkins, University of Vienna, Euro-Bioimaging, ERC; Board Member: Ion Beam Applications, Paige.AI; Other: Board of Trustees, DKFZ, Scientific Committee, DKFZ

Open forum discussion: How do we become a good radiologist?

12:30-13:30 **Room A**

E³ - The Beauty of Basic Knowledge: Screening

E³ 25B

Lung cancer screening (LCS): a newcomer to the game

E³ 25B-1
Chairperson's introduction
M.-P. Revel; Paris/FR
(marie-pierre.revel@aphp.fr)

Learning Objectives:
At the end of this session, the participants will be aware of the latest results of lung cancer screening programmes. They will understand the requirements before implementing a lung cancer screening programme and the different options in the selection of participants and screening methods.
Author Disclosures:
Marie-Pierre Revel: Equipment Support Recipient: Mevis, Aidence, Coreline, Gleamer; Research Grant/Support: French ministry of Health, French Cancer Institute; Speaker: Bracco, MSD, GE Healthcare, Boehringer Ingelheim

E³ 25B-2
The accumulated evidence: summary of trial results
M. Prokop; Nijmegen/NL

Learning Objectives:
1. To learn about the magnitude of lung cancer mortality reduction in the screened population.
2. To learn about gender differences in mortality reduction.
3. To be aware of the protective effect fading after last screening.
Author Disclosures:
Mathias Prokop: Grant Recepient: Canon Medical Systems, Siemens Healthineers; Speaker: Canon Medical Systems, Siemens Healthineers

E³ 25B-3
Building quality assurance programmes: how to ensure LCS is performed optimally?
A. Snoeckx; Antwerp/BE
(Annemiek.Snoeckx@uza.be)

Learning Objectives:
1. To learn about radiologists' training.
2. To review the current low-dose and ultra-low dose protocols.
3. To be aware of the requirements for a screening centre.
Author Disclosures:
Annemie Snoeckx: Advisory Board: Agfa

E³ 25B-4
Who should be screened, how and at which intervals?
M. Silva; Parma/IT
(mariosilvamed@gmail.com)

Learning Objectives:
1. To learn about the different models for selecting high-risk participants.
2. To learn about the optimisation of screening intervals.
3. To discuss future options, the role of biomarkers and artificial intelligence.

Panel discussion: How to develop an efficient and personalised approach of screening?

12:30-13:30 **Room B**

Transatlantic Course of ESR and RSNA (Radiological Society of North America): Imaging of Neurodegenerative Disorders

TC 928

Dementia: towards an aetiologic diagnosis

TC 928-1
Chairpersons' introduction
M. Vernooij; Rotterdam/NL
(m.vernooij@erasmusmc.nl)
A. Drzezga; Cologne/DE

Learning Objectives:
This educational session will discuss how imaging modalities such as MRI and molecular imaging techniques can be used in current clinical practice to support an aetiologic diagnosis of dementia. This session will give general radiologists and those interested in neuroradiology and nuclear medicine/molecular imaging the knowledge needed for appropriate selection and structured assessment of imaging exams in diagnostic work-up of dementia. The session format consists of in-part lectures followed by an interactive case-based discussion.
Author Disclosures:
Alexander Drzezga: Advisory Board: Siemens Healthineers, Sanofi, GE Healthcare, Biogen, Novo Nordisk, Invicro, Novartis/AAA, Bayer Vital; Consultant: Siemens Healthineers, Sanofi, GE Healthcare, Biogen, Novo Nordisk, Invicro, Novartis/AAA, Bayer Vital; Equipment Support Recipient: Siemens Healthineers, Life Molecular Imaging, GE Healthcare, AVID Radiopharmaceuticals, Sofie, Eisai, Novartis/AAA; Grant Recepient: Deutsche Forschungsgemeinschaft, BMBF, Siemens Healthineers; Patent Holder: Patent pending for 18F-PSMA7 (PSMA PET imaging tracer); Share Holder: Siemens Healthineers, Lantheus Holding; Speaker: Siemens Healthineers, Sanofi, GE Healthcare, Biogen, Novo Nordisk, Invicro, Novartis/AAA, Bayer Vital

TC 928-2
MR imaging in dementia aetiology: patterns of atrophy and vascular lesions
M. Vernooij; Rotterdam/NL
(m.vernooij@erasmusmc.nl)

TC 928-3
Molecular imaging in dementia aetiology: current concepts
A. Drzezga; Cologne/DE
Author Disclosures:
Alexander Drzezga: Advisory Board: Siemens Healthineers, Sanofi, GE Healthcare, Biogen, Novo Nordisk, Invicro, Novartis/AAA, Bayer Vital; Consultant: Siemens Healthineers, Sanofi, GE Healthcare, Biogen, Novo Nordisk, Invicro, Novartis/AAA, Bayer Vital; Equipment Support Recipient: Siemens Healthineers, Life Molecular Imaging, GE Healthcare, AVID Radiopharmaceuticals, Sofie, Eisai, Novartis/AAA; Grant Recepient: Deutsche Forschungsgemeinschaft, BMBF, Siemens Healthineers; Patent Holder: Patent pending for 18F-PSMA7 (PSMA PET imaging tracer); Share Holder: Siemens Healthineers, Lantheus Holding; Speaker: Siemens Healthineers, Sanofi, GE Healthcare, Biogen, Novo Nordisk, Invicro, Novartis/AAA, Bayer Vital

TC 928-4
Interactive case discussion, including rarities
M. Vernooij; Rotterdam/NL
(m.vernooij@erasmusmc.nl)
A. Drzezga; Cologne/DE

12:30-13:30 **Room G1**

E³ - Young ECR Programme: Basic Sessions

Organised by the ESOR

BS 9

Radiologic anatomy: musculoskeletal system

BS 9-1
Chairperson's introduction
K. Verstraete; Ghent/BE

BS 9-2
Spine
B. Tins; Oswestry/UK
(Bernhard.Tins@rjah.nhs.uk)

Learning Objectives:
1. To learn which imaging techniques are available and best suited to visualise specific anatomical structures of the spine.
2. To understand the normal anatomy of the spine.
3. To become familiar with the imaging appearance of the most common normal variants of the spine and their clinical relevance.

BS 9-3
Upper limb
K. Mertens; Merchtem/BE

Learning Objectives:
1. To learn which imaging techniques are available and best suited to visualise specific anatomical structures of the upper limb.
2. To understand the normal anatomy of the upper limb.
3. To become familiar with the imaging appearance of the most common normal variants of the upper limb and their clinical relevance.

BS 9-4
Lower limb
M. Maas; Amsterdam/NL
(m.maas@amsterdamumc.nl)

Learning Objectives:
1. To learn which imaging techniques are available and best suited to visualise specific anatomical structures of the lower limb.
2. To understand the normal anatomy of the lower limb.
3. To become familiar with the imaging appearance of the most common normal variants of the lower limb and their clinical relevance.

Questions and answers

12:30-13:30 **Room G2**

Refresher Course: Physics in Medical Imaging

RC 913

Blue skies and newest trends in MRI

RC 913-1
Chairperson's introduction
S. Kozerke; Zurich/CH

RC 913-2
Low-field MRI revisited
A. Webb; Leiden/NL
(a.webb@lumc.nl)

Learning Objectives:
1. To understand the signal-to-noise ratio (SNR) dependence on the static magnetic field and its impact on the achievable contrast, resolution, and acquisition times.
2. To comprehend developments in hardware and software in experimental low-field scanners.
3. To review the current state-of-the-art low-field MRI systems.

RC 913-3
MR fingerprinting (MRF) in clinical routine
S. Trattnig; Vienna/AT
(siegfried.trattnig@meduniwien.ac.at)

Learning Objectives:
1. To understand the acquisition and reconstruction approaches of MRF.
2. To review the current status of MRF clinical applications.
3. To gain an understanding of the clinical benefits that MRF can offer.

RC 913-4
AI methods at the service of MRI
S. Kozerke; Zurich/CH

Learning Objectives:
1. To grasp the AI methods employed in MRI and to consider their clinical applicability.
2. To understand the AI approaches used to accelerate MRI.
3. To review the use of deep learning in MR image reconstruction.

Panel discussion: What are the main caveats of the newest MRI trends in the clinical setting?

12:30-13:30 **Room K1**

E³ - ECR Master Class (Cardiac)

E³ 926

Lessons learned: unveiling 4D flow in cardiovascular diseases

E³ 926-1
Chairperson's introduction
K.-F. Kreitner; Mainz/DE
(Karl-Friedrich.Kreitner@unimedizin-mainz.de)

E³ 926-2
4D flow physics and basics: the how-tos
G. Reiter; Graz/AT
(gert.reiter@siemens-healthineers.com)

Learning Objectives:
1. To review the physical principles of phase-contrast imaging.
2. To describe technical differences between 2D and 4D flow evaluation.
3. To show emerging 4D flow imaging modalities.
Author Disclosures:
Gert Reiter: Employee: Siemens Healthineers

E³ 926-3
4D flow assessment of congenital heart disease
M. Gutberlet; Leipzig/DE
(matthias.gutberlet@helios-kliniken.de)

Learning Objectives:
1. To learn how 4D flow measurement could be implemented in the workflow of patients with congenital heart disease.
2. To understand how to perform 4D flow analysis.
3. To describe the main clinical applications of 4D flow evaluation in patients with congenital heart disease.
Author Disclosures:
Matthias Gutberlet: Advisory Board: Bayer; Board Member: ESCR, Working Group on Cardiovascular Imaging German Roentgen Society; Speaker: Bayer, Bracco, Siemens, Philips, Edwards, Circle CVI

E³ 926-4
4D flow in the evaluation of acquired cardiovascular diseases
L. Saba; Cagliari/IT

Learning Objectives:
1. To describe the main clinical scenarios where 4D flow could improve the evaluation of patients with acquired cardiovascular diseases.
2. To show how to utilise 4D flow in the assessment of acquired cardiovascular diseases.
3. To understand the advantages and limitations of 4D flow measurement.

Panel discussion: How could 4D flow improve the management of patients with congenital and acquired cardiac diseases?

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

Trainees in Focus

IF 9
The cycle of life in IR – How to get in

IF 9-1
Chairpersons' introduction
M. Reim; Tartu/EE
A. Bulum; Zagreb/HR

IF 9-2
Finally I entered IR - how to prepare for my first day in IR?
C. Klausenitz; Vienna/AT

IF 9-3
How to ensure that everyone (including myself) will survive my first intervention?
D. Jocius; Vilnius/LT

IF 9-4
Things you should better not do in your first week at Body-IR/Neuro-IR
S. Wyschkon; Berlin/DE

IF 9-5
Small survival kit for my first IR on call
A. Bulum; Zagreb/HR

IF 9-6
Will it be an endless circle - or is there a way out?
M. Reim; Tartu/EE

Panel Discussion

14:00-15:00 **Open Forum Radiographers**

Open Forum Session

OF 10R
Radiotherapy for cervical cancer

OF 10R-1
Chairperson's introduction
C. Beardmore; London/UK

Learning Objectives:
1. To discuss the best radiotherapy options for treating cervical cancer.
2. To discuss the best brachytherapy approaches for treating cervical cancer.
3. To outline the best combined best practices for radiographers and oncologists when treating cervical cancer.

OF 10R-2
Radiotherapy of cervical cancer: a radiographer's perspective
K. Salmič; Ljubljana/SI
(ksalmic@onko-i.si)

OF 10R-3
Cervical cancer brachytherapy: the radiographer's perspective
P. Cornacchione; Rome/IT
(patriziacornacchione@gmail.com)

OF 10R-4
Cervical cancer brachytherapy: the oncologist's perspective
L. Royo; Cork/IE
(laura.royo@hse.ie)

Open forum discussion

14:00-15:00 **Open Forum Trainees**

Open Forum Session

OF 10T
Tackling gender inequality in radiology

OF 10T-1
Chairperson's introduction
C. Chew; Glasgow/UK

Learning Objectives:
A session dedicated to how we can promote diversity in radiology as radiologists and young radiologists.

OF 10T-2
The need for diversity in radiology
C. Chew; Glasgow/UK

Learning Objectives:
1. To explain the need for diversity in radiology.
2. To highlight the current challenges in radiology.

OF 10T-3
Tackling gender disparities
L. Oleaga Zufiría; Barcelona/ES
(lauraoleaga@gmail.com)

Learning Objectives:
1. To highlight findings of a gender disparity study in Europe.
2. To discuss how inequality can be tackled in Europe.

OF 10T-4
Making the most of opportunities: from the perspective of young radiologists
V. Pozdniakova; Oslo/NO
(v.a.pozdnyakova@gmail.com)
C. Horst; London/UK
(carolyn.horst@gmail.com)

Learning Objectives:
1. To highlight inequality challenges as a young resident.
2. To discuss opportunities and ways forward as a young radiologist.
Author Disclosures:
Viktoriia Pozdniakova: Board Member: RTF

Discussion: How can we improve inequalities in radiology?

14:00-15:00 **Room B**

Transatlantic Course of ESR and RSNA (Radiological Society of North America): Imaging of Neurodegenerative Disorders

TC 1028
Movement disorders

TC 1028-1
Chairpersons' introduction
M. Vernooij; Rotterdam/NL
(m.vernooij@erasmusmc.nl)
V. J. Lowe; Rochester, MN/US

Learning Objectives:
This educational session will discuss how MRI and molecular imaging techniques can be used to understand the underlying pathology in patients with Lewy body disorders. This session will give general radiologists and those

interested in neuroradiology and nuclear medicine/molecular imaging the knowledge needed for appropriate selection and structured assessment of imaging exams in diagnostic work-up of movement disorders. The session format consists of in-part lectures followed by an interactive case-based discussion.

TC 1028-2
MR imaging in movement disorders
S. Lehericy; Paris/FR
(stephane.lehericy@upmc.fr)

TC 1028-3
Molecular imaging in movement disorders
V. J. Lowe; Rochester, MN/US

TC 1028-4
Interactive case discussion
S. Lehericy; Paris/FR
(stephane.lehericy@upmc.fr)
V. J. Lowe; Rochester, MN/US

14:00-15:00 **Room D**

ESR Patient Advisory Group (ESR-PAG) Session

PA 10

The importance of Be accepted: insights from the first year, new developments and outlook

PA 10-1
Chairperson's introduction
A. G. Rockall; London/UK

PA 10-2
Why Be accepted is important: the radiologist's experience
M. H. Fuchsjäger; Graz/AT
(michael.fuchsjaeger@medunigraz.at)

Learning Objectives:
1. To learn about the successful implementation of Be accepted in the radiological work progress.
2. To appreciate patient satisfaction through overdelivering to the patient and the resulting benefits for the radiologist.
3. To understand the future role of the radiologist due to increasing interventional radiology and how Be accepted supports this new development of the radiologist.

PA 10-3
Why Be accepted is important: to increase the radiologists' visibility
J. Camps Herrero; Valencia/ES
(jcamps@riberasalud.es)

Learning Objectives:
1. To learn why the new role of radiologists demands higher visibility.
2. To appreciate tools as Be accepted to support the process.
3. To understand why accessing a standard cross-border tool for radiologists and patients is beneficial.
Author Disclosures:
Julia Camps Herrero: Advisory Board: Becton Dickinson, Hologic, Siemens, Bayer

PA 10-4
The patient's view on Be accepted: the success story of year one
C. Justich; Vienna/AT
(cjustich@me.com)

Learning Objectives:
1. To learn about the need for filtered, summarised and evidence-based information when first diagnosed with cancer and why the radiologist plays a very important role in the medical pathway of a patient.
2. To appreciate how Be accepted transferred the medical knowledge and language into understandable language and explanation for the patient to receive the big picture immediately, to become an active, educated and well-informed communication partner for their medical care team on eye-level.
3. To understand the improvements it brought in the first year, new developments, and the future of Be accepted.
Author Disclosures:
Caroline Justich: Founder: Be accepted

PA 10-5
Why is it important to supply the patient with the right information to avoid Dr. Google
F. J. Gilbert; Cambridge/UK
(fjg28@cam.ac.uk)

Learning Objectives:
1. To learn about the harm false information can cause for a patient and the medical team.
2. To appreciate the possibility of providing the patient with evidence-based information, catch her in the first shock with a tool that provides options and a pathway.
3. To understand why it is also important for the radiologist to provide a tool like Be accepted when transmitting critical findings to a patient.

Panel discussion: Has Be accepted improved the visibility of radiologists, their recognition and facilitated communication with patients at a multidisciplinary level?

14:00-15:00 **Room K2**

E^3 - ECR Master Class (Oncologic Imaging)

E^3 1026

The importance of multidisciplinary committees and the growing role of the radiologist

E^3 1026-1
Chairperson's introduction
E. Neri; Pisa/IT
(emanuele.neri@med.unipi.it)
Author Disclosures:
Emanuele Neri: Speaker: GE Healthcare, Bayer

E^3 1026-2
The radiologist's role in the multidisciplinary team (MDT)
D. Regge; Turin/IT
(daniele.regge@ircc.it)

Learning Objectives:
1. To describe how to prepare for MDT meetings and the IT infrastructure.
2. To learn how to communicate relevant findings concisely and efficiently.
3. To summarize the benefits of radiologists' participation in multidisciplinary teams from the clinicians' and patients' perspectives.
Author Disclosures:
Daniele Regge: Advisory Board: Health Triage; Consultant: Radmetrix

E^3 1026-3
The impact of imaging on patient management: case-based gynaecological tumours
E. Sala; Cambridge/UK

Learning Objectives:
1. To know the radiologist's role in the organisation of the gynaecological multidisciplinary team.
2. To understand how radiologists may impact patient diagnosis and management of gynaecological cancers.
3. To learn how to organise your department to actively participate in the multidisciplinary team.

E³ 1026-4
The impact of imaging on therapy: case-based liver tumours
M. Ronot; Clichy/FR
(maxime.ronot@aphp.fr)

Learning Objectives:
1. To know the radiologist's role in the organisation of the liver tumour multidisciplinary team.
2. To understand how radiologists may impact patient diagnosis and management of liver cancers.
3. To learn how to organise your department to actively participate in the multidisciplinary team.

Panel discussion: What is the added value of imaging on patient management?

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

Junior Image Interpretation Quiz

JIIQ
90s vs 00s

JIIQ -1
Introduction
D. Mulholland; Dublin/IE

JIIQ -2
90s team
J. O'Mahony; Dublin/IE
C. Reid; Dublin/IE
S. Doran; Dublin/IE

JIIQ -3
00s team
H. O'Neill; Dublin/IE
I. Welaratne; Dublin/IE
J. Morrow; Dublin/IE

JIIQ -4
Closing words
D. Mulholland; Dublin/IE

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

Special Focus Session

SF 10a
Should we broaden the use of hybrid imaging in children?

SF 10a-1
Chairperson's introduction
J. Schäfer; Tübingen/DE
(juergen.schaefer@med.uni-tuebingen.de)

SF 10a-2
Hybrid imaging in epilepsy
A. Hammers; London/UK

Learning Objectives:
1. To become familiar with the latest technical and methodological advances.
2. To decide which modality is the most appropriate to assess the exact localisation of epileptic foci.
3. To learn about important and typical pitfalls and how to avoid or overcome these.

SF 10a-3
Infection and inflammation
J.-N. Talbot; Paris/FR

Learning Objectives:
1. To understand at which clinical findings hybrid imaging is indicated.
2. To recognise common and less common abnormalities in PET/CT and SPECT/CT.
3. To learn about important and typical pitfalls and how to avoid or overcome these.

SF 10a-4
Essentials of HI in solid tumours and cancer predisposition syndromes
L. Borgwardt; Copenhagen/DK

Learning Objectives:
1. To understand which are the evidence-based indications for solid tumours.
2. To recognise the potential benefits of PET/CT MRI in CPS.
3. To learn about important and typical pitfalls of HI in solid tumours.

Panel discussion: Hybrid imaging in children: what do we need?

14:00-15:30 **Room E1**

E³ - Advanced Courses: Young Adults, Fitness and Sports

E³ 1019
The athlete's heart: friends and foes

E³ 1019-1
Chairperson's introduction
B. K. Velthuis; Utrecht/NL
(b.k.velthuis@umcutrecht.nl)

E³ 1019-2
Exercise-induced cardiac adaptations: what is normal?
I. Murphy; Dublin/IE

Learning Objectives:
1. To recognise adaptive changes in the left ventricle in response to high training volumes and strength training.
2. To recognise what adaptive changes might be concerning or high risk.
3. To appropriately protocol patients with suspected athletic adaptation, which sequences and why.

E³ 1019-3
Preventing sudden death in the athlete: what to look for?
B. K. Velthuis; Utrecht/NL
(b.k.velthuis@umcutrecht.nl)

Learning Objectives:
1. To recognise pathological cardiac changes associated with sudden cardiac death in athletes.
2. To understand the age-dependent changes in the spectrum of causes of sudden cardiac death in athletes.
3. To appreciate the limitations in predicting sudden cardiac death in low-risk populations and the difficulty in making decisions regarding sports restrictions in athletes.

E³ 1019-4
Myocarditis: signs and differentials
R. Manka; Zurich/CH

Learning Objectives:
1. To highlight specific imaging findings in acute and chronic myocarditis.
2. To understand the role of imaging for diagnosis and therapy.
3. To differentiate myocarditis from other cardiac diseases.
Author Disclosures:
Robert Manka: Speaker: Speakers fees for Siemens and Bayer

Panel discussion: Cardiac MRI as a screening tool for young athletes

14:00-15:30 **Room E2**

E³ - Advanced Courses: Radiology of the Afterlife

E³ 1022

Adult postmortem imaging

E³ 1022-1
Chairperson's introduction
M. Thali; Zurich/CH
(michael.thali@irm.uzh.ch)

Learning Objectives:
Adult postmortem imaging in the clinical (non-forensic) setting has emerged in the last 15 years. In this session, one will learn about the potentials and pitfalls of adult postmortem imaging, and how can it be used correctly in a hospital setting.

E³ 1022-2
Postmortem CT angiography
V. Magnin; Lausanne/CH

E³ 1022-3
Sudden death in adults
M. Biggs; Leicester/UK

E³ 1022-4
Incidental findings and unexpected causes of death
L. Boel; Aarhus/DK
(lwb@forens.au.dk)

E³ 1022-5
The future of adult postmortem imaging
A. Persson; Linköping/SE
(anders.persson@cmiv.liu.se)
Author Disclosures:
Anders Persson: Board Member: SECTRA; Employee: Linkkoping University

Panel discussion: Should clinical postmortem imaging be available in all hospitals?

14:00-15:30 **Room G1**

E³ - Advanced Courses: Interactive Teaching Sessions for Young (and not so Young) Radiologists

E³ 1021

Imaging of head and neck: focus on salivary glands and eye

E³ 1021-1
Salivary glands
M. Becker; Geneva/CH

Learning Objectives:
1. To become familiar with the appropriate imaging studies and radiological anatomy of the salivary glands.
2. To illustrate the spectrum of imaging findings.
3. To learn how to avoid interpretation pitfalls on CT, US, and MRI.

E³ 1021-2
Eye and orbit
K. Erb-Eigner; Berlin/DE
(Katharina.Erb@charite.de)

Learning Objectives:
1. To become familiar with the appropriate imaging studies and radiological anatomy of the eye and orbit.
2. To illustrate the spectrum of imaging findings in neoplastic and non-tumour disease.
3. To learn how to avoid interpretation pitfalls on CT, US, and MRI.
Author Disclosures:
Katharina Erb-Eigner: Research Grant/Support: BIH (Berlin Institute of Health) - Digital Health Accelerator Stage II 2022-2023 (Public Funding) - Project Name: RadioEye

14:00-15:30 **Room G2**

ESOR Session

ESOR

How to adapt education in radiology

ESOR-1
Chairpersons' introduction
A. Brady; Cork/IE
(adrianbrady@me.com)
V. Vilgrain; Clichy/FR
(valerie.vilgrain@aphp.fr)

Learning Objectives:
1. To understand the role of education in research.
2. To understand the role of scholarship/fellowship in education.
3. To give some clues for ESOR scholarship/fellowship.

ESOR-2
Why is education in research important?
L. Martí-Bonmatí; Valencia/ES
(marti_lui@gva.es)
Author Disclosures:
Luis Marti-Bonmati: Advisory Board: Member of the non-profit Scientific Advisory Boards of Quibim SL and the Girona Biomedical Research Institute

ESOR-3
How to teach AI to radiologists?
E. Kotter; Freiburg/DE
Author Disclosures:
Elmar Kotter: Advisory Board: contextflow GmbH, Vienna; Grant Recepient: BMBF, DFG; Speaker: Siemens Healthineers, AbbVie

ESOR-4
Tips and tricks for a successful scholar-/fellowship
P. S. Sidhu; London/UK
(paulsidhu@btinternet.com)

ESOR-5
Our experience: Nicholas Gourtsoyiannis Teaching Fellowship
T. Barrett; Cambridge/UK
T. D'Angelo; Messina/IT

ESOR-6
Award of certificate of appreciation to ESOR training centre
A. Brady; Cork/IE
(adrianbrady@me.com)
V. Vilgrain; Clichy/FR
(valerie.vilgrain@aphp.fr)

ESOR-7
Award of certificates to ESOR scholars and fellows
A. Brady; Cork/IE
(adrianbrady@me.com)
V. Vilgrain; Clichy/FR
(valerie.vilgrain@aphp.fr)

14:00-15:30 **Room K1**

Multidisciplinary Session

MS 10
Cystic diseases of the pancreas

MS 10-1
Chairperson's introduction
C. Matos; Lisbon/PT

MS 10-2
Characterising cystic pancreatic diseases: what are the critical challenges?
M. Dioguardi Burgio; Paris/FR
(marco_dioguardi@hotmail.it)

Learning Objectives:
1. To become familiar with the specific imaging features of pancreatic cystic lesions.
2. To address key questions that should be answered when diagnosing an incidental pancreatic cystic lesion.
3. To understand the added value of endoscopic ultrasound.

MS 10-3
The evolving role of pathology
A. Beaufrere; Clichy/FR
(aurelie.beaufrere@aphp.fr)

Learning Objectives:
1. To understand the carcinogenic pathway in pancreatic cystic lesions.
2. To become familiar with the most frequent molecular alterations seen in pancreatic cystic lesions.
3. To learn how the integration of cytohistomorphology, cyst fluid biochemistry and molecular testing helps better stratify patients before therapy.

MS 10-4
Are current management recommendations appropriate?
A. Sauvanet; Paris/FR

Learning Objectives:
1. To review current management recommendations of pancreatic cystic lesions.
2. To understand how information obtained by imaging impact surgical management.
3. To learn how to avoid unecessary surgery in patients with benign pancreatic cystic lesions.

MS 10-5
Case-based interactive multidisciplinary discussion: when to operate and when not to operate?
C. Matos; Lisbon/PT

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

Special Focus Session

SF 10b
Percutaneous thrombectomy in peripheral arterial disease

SF 10b-1
Chairperson's introduction
K. A. Hausegger; Klagenfurt/AT

SF 10b-2
Acute limb ischaemia: there is a place for endovascular thrombectomy (EVT)
P. Isfort; Aachen/DE
(isfort@ukaachen.de)

Learning Objectives:
1. To differentiate the different stages of acute limb ischemia (ALI).
2. To learn indications and contraindications for endovascular treatment.
3. To name and explain different endovascular treatment options with their pros and cons.
4. To get an overview of the current scientific evidence for endovascular treatment for ALI.

SF 10b-3
Chronic limb ischaemia: is there a place for endovascular thrombectomy (EVT)?
M. Wildgruber; Munich/DE
(moritzwildgruber@web.de)

Learning Objectives:
1. To identify clinical and imaging characteristics of (acute on) chronic critical limb ischemia.
2. To demostrate endovascular options for recanalization.
3. To give an update on current trials on critical limb ischemia.

SF 10b-4
The vascular surgeon's view
A. Zimmermann; Zurich/CH

Learning Objectives:
1. To name and describe surgical techniques for revascularisation in peripheral arterial disease.
2. To identify the clinical and laboratory parameters of a compartment syndrome after revascularisation of acute ischaemia of the lower extremity.
3. To list three management strategies of the "no-option" foot.
Author Disclosures:
Alexander Zimmermann: Advisory Board: Medtronic, iVascular; Consultant: Cook, Terumo, Artivion, Lombard/Endovastec; Grant Recepient: Swiss National Science Foundation (SNSF); Speaker: Cook, Terumo, Artivion, iVascular, Lombard/Endovastec, 2PlusMedical, Medtronic, Baxter, KCI

Case-based round table discussion

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

New Horizons Session

NH 10
Thoracic interventions

NH 10-1
Chairperson's introduction
M. Das; Duisburg/DE
(Marco.Das@helios-gesundheit.de)

NH 10-2
Advances in percutaneous lung biopsies
J. Oakes; Bournemouth/UK

Learning Objectives:
1. To understand the value of percutaneous biopsies concerning tissue characterisation in the area of molecular diagnosis.
2. To understand the best and safest approach for biopsies.
3. To be able to deal with potential complications.

NH 10-3
Ablative techniques in thoracic malignancies: a revival?
C. A. Ridge; Dublin/IE

Learning Objectives:
1. To understand the role of ablation in primary and secondary lung malignancies.
2. To be able to identify suitable patients for ablation.
3. To understand the pros and cons of different ablation techniques.

NH 10-4
Looking next door: what radiologists need to know about bronchoscopic interventions
G. G. U. Rohde; Frankfurt a. Main/DE
(gernot.rohde@kgu.de)

Learning Objectives:
1. To understand current guidelines for the workup of primary lung malignancies.
2. To be able to identify the strengths and weaknesses of bronchoscopy.
3. To understand new developments in bronchoscopic interventions in diagnosis and treatment.

Author Disclosures:
Gernot G.U. Rohde: Advisory Board: AstraZeneca, Bayer, Boehringer Ingelheim, GSK, Pfizer, insmed, MSD; Speaker: AstraZeneca, Bayer, Berlin Chemie, Boehringer Ingelheim, GSK, Grifols, Novartis, Pfizer, Roche, Chiesi, insmed, MSD, Takeda

Panel discussion: Percutaneous interventions: risks and benefits. How to choose the best tool for diagnosis and treatment?

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

Trainees in Focus

IF 10

Mentoring in radiology: a key ingredient to professional success and satisfaction

IF 10-1
Chairperson's introduction
S. Robinson; Vienna/AT
(s.robinson@dzu.at)

Learning Objectives:
In this session, participants will learn about different mentorship models in radiology and their implementation into daily practice. Mentorship concepts and features of the "right match" will be presented, as well as key ingredients of how to be a good mentor and how to become a successful mentee. The positive effects of mentoring, as well as mentoring challenges, will be discussed. Mentors and mentees will present their personal experiences.

IF 10-2
Mentoring radiology residents
A. S. Vieira; Porto/PT
(alberto.vieira@cuf.pt)

Learning Objectives:
1. To learn about radiology-specific rules for successful resident mentoring.
2. To review the "Do's and Don'ts" for mentors and mentees.
3. To illustrate best practices for resident mentoring.

IF 10-3
Mentoring for research careers
M. Dewey; Berlin/DE

Learning Objectives:
1. To learn about mentoring for the development of research skills.
2. To understand the opportunities and threats to successful academic mentorship.
3. To illustrate best practices for mentoring in academic radiology.

IF 10-4
Mentoring in professional radiological society
S. E. J. Connor; London/UK
(sejconnor@gmail.com)

Learning Objectives:
1. To illustrate the implementation of a mentorship programme in a professional radiological society.
2. To address the challenges of long-distance mentoring.
3. To understand the benefits of long-distance mentoring.

IF 10-5
Our personal experience as mentor and mentee
B. Purohit; Singapore/SG
(purohitbela@yahoo.co.in)
A. Péporté; Münsterlingen/CH
(peporte_anne@hotmail.com)

Learning Objectives:
1. To illustrate the personal experience of a mentor and mentee.
2. To address the impact mentoring had on professional goals.
3. To understand the benefits of mentoring on personal fulfilment.

Panel discussion: Is mentoring worth the effort?

16:00-17:00 **Room B**

Transatlantic Course of ESR and RSNA (Radiological Society of North America): Imaging of Neurodegenerative Disorders

TC 1128

Perspectives/outlook

TC 1128-1
Chairpersons' introduction
A. Drzezga; Cologne/DE
Y. Anzai; Salt Lake City, UT/US
(yoshimi.anzai@hsc.utah.edu)

Learning Objectives:
1. To describe the role of anatomical and molecular imaging for patients with neurodegenerative disorders.
2. To identify MR and PET features of specific neurodegenerative diseases.
3. To explain the role of machine learning approaches in diagnosing neurodegenerative disease.

Author Disclosures:
Alexander Drzezga: Other: Research support: Siemens Healthineers, Life Molecular Imaging, GE Healthcare, AVID Radiopharmaceuticals Speaker Honorary/Advisory Boards: Siemens Healthineers, Sanofi, GE Healthcare Stock: Siemens Healthineers Patents: Patent pending for 18F-PSMA7 (PSMA PET imaging tracer)

TC 1128-2
Advanced structural and functional MR imaging biomarkers for early diagnosis and monitoring of dementia
Y. Anzai; Salt Lake City, UT/US
(yoshimi.anzai@hsc.utah.edu)

TC 1128-3
New PET tracers: indications and outlook on the future
J. Arbizu; Pamplona/ES

Author Disclosures:
Javier Arbizu: Research Grant/Support: Siemens, General Electric, Life Molecular Imaging; Speaker: Roche; General Electric; Biogen; Advanced Accelerator Applications-Novartis

TC 1128-4
New instrumentation and methods: PET/MRI, high-field MRI, radiomics/AI, dedicated brain scanners
C. Catana; Boston, MA/US
(CCATANA@mgh.harvard.edu)

16:00-17:30 **Open Forum Trainees**

E³ - European Diploma Prep Session

E³ 1123
Musculoskeletal

E³ 1123-1
Chairperson's introduction
G. Iglesias-Hidalgo; Barakaldo/ES
(GOTZON.IGLESIASHIDALGO@osakidetza.eus)

E³ 1123-2
A. Traumatic disorders of the musculoskeletal system
M. Maas; Amsterdam/NL
(m.maas@amsterdamumc.nl)

Learning Objectives:
1. To develop an understanding of the underlying mechanisms of injury in appendicular skeletal trauma and to correlate it with imaging findings.
2. To gain an appreciation of typical fracture patterns and their accompanying soft tissue injuries.
3. To understand the benefits and disadvantages of different imaging modalities in assessing trauma involving the skeleton and soft tissue in differing age groups.

E³ 1123-3
B. Bone tumours
M.-A. Weber; Rostock/DE

Learning Objectives:
1. To learn about the typical imaging features of common bone tumours.
2. To understand the typical imaging features of "don't touch" lesions.
3. To become familiar with the imaging manifestations of haematological disorders.

E³ 1123-4
C. Degenerative and inflammatory disorders of the musculoskeletal system
M. Reijnierse; Leiden/NL
(m.reijnierse@lumc.nl)

Learning Objectives:
1. To understand the imaging presentation of degenerative disorders of the joints and to appreciate their clinical relevance.
2. To learn about the imaging features and clinical features of degenerative diseases of the spine, discs, and facet joints.
3. To become familiar with the typical imaging manifestations of infection, inflammation, and metabolic diseases of the musculoskeletal system.

16:00-17:30 **Room A**

Professional Challenges Session

Organised by the ESR eHealth and Informatics Subcommittee

PC 11
Cybersecurity in radiology

PC 11-1
Chairperson's introduction
E. Kotter; Freiburg/DE
Author Disclosures:
Elmar Kotter: Advisory Board: contextflow GmbH, Vienna; Grant Recepient: BMBF, DFG; Speaker: Siemens Healthineers, AbbVie

PC 11-2
Cybersecurity challenges for PACS and medical imaging
M. Kämmerer; Bochum/DE

Learning Objectives:
1. To learn about the different cyber threats a radiology department can face.
2. To gain knowledge about possible countermeasures.
3. To know about the practical challenges and limitations of deploying cybersecurity protection measures.

Author Disclosures:
Marc Kämmerer: Board Member: DICOM Standards Committee, IHE Europe Steering Committee; Employee: Head of Innovation Management, VISUS Health IT; Grant Recepient: Research based on the grant from the European Regional Development Fund (Grant No. EFRE-0801341), and the German State of North Rhine-Westphalia

PC 11-3
Irish healthcare system ransomware attack: lessons learned
N. Sheehy; Dublin/IE
(niallsheehy@gmail.com)

Learning Objectives:
1. To understand the effect that this devastating ransomware attack had on radiology services both directly through failure of PAS/RIS and indirectly through its effect on other IT systems.
2. To assess local and national efforts to mitigate the effects of the cyberattack while it was in effect, what worked and what did not.
3. To use our experience to assist the development of strategies for dealing with cyberattacks on both a local and national level.

PC 11-4
Disaster management planning
B. Gibney; Dublin/IE
(bgibney1@gmail.com)

Learning Objectives:
1. To describe how cybersecurity fits into a comprehensive disaster management plan.
2. To recognise hazards and their potential impact on radiology department function.
3. To discuss methods of preventing or mitigating system failures in radiology information technology.

Panel discussion: What are your three most important recommendations regarding cybersecurity in radiology?

16:00-17:30 **Room C**

Special Focus Session

SF 11a
The great imitators: how to spot mimics and avoid misdiagnosis?

SF 11a-1
Chairperson's introduction
D. J. M. Tolan; Leeds/UK
(damian.tolan@nhs.net)
Author Disclosures:
Damian John Michael Tolan: Speaker: Guerbet

SF 11a-2
Liver
G. Brancatelli; Palermo/IT
(gbranca@yahoo.com)

Learning Objectives:
1. To know the most important imitators of liver malignancy.
2. To understand the imaging findings that differentiate liver tumours from their imitators.
3. To recognise situations where diseases imitating liver malignancy cannot be distinguished by imaging alone.
Author Disclosures:
Giuseppe Brancatelli: Speaker: Guerbet, Bracco, Bayer

SF 11a-3
Gallbladder
M. Ronot; Clichy/FR
(maxime.ronot@aphp.fr)

Learning Objectives:
1. To know the main technical artefacts that may imitate gallbladder malignancy.
2. To understand the main anatomical variations of the gallbladder.
3. To describe and identify the main diseases imitating gallbladder malignancy.

SF 11a-4
Pancreas
S. Gourtsoyianni; Athens/GR
(sgty76@gmail.com)

Learning Objectives:
1. To know the imaging appearances of pancreatic ductal adenocarcinoma.
2. To recognise inflammatory pancreatic diseases imitating pancreatic ductal adenocarcinoma.
3. To understand the role of different imaging modalities in differentiating inflammatory and malignant pancreatic disease.

SF 11a-5
Bowel
L. K. Blomqvist; Stockholm/SE

Learning Objectives:
1. To know the most important imitators of bowel malignancy.
2. To understand the imaging findings that differentiate bowel tumours from their imitators.
3. To recognise situations where diseases imitating bowel malignancy cannot be distinguished by imaging alone.
Author Disclosures:
Lennart K. Blomqvist: Founder: Collective Minds Radiology; Share Holder: Collective Minds Radiology

Panel discussion: When to biopsy and when to follow up?

16:00-17:30 **Room D**

EuroSafe Imaging Session

Jointly organised by the EuroSafe Imaging and European Alliance for Medical Radiation Protection Research (EURAMED)

EU 11

Artificial intelligence (AI) for dose optimisation and image quality assessment

EU 11-1
Chairperson's introduction
G. Frija; Paris/FR
(guyfrija@gmail.com)

EU 11-2
AI-driven dose optimisation
J. Damilakis; Iraklion/GR

Learning Objectives:
1. To understand the machine learning workflow and methods in x-ray imaging.
2. To learn the machine learning applications in x-ray medical dosimetry.
3. To learn how AI can assist in computed tomography dose optimisation.

EU 11-3
Image quality improvement using AI
G. Widmann; Innsbruck/AT

Learning Objectives:
1. To learn about AI-based image reconstruction.
2. To appreciate the impact of AI on image quality.
3. To understand that AI is changing medical imaging.

EU 11-4
Image quality assessment using AI
C. Hoeschen; Magdeburg/DE
(christoph.hoeschen@ovgu.de)

Learning Objectives:
1. To learn how AI can be used for image quality assessment.
2. To appreciate the potential benefits and pitfalls of such AI approaches.
3. To understand the prerequisites for applying such approaches to your images/systems.

EU 11-5
Image understanding using AI
S. Thomas; Oslo/NO
(sarinat@ifi.uio.no)

Learning Objectives:
1. To learn how AI can be used to segment anatomical structures.
2. To appreciate how today's methods can enable future applications while being aware of the challenges.
3. To understand approaches towards an automated analysis.
Author Disclosures:
Sarina Thomas: Advisory Board: Norwegian Research Council, GE Healthcare

Panel discussion: AI-assisted patient radiation protection. What can we expect in years to come?

16:00-17:30 **Room E1**

E³ - Advanced Courses: Young Adults, Fitness and Sports

E³ 1119

Muscle injuries in professional football players: impact on return to play

E³ 1119-1
Chairperson's introduction
E. E. Drakonaki; Iraklion/GR
(drakonaki@yahoo.gr)
Author Disclosures:
Elena E. Drakonaki: Speaker: GE Healthcare workshop at ECR 2023

E³ 1119-2
Radiologist's perspective: imaging findings
M. G. Mack; Munich/DE
(m.mack@radiologie-muenchen.de)

Learning Objectives:
1. To understand the anatomy of the most common injured muscles.
2. To learn the optimisation of the imaging protocol.
3. To learn the evaluation of muscle injuries and the impact on recovery.

E³ 1119-3
Value of injection therapy
P. Robinson; Leeds/UK
(philip.robinson10@nhs.net)

Learning Objectives:
1. To describe the biology of muscle injury and healing.
2. To contrast muscle tear healing timelines with imaging and clinical assessments.
3. To describe and debate the role of injection therapies in promoting muscle tear healing.

E³ 1119-4
Clinician's perspective
F. Pfab; Frankfurt/DE
(florianpfab@gmail.com)

Learning Objectives:
1. To see the significance of muscle injuries and their impact on professional football players.
2. To learn "what the clinician needs to know".
3. To discuss prevention and therapy strategies for professional football players.
Author Disclosures:
Florian Pfab: Founder: DNathlete AG, Clevergum GmbH; Grant Recepient: DFG; Patent Holder: Antiseptic chewing gum

Panel discussion: Multidisciplinary team play in a professional football club

16:00-17:30 **Room G1**

Joint Session of the ESR and EORTC

ESR/EORTC

Clinical trials in image-guided therapies: current and future perspectives

ESR/EORTC-1
Chairpersons' introduction
N. M. deSouza; Sutton/UK
J. Verhoeff; Utrecht/NL
(jverho10@umcutrecht.nl)

ESR/EORTC-2
Trial design for image-guided therapies
H. Verkooijen; Utrecht/NL

Learning Objectives:
1. To learn about trial design for image-guided therapies.
2. To appreciate the R-IDEAL framework and TwiCs designs.
3. To understand momentum, clinical impact of MR-Linac in an oncological setting.
Author Disclosures:
Helena Verkooijen: Grant Recepient: Elekta, European Commission, ZOnMW, KWF

ESR/EORTC-3
High-intensity focused ultrasound: the FURTHER consortium
A. Bazzocchi; Bologna/IT
(abazzo@inwind.it)

Learning Objectives:
1. To learn about the FURTHER consortium and the related projects.
2. To appreciate the impact of MR-HIFU in treating bone metastases.
3. To understand the role of MR-HIFU in the context of other therapeutic options for pain relief.

ESR/EORTC-4
Radionuclide therapy for bone metastases: how far can we go?
F. Mottaghy; Aachen/DE
(fmottaghy@ukaachen.de)

Learning Objectives:
1. To understand the mechanism of different radionuclide therapy approaches in bone metastases.
2. To learn about the current role of radionuclide therapy for bone metastases.
3. To appreciate the concept of theranostics in bone metastases treatment.
4. To get an idea of the potential of combined treatment approaches implementing radionuclide/radioligand therapies.
Author Disclosures:
Felix M Mottaghy: Advisory Board: Nanomab, Novartis; Board Member: EANM; Consultant: Nanomab, Oncoradiomics, AAA/Novartis, IBA; Grant Recepient: GE, Nanomab; Speaker: Siemens

Panel discussion: What is the future of image-guided therapies?

16:00-17:30 **Room G2**

E³ - Young ECR Programme: Students Session

S 11

Student Session 1

Moderator
H. C. Thoeny; Fribourg/CH
Author Disclosures:
Harriet Thoeny: Advisory Board: Guerbet SA

S 11-2
The qualitative and quantitative parameters of dual-layer spectral detector CT plain scan predicting the invasiveness of ground-glass adenocarcinoma
F. F. Yin[*1], D. Han[1], X. Zhang[2]; [1]Kunming/CN, [2]Chengdu/CN
(yinfang19951218@163.com)

Purpose: The study aimed to explore the predictive value of qualitative and quantitative parameters of dual-layer spectral detector CT plain scan on the invasiveness of ground-glass nodules (GGNs).
Methods or Backround: 557 patients with a total of 778 GGNs, who underwent preoperative dual-layer spectral detector CT scans, were included retrospectively. According to invasiveness by pathology, the nodules were divided into two groups: non-invasive adenocarcinoma (non-IA, n=202) group, which included atypical adenomatous hyperplasia and adenocarcinoma in situ and invasive adenocarcinoma (IA, n=576) group which included minimally invasive adenocarcinoma and invasive adenocarcinoma. The qualitative parameters included GGN interface, lobulation, speculation, pleural retraction, bubble-like lucency, air bronchogram and vascular abnormality. The quantitative parameters included nodule size, effective atomic number (Zeff) value, CT value and electron density value (ED value). The nodule size, Zeff, and ED value of the lesion were measured on a dedicated workstation (IntelliSpace Discovery). Diagnostic performance was evaluated by receiver operating characteristic (ROC) curve analysis.
Results or Findings: Significant differences were found in nodule shape, interface, lobulation, speculation, pleural retraction, bubble-like lucency, air bronchogram, vascular abnormality, size, CT value, Zeff and ED value between non-IA and IA groups ($P < 0.05$). The nodule ED value [odds ratio(OR)=1.157, $P < 0.001$], interface (OR=0.196, $P < 0.001$), bubblelike lucency（OR=0.293, $P < 0.001$), pleural retraction (OR=0.354, P=0.009) and vascular abnormality (OR=0.371, $P < 0.001$) were independent predictors for diagnosing invasive adenocarcinoma. The analysis of ROC curves showed that the AUC of the combination of five independent predictors was 0.862, and the sensitivity and specificity for predicting GGN invasion were 71.35% and 85.64%.
Conclusion: The combination of qualitative and quantitative parameters of a dual-layer spectral detector CT plain scan can effectively evaluate the invasiveness of GGNs.
Limitations: The present study was a retrospective, single-centre study with patient selection bias.
Ethics committee approval: No information provided by the submitter.
Funding for this study: No
Author Disclosures:
Dan Han: Nothing to disclose
Xiaodi Zhang: Nothing to disclose
Fang Fang Yin: Nothing to disclose

S 11-3
Computed Tomography (CT) derived body composition metrics: do low-dose CT thoracic measurements correlate with Bhalla scores in cystic fibrosis?
S. Blackburn, M. Waldron, O. J. O Connor, M. Maher; Cork/IE
(sean.blackburn54@gmail.com)

Purpose: Low-dose CT enables volumetric lung assessment identifying early detection of CF exacerbations with exposures of <0.1mSv. In addition to qualitative diagnostics, quantitative data relating to body composition can be derived with prognostic implications. The aim of this study is to assess if these metrics from low-dose thoracic imaging correlate with Bhalla scoring of the same studies.
Methods or Backround: A retrospective comparative analysis was conducted after 42 CF patients were chosen from an institutional database. All patients had a low-dose CT thorax (index) and follow-up CT thorax within 1 year (interval). Bhalla scoring was conducted on both scans by independent consultant radiologists. Muscle and fat cross-sectional area and attenuation

were measured at pre-defined levels for each scan using the web based morphometric application CoreSlicer. On thoracic imaging pectoralis muscle at the sternoclavicular joint, visceral fat at the left main coronary outflow and visceral and subcutaneous fat at the T12 vertebral level were measured. Data was analysed using Microsoft Excel 2011 and SPSS version 28.
Results or Findings: Body composition metrics derived from low-dose CT thorax and Bhalla scores did not correlate significantly. Change of body composition was correlated with change in Bhalla score over the same period. Change in components of the Bhalla score such as bronchiectasis extent had an r-value of -0.353 with a p-value of <0.05 and bronchial generations had an r-value of -0.332 and p-value of <0.05. Index Bhalla score did not correlate with index morphometrics analysed.
Conclusion: A high level of agreement does not exist between low-dose CT thorax and Bhalla scores for body composition metrics analysed. As CF is a multisystem disorder with significant metabolic derangement it is unclear if this data should be extracted routinely and included clinically.
Limitations: This was a retrospective analysis.
Ethics committee approval: Institutional approval was given.
Funding for this study: No funding was received for this study.
Author Disclosures:
Sean Blackburn: Nothing to disclose
Michael Waldron: Nothing to disclose
Owen J. O Connor: Nothing to disclose
Michael Maher: Nothing to disclose

S 11-4

Single-centre experience with trauma CT volumes in the wake of relaxed COVID-19 restrictions

S. Park[1], D. Kakish[1], S. Rao[1], J. Glavis-Bloom[1], K. Tran-Harding[1], D. Chow[1], M. Nguyentat[2], R. Houshyar[1]; [1]Orange, CA/US, [2]Aurora, CO/US
(smpark3@hs.uci.edu)

Purpose: The COVID-19 pandemic resulted in substantial disruptions in healthcare staffing and operations with a pronounced impact on radiology departments. Stay-at-home orders and societal restrictions implemented in spring 2020 were initially followed by decreases in imaging utilisation. This study aims to evaluate the impact of relaxed COVID-19 restrictions on computed tomography (CT) imaging volume and turnaround time in the emergency trauma setting.
Methods or Backround: Demographics, CT imaging volume, characteristics, and turnaround time were analysed for all adult emergency department trauma CT imaging patients from January 2018-February 2022 at the University of California, Irvine Medical Centre. Three time periods were compared based on California COVID-19 safety measures: baseline/pre-COVID-19 (PRE: 1/1/2018–3/19/2020), COVID-19 stay-at-home orders in place (COVID: 3/20/2020–1/25/2021), and after stay-at-home orders were lifted (POST: 1/26/2021–2/28/2022).
Results or Findings: Out of 16,984 trauma patients (PRE: 8,289; COVID: 3,139; POST: 5,556), there was a statistically significant increase in the mean daily trauma patient volume in POST versus PRE and COVID periods (PRE: 10.3 patients, COVID: 10.1 patients, POST: 13.9 patients; p<0.001) with statistically significant increases in both blunt (PRE: 9.2 patients, COVID: 8.7 patients, POST: 12.1 patients; p<0.001) and penetrating (PRE: 0.6 patients, COVID: 0.8 patients, POST: 0.9 patients; p=0.002) trauma. There was a statistically significant increase in mean daily number of trauma CT scans in the POST period versus PRE and COVID periods (PRE: 48.3 CT scans, COVID: 47.6 CT scans, POST: 56.7 CT scans; p<0.001) with a statistically significant increase in mean turnaround time (PRE: 31 minutes, COVID: 37 minutes, POST: 47 minutes; p<0.001).
Conclusion: Following COVID-19 stay-at-home orders, trauma CT volume initially decreased. The subsequent relaxation of safety measures coincided with statistically significant increases in trauma CT volume and turnaround time, surpassing even pre-pandemic levels.
Limitations: Not applicable.
Ethics committee approval: No information provided by the submitter.
Funding for this study: Not applicable.
Author Disclosures:
Sungmee Park: Nothing to disclose
Justin Glavis-Bloom: Nothing to disclose
Roozbeh Houshyar: Nothing to disclose
Michael Nguyentat: Nothing to disclose
Sriram Rao: Nothing to disclose
Daniel Chow: Nothing to disclose
Karen Tran-Harding: Nothing to disclose
David Kakish: Nothing to disclose

S 11-5

An experimental and computational evaluation of a novel Timepix3 detector for Compton imaging in nuclear medicine

B. W. Kamtchou; Dublin/IE
(bill.kamtchou@ucdconnect.ie)

Purpose: The purpose of this study is to explore the feasibility of using the Timepix3 CdTe detector as a Compton camera for nuclear medicine imaging applications. Current gamma camera technology relies on using a collimator to determine positional information for incident photons. Collimators, however, result in the attenuation of >95% of incident photons, requiring increased administered activities.
Methods or Backround: A Compton camera is an imaging device that can determine the direction of gamma rays emitted by radioisotopes based on the kinematics of Compton scattering. Having established the properties of the detector, the methodology to identify the position and deposited energy of suitable photon events was developed to enable the determination of the corresponding Compton cones. Point source reconstruction using simple back projection and more advanced reconstruction methods have been evaluated using Monte Carlo methods and will be assessed against experimental results.
Results or Findings: Single and multiple radioisotope point source arrangements will be presented, with the analysis demonstrating the capabilities of using the Timepix3 detector as a nuclear medicine Compton camera. The spatial resolution and sensitivity of the Compton camera will be quantified and related to conventional nuclear medicine technologies.
Conclusion: A preliminary evaluation of the Timepix3 indicates its potential for Compton imaging applications. Future work will aim to extend the use of the Timepix3 detector to nuclear medicine bone imaging.
Limitations: This is a feasibility study as the Timepix3 is limited by its small dimensions, albeit it has a pixel size of 55um. Future work would need to demonstrate the use of a larger-sized Timepix3 detector.
Ethics committee approval: No information provided by the submitter.
Funding for this study: The study was funded by the University College Dublin, School of Physics, Scholarship in Research and Teaching, and the Irish Association of Physicists in Medicine, Young Investigator Grant.
Author Disclosures:
Bill Wells Kamtchou: Nothing to disclose

S 11-6

The importance of cardio-RM in the diagnosis of MINOCA

G. Piccinni, L. Pugliese, D. Sergi, A. Cremona, D. Caruso, A. Laghi; Rome/IT
(giuliapiccinni95@gmail.com)

Purpose: The study aimed to illustrate the role of cardiac magnetic resonance imaging in the diagnosis of cases of myocardial infarction in the absence of stenosis microvascular obstructive (MINOCA) and the clinical management of the patient.
Methods or Backround: At present, MINOCA is recognised as a syndrome with its own multifactorial pathogenesis entity, characterised by myocardial infarction in uninjured coronary arteries. These patients comprise about five per cent of all cases of AMI; up to 50% of cases, the female gender is affected, and the age of MINOCA patients is lower than patients with obstructive coronary artery disease. Also, the lower prevalence of typical cardiovascular risk factors but more frequent thrombophilic diathesis was found. On magnetic resonance imaging, the resulting ischaemic distress results in an altered intensity of the affected segments pre and post-gadolinium administration.
Results or Findings: The MRI features are: signal hyperintensity in T2 STIR sequences for myocardial oedema, myocardial perfusion defect in early enhancement sequences, signal hyperintensity with subendocardial or transmural distribution in LGE sequences with or without evidence of signs of microvascular obstruction, positivity in T1 and T2 sequences, and T2 mapping.
Conclusion: MINOCA needs timely diagnosis for proper diagnostic-therapeutic framing. MRI emerges as the diagnostic gold standard ensuring safety, objectivity, inter-observer consistency, and accuracy in characterising the myocardium, providing valuable support to cardiologists in the treatment of the aforementioned.
Limitations: The study was limited by the small population sample.
Ethics committee approval: Written informed consent was obtained from all study participants.
Funding for this study: No funding was received for this study.
Author Disclosures:
Luca Pugliese: Nothing to disclose
Damiano Caruso: Nothing to disclose
Daniela Sergi: Nothing to disclose
Antonio Cremona: Nothing to disclose
Giulia Piccinni: Nothing to disclose
Andrea Laghi: Nothing to disclose

S 11-7
The aging foot: conventional and unconventional parameters in weight-bearing CBCT in a cohort of diabetic patients
S. Gazzotti[*1], G. Sacchetti[1], C. Belvedere[1], M. P. Aparisi Gomez[2], M. Miceli[1], L. Berti[1], A. Leardini[1], A. Bazzocchi[1]; [1]Bologna/IT, [2]Valencia/ES

Purpose: Weight-bearing cone beam computed tomography (CBCT) has been applied to the study of foot bone architecture and plantar loading in diabetes mellitus. However, little is known about the effects of ageing on the foot of diabetic patients. Our study aims to identify conventional and unconventional parameters associated with ageing on weight-bearing CBCT scans from diabetic patients.
Methods or Backround: Weight-bearing CBCT scans from 17 patients (age range: 26.5-77.5) with diabetes mellitus were acquired to study foot biomechanics. Conventional parameters, including 3D orientation angles both for single bones in space and between adjacent bones, were determined. Unconventional parameters possibly associated with ageing were also obtained, including the minimum height of metatarsal heads from the ground (for both feet), the volume of vascular calcifications (total and above the talar dome) and the area of plantar muscles in a coronal plane tangent to the posterior aspect of the first metatarsal base (for right foot only).
Results or Findings: A negative correlation between age and height of metatarsal heads was found for all these five bones, consistent with the expected age-related atrophy of the metatarsal fat pad. However, this was statistically significant only for the fourth and fifth metatarsals of the left foot (p-value=0.03 and 0.02, respectively). A negative correlation, though non-significant, was observed between age and plantar muscle area. By contrast, the volume of vascular calcifications was positively correlated with age, though non-significantly.
Conclusion: Today weight-bearing CBCT can be used to study age-related changes in the foot, not only for bone orientation angles but also for unconventional parameters such as fat pad thickness, muscle areas, and vascular calcifications.
Limitations: Our study has a small sample size and is still ongoing.
Ethics committee approval: No information provided by the submitter.
Funding for this study: Not applicable.
Author Disclosures:
Marco Miceli: Nothing to disclose
Alberto Leardini: Nothing to disclose
Giulio Sacchetti: Nothing to disclose
Alberto Bazzocchi: Nothing to disclose
Claudio Belvedere: Nothing to disclose
Maria Pilar Aparisi Gomez: Nothing to disclose
Silvia Gazzotti: Nothing to disclose
Lisa Berti: Nothing to disclose

S 11-8
Integrating radiology and anatomy in medical education: change current medical education
J. Garcia Alves Da Trinade, C. A. P. Fontes, M. Ananias, N. F. Leça Júnior, A. S. Santos, C. Alberto Dezan Junior, A. L. Ferreira Przibilski, G. S. Vieira, J. Carlos Sarmento; Niteroi/BR
(jgatrindade@id.uff.br)

Purpose: Our objective was to assess the knowledge of medical students, including internship students, giving importance to the learning of radiology regardless of the future medical specialties of these students. Therefore, we include the teaching assistant class studying radiological anatomy through imaging exams.
Methods or Backround: The exams are selected in PACS by professors in order to always present a correlation with the theme of the theoretical class and have the quality to evaluate the topographical anatomy, in addition, exams are selected where the comparison of paired organs is possible, and also for example chest x-ray with pneumonectomy.
Results or Findings: Through the study of clinical cases and the division into smaller groups with teaching assistants the students showed better understanding and feel more comfortable to debate and ask questions. In the current period, post-pandemic, this correlation is very welcome as we have classes that have gone through the discipline of anatomy remotely. The interpretation of radiological exams does not only require basic anatomical knowledge, but also of radiological topographic anatomy. In addition, each exam modality will represent the same anatomical structure in different aspects, as well as the use of contrast.
Conclusion: The introduction of educational tools that integrate radiology with traditional anatomy has improved the interpretation of basic image radiology. Thus, creating an association between topographic anatomy and radiological anatomy is a difficult task, but it should be used before graduation for better medical learning. The coronal plane was better understood by students in CT reconstructions and MRI.
Limitations: Radiology in most medical schools is allocated six months during the course. Incorporating radiology into undergraduate curricula is necessary so that integration is incorporated better in teaching and has a great effect on the interpretation of radiologic images.
Ethics committee approval: 69900217.8.0000.5243
Funding for this study: No funding was received for this study.
Author Disclosures:
Gabriel Santos Vieira: Nothing to disclose
Carlos Alberto Dezan Junior: Nothing to disclose
Ana Luísa Ferreira Przibilski: Nothing to disclose
Mary Ananias: Nothing to disclose
Nilo Fernandes Leça Júnior: Nothing to disclose
Juliana Garcia Alves Da Trinade: Nothing to disclose
Cristina Asvolinsque Pantaleão Fontes: Nothing to disclose
João Carlos Sarmento: Nothing to disclose
Alair Sarmet Santos: Nothing to disclose

S 11-9
Simulation-based learning of basic radiology in medical students first rotation: pivot study
N. X. Chérrez, A. Ezponda Casajus, J. Pueyo Villoslada; Pamplona/ES
(ncherreznad@alumni.unav.es)

Purpose: To implement and evaluate the effectiveness of a simulation-based learning approach in third-year medical students' clinical rotation to learn basic radiology, develop their confidence in clinical skills and to gauge the satisfaction of the students with the rotation.
Methods or Backround: Every two weeks, nine third-year medical students rotate in the Radiology Department. Students are subdivided into groups of three. The clerkship consists of attending daily sessions, self-directed learning with videos, learning with a radiology staff member and simulation-based learning (radiological clinical cases with a DICOM viewer). The end-of-rotation evaluation by teachers relies on a clinical case presentation. Students are also requested to anonymously complete a survey, which measures learning outcomes, faculty teaching effectiveness and student satisfaction on a 5-point Likert scale (5=strongly agree). In this study, we provide a descriptive analysis of questionnaire responses of the first 25 students rotating in the Department. The association of their responses with students' scores is explored with the Kruskal-Wallis test.
Results or Findings: Up to 73.1% and 92.3% of the students consider the videos and simulated based-learning, respectively, to be useful learning tools. 92.3% of them point out that small group rotations engage learning. All students consider teaching time with staff as optimal and are satisfied with the teaching strategy. Better scores are obtained by those students with an increased self-perceived ability to provide a differential diagnosis based on images and clinical history (medians of 6.25, 9.72 and 9.75 for 3, 4 and 5 points in the Likert scale, p=0.024).
Conclusion: This simulation-based strategy in the clinical rotation seems to allow radiologists to engage in the daily practice without compromising student learning and satisfaction.
Limitations: The study is still ongoing, with an estimated 96 participants at the end of a few months.
Ethics committee approval: No information provided by the submitter.
Funding for this study: No funding was received for this study.
Author Disclosures:
Nicholas Xavier Chérrez: Nothing to disclose
Jesus Pueyo Villoslada: Nothing to disclose
Ana Ezponda Casajus: Nothing to disclose

16:00-17:30 **Room K1**

Special Focus Session

SF 11b
Opportunities for improving patient experience within radiography

SF 11b-1
Chairpersons' introduction
M. F. McEntee; Cork/IE
(mark.mcentee@ucc.ie)
A. Brady; Cork/IE
(adrianbrady@me.com)

SF 11b-2
Hypnosis: tailor-made support in a radiology department
C. Jeanfavre; Morges/CH
(catherine.jeanfavre@ehc.vd.ch)

Learning Objectives:
1. To explain what hypnotherapy is.
2. To discuss its role in other treatments and conditions.
3. To consider ist role in radiography.

SF 11b-3
Improving the experiences of those with autism spectrum disorder accessing imaging
N. Stogiannos; Corfu/GR
(nstogiannos@yahoo.com)

Learning Objectives:
1. To expand on the needs of autistic patients.
2. To share experiences on the autism-friendly MRI project.
3. To propose potential future directions for research.

SF 11b-4
Turning the tide: benefits of taking the x-ray room outside of the hospital
H. Precht; Odense/DK
(hepr@ucl.dk)
P. Blackburn Andersen; Kolding/DK
(picaandersen@yahoo.dk)

Learning Objectives:
1. To present the clinical background.
2. To explore the impact of remote imaging on image quality.
3. To report on the patient experience and economic impacts of remote imaging.

SF 11b-5
The role of play therapy in supporting paediatric imaging
J. B. Steinmeier Larsen; Aarhus/DK

Learning Objectives:
1. To explain what play therapy is.
2. To discuss its role in other treatments and conditions.
3. To consider ist role in radiography paediatric imaging.

Panel discussion: What can we learn from surveying patient experience?

16:00-17:30 **Room K2**

E³ - Young ECR Programme: Basic Sessions

Organised by the ESR

BS 11
Genitourinary

BS 11-1
Chairperson's introduction
M. Bertolotto; Trieste/IT
(michele.bertolotto@gmail.com)

BS 11-2
Imaging of the kidney
C. Nicolau; Barcelona/ES
(cnicolau@clinic.cat)

Learning Objectives:
1. To present the current imaging techniques for evaluating of the kidney.
2. To demonstrate the most important findings of common kidney pathologies.

BS 11-3
Imaging of the prostate
O. Rouvière; Lyon/FR

Learning Objectives:
1. To present the current imaging techniques for evaluating the prostate.
2. To demonstrate the most important findings of prostate pathologies.

BS 11-4
Imaging of the testis and penis
A. Tsili; Ioannina/GR
(a_tsili@yahoo.gr)

Learning Objectives:
1. To present the current imaging techniques for evaluating the testis and penis.
2. To illustrate the imaging features in testicular and penile pathologies.

16:00-17:30 **Room M**

ESR Ultrasound Subcommittee Session

US
Controversies in contrast-enhanced ultrasound (CEUS)

US-1
Chairperson's introduction
P. S. Sidhu; London/UK
(paulsidhu@btinternet.com)
Author Disclosures:
Paul S. Sidhu: Speaker: Bracco

US-2
Is it safe to use CEUS during pregnancy?
D. A. Clevert; Munich/DE

Learning Objectives:
1. To understand how to perform the examination and its role in diagnostic assessment.
2. To understand ultrasound findings for diagnosis and follow-up.
3. To underline tips and tricks to start your activity.

US-3
Is it safe to use CEUS in children?
A. Deganello; London/UK

Learning Objectives:
1. To understand the regulations/legal implications of using CEUS in children.
2. To discuss the safety profile of ultrasound contrast agents in the paediatric population.
3. To compare CEUS safety profile with contrast-enhanced CT and MRI.
Author Disclosures:
Annamaria Deganello: Speaker: Lecture fees from Bracco, Siemens and Samsung

US-4
Should all EVAR patients have a CEUS?
T. Fischer; Berlin/DE
(thom.fischer@charite.de)

Learning Objectives:
1. To provide CEUS features and types of endoleaks.
2. To compare CEUS and CT for the detection of endoleaks.
3. To provide advantages and disadvantages of using CEUS in this field.
Author Disclosures:
Thomas Fischer: Advisory Board: Siemens, Canon, Bracco; Equipment Support Recipient: Siemens, Canon; Speaker: Siemens, Canon, Bracco

US-5
Should we only follow up on abdominal trauma with CEUS?
M. Piskunowicz; Gdansk/PL

Learning Objectives:
1. To indicate the place of the CEUS among other radiological methods in abdominal trauma.
2. To point out CEUS pros and cons in abdominal trauma.
3. To provide knowledge if CEUS could benefit patients with abdominal trauma and follow-up.

US-6
Should all Bosniak cysts be classified by CEUS?
V. Cantisani; Rome/IT
(vito.cantisani@uniroma1.it)

Learning Objectives:
1. To provide CEUS features for characterising renal cysts.
2. To provide advantages and disadvantages of the use of CEUS.
3. To compare CEUS, CT, and MRI for optimal characterisation of renal cysts according to Bosniak classification according to existing literature.
Author Disclosures:
Vito Cantisani: Speaker: Bracco, Samsung

Panel discussion: Should we be concerned about using CEUS off-label?

16:00-17:30 **Room N**

ESR Value-Based Radiology Session

Organised by the ESR Value-Based Radiology Subcommittee

ESR VBR

Value-based radiology: vague idea or practical reality?

ESR VBR-1
Chairperson's introduction
A. G. Rockall; London/UK

ESR VBR-2
How can we measure value in diagnostic radiology?
N. Bargalló; Barcelona/ES
(BARGALLO@clinic.cat)

Learning Objectives:
1. To learn about the meaning of value-based care.
2. To appreciate the different ways that quality and outcomes can be measured in imaging departments.
3. To understand the importance of patient experience in imaging departments.

ESR VBR-3
How can we measure value in interventional radiology?
M. J. Lee; Dublin/IE

Learning Objectives:
1. To learn the methods used to measure quality outcomes in IR.
2. To appreciate the challenges that are specific to IR related to patient experience.
3. To understand what practical steps imaging departments can take to offer high-value IR.

ESR VBR-4
How can we translate value into resourcing of radiology?
J. A. Brink; Boston, MA/US

Learning Objectives:
1. To learn how maximising the imaging value equation benefits the health care delivery system.
2. To appreciate how to low value imaging may be minimised and high-value imaging may be maximised.
3. To understand how improved patient experience at lower cost increases the value of imaging for both the patient and the provider.
Author Disclosures:
James A. Brink: Board Member: James Brink is member of Board of Directors, Accumen, Inc.; Other: MGH Radiology Consulting Group provides consulting services to Nuance, Inc., regarding Clinical Decision Support for Reporting; MGB Data Science Office has a sponsored research relationships with GE, Nvidia, Nuance, Fuji, Dasa; MGB licensed the Addressing Radiologist Recommendation Collaboratively (ARRC) tool developed at BWH to Aluna Health

Panel discussion: Can VBR (as opposed to volume of work) become the real measure of radiology's impact?

Friday, March 3

08:00-09:00 **Open Forum ESR at Work**

ETAP Session

Organised by the European Board of Radiology (EBR)

ETAP

European Training Assessment Programme 2.0: impact of ETAP on radiology training programmes

ETAP-1
Chairperson's introduction
O. Dicle; Izmir/TR
(oguz.dicle@deu.edu.tr)

ETAP-2
Impact of ETAP on the radiology training programme of the University Hospital Basel
J. Bremerich; Basle/CH

Learning Objectives:
1. To explain the follow-up procedure performed by ETAP after each assessment.
2. To evaluate the impact of the assessment in assessed radiology training programmes.
3. To learn how the assessment can help in the enhancement and visibility of training programmes.
Author Disclosures:
Jens Bremerich: Advisory Board: Guerbet, SA; Speaker: Boehringer Ingelheim

ETAP-3
The radiology education triangle: ESR ETC/ETAP/EDiR
L. Oleaga Zufiría; Barcelona/ES
(lauraoleaga@gmail.com)

Learning Objectives:
1. To know the connecting thread between ESR ETC/ETAP/EDiR.
2. To learn about the benefits of harmonisation of radiology education.
3. To learn how to align to the European radiology standards in education.

Panel discussion

08:00-09:00 **Open Forum Radiographers**

Open Forum Session

OF 12R

Mentoring of radiography students

OF 12R-1
Chairperson's introduction
C. Buissink; Groningen/NL
(c.buissink@pl.hanze.nl)

Learning Objectives:
1. To examine the evidence and rationale for mentoring radiography students.
2. To present best practices in radiography student mentoring.
3. To propose recommendations for the successful mentoring of radiography students.

OF 12R-2
Challenges for the successful mentoring of students in university skills lab
M. Champendal; Lausanne/CH
(melanie.champendal@hesav.ch)

OF 12R-3
Best practices in mentoring students during clinical placement
E. Agadakos; Athens/GR
(eagadakos@gmail.com)
Author Disclosures:
Efthimios M. Agadakos: Board Member: ISRRT & PANHELLENIC SOCIETY OF RADIOLOGICAL TECHNOLOGISTS (GREECE); Employee: General Hospital of Athens "LAIKO"

OF 12R-4
What are the requirements for mentoring radiography interns?
M. Vaišvilaite; Vilnius/LT
(milda.vaisvilaite@affidea.lt)

Open forum discussion

08:00-09:00 **Open Forum Trainees**

Open Forum Session

OF 12T

The art of radiology

OF 12T-1
Chairperson's introduction
V. J. Goh; London/UK
(vicky.goh@kcl.ac.uk)

Learning Objectives:
Part of a series of back to basics sessions reflecting the cycle of life of radiology practice. This session focuses on the art of radiology and classical signs in radiology.
Author Disclosures:
Vicky Goh: Grant Recepient: Siemens

OF 12T-2
Classical signs in chest imaging
A. P. Parkar; Bergen/NO
(apparkar@gmail.com)

Learning Objectives:
1. To illustrate and explain classical signs related to normal variants.
2. To illustrate and explain classical signs related to lung, mediastinal and pleural pathology.

OF 12T-3
Classical signs in abdominal imaging
S. Gourtsoyianni; Athens/GR
(sgty76@gmail.com)

Learning Objectives:
1. To illustrate and explain classical signs related to normal variants.
2. To illustrate and explain classical signs related to abdominal pathology.

OF 12T-4
Classical signs in urological imaging
R. Cuocolo; Naples/IT

Learning Objectives:
1. To illustrate and explain classical signs related to normal variants.
2. To illustrate and explain classical signs related to urological pathology.

Open forum discussion: Classical signs, are we losing the art of radiology?

08:00-09:00 **Room A**

Refresher Course: Paediatric

RC 1212
Child with seizures

RC 1212-1
Chairperson's introduction
M. I. Argyropoulou; Ioannina/GR
(margyrop@uoi.gr)

RC 1212-2
Neuroimaging in congenital diseases
G. Kasprian; Vienna/AT
(gregor.kasprian@meduniwien.ac.at)

Learning Objectives:
1. To describe and discuss the concept of "epileptogenicity".
2. To discuss the early postnatal and even prenatal imaging appearance of brain malformations.
3. To reconsider our role in the imaging diagnosis of brain malformations.

RC 1212-3
Neuroimaging in infection
J. Svoboda; Umea/SE
(jan.svoboda@regionstockholm.se)

Learning Objectives:
1. To summarise the differences between infection in the perinatal period and older children.
2. To define the role and interpretation of DWI in infectious diseases.
3. To learn the differentiation between viral encephalitis and other causes of encephalopathy, such as metabolic crises.

RC 1212-4
Imaging of brain tumours
V. Dangouloff-Ros; Paris/FR

Learning Objectives:
1. To learn the most frequent tumours causing epilepsy in children, according to their age.
2. To know the main imaging features allowing to distinguish them.
3. To discover the less frequent tumoural types causing epilepsy in the 2021 WHO classification and their imaging characteristics.

Panel discussion: is there a need for a paediatric neuroradiology specialist?

08:00-09:00 **Room B**

E³ - The Beauty of Basic Knowledge: Sports Injuries

E³ 24A
Tendon disease in the athlete

E³ 24A-1
Chairperson's introduction
E. Llopis; Valencia/ES
(evallopis@gmail.com)

Learning Objectives:
Acute and chronic tendon injuries are amongst the most common sports injuries sustained. In this session, these pathologies affecting four of the most commonly injured tendons will be reviewed. The session will focus on the normal anatomy and function of the rotator cuff tendons, patellar and Achilles tendons and the proximal hamstring tendons. Relevant and the frequently seen pathologies will be highlighted. Speakers will discuss appropriate imaging modalities and the findings that are seen on imaging. In common with all the sessions in this course, each speaker will also be asked to present a case that they have learned from in their career on any sports imaging topic. Having presented the case, the speaker will explain what made that case a learning experience.
Author Disclosures:
Eva Llopis San Juan: Grant Recepient: canon, philips

E³ 24A-2
The rotator cuff in the athlete
A. H. Karantanas; Iraklion/GR
(akarantanas@gmail.com)

E³ 24A-3
A sports injury I learned from
A. H. Karantanas; Iraklion/GR
(akarantanas@gmail.com)

E³ 24A-4
The Achilles and patellar tendons in the athlete
E. Llopis; Valencia/ES
(evallopis@gmail.com)
Author Disclosures:
Eva Llopis San Juan: Grant Recepient: canon, philips

E³ 24A-5
A sports injury I learned from
E. Llopis; Valencia/ES
(evallopis@gmail.com)
Author Disclosures:
Eva Llopis San Juan: Grant Recepient: canon, philips

E³ 24A-6
The proximal hamstring tendons in athletes of all ages
E. Rowbotham; Leeds/UK

E³ 24A-7
A sports injury I learned from
E. Rowbotham; Leeds/UK

08:00-09:00 **Room C**

E³ - ECR Master Class (Hybrid, Molecular and Translational Imaging)

E³ 1226
Imaging in personalised treatment of hepatocellular carcinoma (HCC)

E³ 1226-1
Chairperson's introduction
D. Vajauskas; Kaunas/LT

E³ 1226-2
The role of CT in diagnosis, staging, and treatment
T. Skaarup Kristensen; Copenhagen/DK
(thomas.skaarup.kristensen@regionh.dk)

Learning Objectives:
1. To understand the fundamental processes and technical aspects of CT.
2. To learn about the current clinical applications of CT in HCC, including TACE and TARE.
3. To discuss the potential new applications for CT in HCC.

E³ 1226-3
The role of MRI in diagnosis, staging, and treatment
J. Ricke; Munich/DE

Learning Objectives:
1. To understand the fundamental processes and technical aspects of MRI.
2. To learn about the current clinical applications of MRI in HCC.
3. To discuss the potential new applications for MRI in HCC.

E³ 1226-4
Can hybrid imaging add value?
L. Aloj; Cambridge/UK

Learning Objectives:
1. To learn about the current use of hybrid imaging (PET/CT, SPECT/CT, and PET/MRI) in HCC.
2. To learn about new radiopharmaceuticals with potential for HCC.
3. To discuss potential new applications for PET and SPECT in HCC.

Panel discussion: Are current imaging methods fit for purpose in the era of personalised treatment of patients with HCC?

08:00-09:00 **Room D**

E³ - Young ECR Programme: Basic Sessions

Organised by the ESR

BS 12
Neuroradiology in daily clinical practice

BS 12-1
Chairperson's introduction
A. Krainik; Grenoble/FR
Author Disclosures:
Alexandre Krainik: Advisory Board: Pixyl, Geodaisics

BS 12-2
Imaging of vascular malformations of the brain
J. Munuera; Barcelona/ES
(Josep.munuera@sjd.es)

Learning Objectives:
1. To learn about the typical imaging features of vascular malformations.
2. To know the advantages and disadvantages of different modalities.
Author Disclosures:
Josep Munuera: Speaker: Philips, Guerbet

BS 12-3
Imaging of intracranial infectious and inflammatory diseases
M. M. Thurnher; Vienna/AT

Learning Objectives:
1. To learn about imaging features of the most frequent infectious and inflammatory diseases.
2. To demonstrate the most important findings.
Author Disclosures:
Majda M. Thurnher: Speaker: Guerbet Symposium

BS 12-4
Imaging of ischaemic diseases of the brain
K.-O. Løvblad; Geneva/CH
(Karl-Olof.Lovblad@hcuge.ch)

Learning Objectives:
1. To learn about different modalities to diagnose ischaemia.
2. To demonstrate the most important findings.

08:00-09:00 **Room E1**

Refresher Course: Genitourinary

RC 1207
Contrast media and the environment

RC 1207-1
Chairperson's introduction
D. A. Clevert; Munich/DE

RC 1207-2
Environmental effects of iodinated x-ray contrast media
O. Clément; Paris/FR
(olivier.clement@aphp.fr)

Learning Objectives:
1. To describe the environmental effects of iodinated x-ray contrast media.
2. To assess how we can diminish this pollution.
3. To know how we can influence our referees so that they become aware of this problem.
Author Disclosures:
Olivier Clément: Advisory Board: Bayer; Author: Bracco

RC 1207-3
Gadolinium as a contaminant in water resources: threats and opportunities
G. Stroomberg; Nieuwegein/NL
(stroomberg@riwa.org)

Learning Objectives:
1. To describe the environmental effects of gadolinium-based contrast media.
2. To assess how we can diminish this pollution.
3. To know how we can influence our peers so that they become aware of this problem.

RC 1207-5
The "GREENWATER" Project
F. Sardanelli; San Donato Milanese/IT
(francesco.sardanelli@unimi.it)

Learning Objectives:
1. To describe the rationale of the GREENWATER project carried out at IRCCS Policlinico San Donato, Milan, Italy.
2. To explain the study design to determine the compliance of outpatients undergoing contract-enhanced CT or MRI to stay in the hospital 30 minutes longer and to deliver urine for analysis of iodine and gadolinium that could be recovered or recycled.
3. To report the preliminary/mid-term results of the study.
Author Disclosures:
Francesco Sardanelli: Research Grant/Support: Bracco; Speaker: Bayer

Panel discussion: For a greener future for patients and the environment

08:00-09:00 **Room E2**

Refresher Course: Head and Neck

RC 1208
Imaging of the skull base and cranial nerves

RC 1208-1
Chairperson's introduction
A. Venkatasamy; Strasbourg/FR
(aina.venkat@ihu-strasbourg.eu)
Author Disclosures:
Aïna Venkatasamy: Research Grant/Support: MITI 2 (Horizon 2022), GASDHAC (ITMO Cancer, France)

RC 1208-2
New and advanced MRI techniques to image the skull base
S. E. J. Connor; London/UK
(sejconnor@gmail.com)

Learning Objectives:
1. To distinguish the MR imaging approaches required to depict the different cranial nerve segments as they extend through the skull base.
2. To revise the theoretical basis for the principle advanced MRI sequences and the technical challenges in applying them at the skull base.
3. To consider the potential clinical applications of advanced MRI techniques at the skull base.

RC 1208-3
Cranial nerve tumours: the example of vestibular schwannomas
S. Bisdas; London/UK

Learning Objectives:
1. To review the common and rare imaging findings of cranial nerve schwannomas.
2. To understand the similarities and differences between them and vestibular schwannomas.
3. To highlight mimics and suggest tips and tricks to differentiate them from schwannomas.

RC 1208-4
MRI evaluation of denervation pathology in head and neck
M. Ravanelli; Brescia/IT

Panel discussion: What's new in cranial nerve and skull base imaging?

08:00-09:00 **Room G1**

Refresher Course: Physics in Medical Imaging

RC 1213
Artificial intelligence at the service of foetal imaging

RC 1213-1
Chairperson's introduction
D. Pinto dos Santos; Cologne/DE
(daniel.pinto-dos-santos@uk-koeln.de)
Author Disclosures:
Daniel Pinto dos Santos: Advisory Board: cook medical; Author: AMBOSS GmbH; Speaker: Bayer

RC 1213-2
Deep learning strategies for ultrasound in pregnancy
T. G. Day; London/UK
(thomas.day@kcl.ac.uk)

Learning Objectives:
1. To appreciate deep learning applications in a pregnancy ultrasound.
2. To understand deep learning, based methods for segmentation and measurements in a pregnancy ultrasound.
3. To describe anatomy recognition AI techniques in pregnancy.

RC 1213-3
Deep learning for quantitative MRI: applications in pregnancy
L. Joskowicz; Jerusalem/IL
(josko@cs.huji.ac.il)

Learning Objectives:
1. To appreciate the role of deep learning for MRI in pregnancy.
2. To understand how quantitative MRI improves prenatal evaluation.
2. To identify MRI precise diagnosis techniques of foetal developmental disorders.
Author Disclosures:
Leo Joskowicz: Advisory Board: Ezra Inc; Employee: CTO, HighRAD Ltd; Founder: HighRAD Ltd

RC 1213-4
Neural networks for dose reduction and foetal dose estimation in computed tomography
J. Damilakis; Iraklion/GR

Learning Objectives:
1. To understand how deep learning CT reconstruction can reduce patient dose also in pregnancy.
2. To appreciate the potential role of deep learning in foetal dose estimation.

Panel discussion: When do we expect these AI advances in routine foetal imaging?

08:00-09:00 **Room G2**

Refresher Course: Breast

RC 1202
MRI-guided biopsy: a challenge and alternatives

RC 1202-1
Chairperson's introduction
I. Thomassin-Naggara; Paris/FR
(isabelle.thomassin@tnn.aphp.fr)
Author Disclosures:
Isabelle Thomassin-Naggara: Advisory Board: Bayer, Bracco, Guerbet, Bard; Speaker: GE, Siemens, Hologic, Canon, Guerbet, Fujifilm, ICAD incepto, GSK

RC 1202-2
Indications, techniques, and tips: how to implement it successfully in a breast radiology department
P. A. T. Baltzer; Vienna/AT
Author Disclosures:
Pascal A.T. Baltzer: Owner: teaching platform: school-of radiology.com

RC 1202-3
Contrast-enhanced mammography (CEM) guided biopsy: an alternative to MRI guidance
R. Alcántara; Barcelona/ES

Learning Objectives:
1. To identify the concept of functional/perfusion breast imaging and "enhancing-only" visible lesions, casuistry, and diagnostic approach.
2. To summarise the technical aspects, pros, and cons of CEM guidance.
3. To compare and contrast, through the cases and experience presented, the potential role of the CEM guidance in the state-of-the-art scenario of image-guided percutaneous breast procedures.
Author Disclosures:
Rodrigo Alcantara Souza: Research Grant/Support: GE Healthcare; Speaker: GE Healthcare, BD

RC 1202-4
Decreasing MRI-guided biopsy using US-guided vacuum-assisted breast biopsy (VABB)
J. Camps Herrero; Valencia/ES
(jcamps@riberasalud.es)

Learning Objectives:
1. To review the pitfalls of MR-guided biopsies.
2. To understand the different imaging and interventional factors that can help us decrease the number of MR-guided biopsies.
3. To learn how to perform this technique and review practical cases.
Author Disclosures:
Julia Camps Herrero: Advisory Board: Hologic, Becton Dickinson, Bayer, Siemens

Panel discussion: Implementation and cost-effectiveness of MR-guided biopsies and alternatives

08:00-09:00 **Room K1**

EFRS meets Ireland

Meets 12
The changing role of diagnostic and radiotherapy radiographers/technologists (RTT)

Presiding
C. Beardmore; London/UK
J. Grehan; Dublin/IE

Meets 12-1
Chairpersons' introduction: across Ireland
C. Beardmore; London/UK
(CharlotteB@sor.org)
J. Grehan; Dublin/IE

Learning Objectives:
1. To introduce the "EFRS Meets" session and the involvement of Ireland in the EFRS.
2. To introduce the country of Ireland, Irish life and culture, and the Irish radiography profession.

Meets 12-2
Advanced practice recognition for radiographers in Ireland
M. Monahan; Dublin/IE

Learning Objectives:
1. To promote and recognise radiographers' advanced practice.
2. To enhance the importance of radiographers' CDP.

Author Disclosures:
Michele Monahan: Author: Michele Monahan; Board Member: IIRRT

Meets 12-3
Radiotherapy pathway of care in Ireland
T. O'Donovan; Cork/IE
(theresa.odonovan@ucc.ie)

Learning Objectives:
1. To recognise radiotherapy radiographers/RTTs' key role in the patient's pathway.
2. To enhance the importance of radiotherapy radiographers/RTTs in multidisciplinary teams.

Panel discussion

08:00-09:00 **Room M**

Refresher Course: Emergency Imaging

RC 1217

Beyond fractures in the spine: subluxation, dislocation, tears and haemorrhage

RC 1217-1
Chairperson's introduction
S. Wirth; Villingen-Schwenningen/DE

RC 1217-2
Dislocations and subluxations in the spine
U. Aydingoz; Ankara/TR
(uaydingo@hacettepe.edu.tr)

Learning Objectives:
1. To explain the anatomic and biomechanical aspects of spinal column instability in the emergency trauma setting.
2. To identify the imaging findings of spinal subluxations and dislocations.
3. To describe the techniques for the best radiological display of soft tissue and bone involvement associated with spinal subluxations and dislocations.
Author Disclosures:
Üstün Aydingöz: Speaker: GE HealthCare

RC 1217-3
Ligamentous injuries of the spine
P. J. MacMahon; Dublin/IE
(pmacmahon@mater.ie)

Learning Objectives:
1. To learn what are the CT findings after spine trauma that suggest ligament injuries.
2. To learn what are the MRI findings of spinal ligamentous injuries.
3. To understand the comparison between the accuracy of imaging techniques in ligamentous spine injury.

RC 1217-4
Traumatic haemorrhage in the spine
E. Dick; London/UK

Learning Objectives:
1. To learn the imaging findings of haemorrhage in the spinal canal after trauma.
2. To demonstrate the imaging features of spinal haematoma based on meningeal space assignment, epidural, subdural, subarachnoid, intramedullary and a combination of these locations.
3. To become familiar with the particular imaging features which help to differentiate between haematomas in the different spinal meningeal compartments.

Panel discussion: Imaging of bone and soft tissue injury in spine trauma

08:00-09:00 **Room N**

Refresher Course: Vascular

RC 1215

Vasculitis: classification, imaging, and management

RC 1215-1
Chairperson's introduction
C. Loewe; Vienna/AT
(christian.loewe@meduniwien.ac.at)

Learning Objectives:
1. To provide an overview of the session.
2. To introduce the classification of the different diseases summarised under the term vasculitis.
3. To point out the possible and emerging role of interventional radiology in the clinical management of vasculitis.
Author Disclosures:
Christian Loewe: Speaker: GE Healthcare, Siemens Healthineers, Bracco

RC 1215-2
Pathophysiology and clinical assessment
A. Aghayev; Boston, MA/US
(aaghayev@bwh.harvard.edu)

Learning Objectives:
1. To name the seven major categories of systemic vasculitis per CHCC classification.
2. To summarise clinical and laboratory features suggestive of vasculitis, particularly large vessel vasculitis (LVV), medium vessel vasculitis (MVV), and variable vessel vasculitis (VVV).
3. To describe the role of each imaging modality in vasculitis, including US, CTA, MRA, and PET.

RC 1215-3
US, CT, MR: how to choose
F. I. Suhai; Budapest/HU
(suhaiimi987@gmail.com)

Learning Objectives:
1. To describe common findings of vasculitis on CT, MRI, and ultrasound imaging.
2. To learn the role of the different imaging techniques in the diagnosis of large-, medium-, and small-vessel vasculitis.
3. To learn how to choose the appropriate imaging modality.

RC 1215-4
The role of PET/CT
G. Treglia; Bellinzona/CH

Learning Objectives:
1. To describe common findings of vasculitis at PET/CT.
2. To summarise the performance of PET/CT for the diagnosis of large vessel vasculitis.
3. To describe the possible role of PET/CT for treatment response assessment in large vessel vasculitis.
Author Disclosures:
Giorgio Treglia: Other: Travel grant from MDPI (Cancer and Radiation journals)

RC 1215-5
Role of interventional radiology in the management of vasculitis
E. Dósa; Budapest/HU
(dosaedit@yahoo.com)

Learning Objectives:
1. To name and identify the difficulties and risk factors for endovascular treatment of patients with vasculitis.
2. To select endovascular treatment options for patients with vasculitis.
3. To list the characteristics of post-intervention management of this patient group.

Panel discussion: Are radiologists overlooking vasculitis?

09:30-10:00 **Room A**

Plenary Lecture

PL 2
Plenary Lecture

Presiding
A. Brady; Cork/IE
(adrianbrady@me.com)

PL 2-1
From the dark room to the dark side: thoughts from a radiologist leading a national cancer control programme
R. Ó Laoide; Dublin/IE

10:30-11:00 **Open Forum Trainees**

Open Forum Session

Organised by the European Board of Radiology (EBR)

OF 13T
Tackle twisted cases, win your place in an EDiR examination (part 3)

OF 13T-1
Chairperson's introduction
L. Oleaga Zufiría; Barcelona/ES
(lauraoleaga@gmail.com)

Learning Objectives:
1. To dive into and experience the wonders of general radiology.
2. To prepare thoroughly for the exam while having a good time with other peers.
3. To gain deep knowledge of breast radiology and have the opportunity to grow.

OF 13T-2
Let the games begin
C. Van Ongeval; Leuven/BE
(chantal.vanongeval@uzleuven.be)

Learning Objectives:
1. To scan and interpret two cases of today's subspecialty and possible outcomes based on the attendees' decisions.
2. To get to know and team up with peers from all over the world to help as many patients as possible.
3. To solve the quiz to win an EDiR examination place.

OF 13T-3
Pooling of conclusions and perceptions
C. Van Ongeval; Leuven/BE
(chantal.vanongeval@uzleuven.be)

Learning Objectives:
1. To jointly summarise and review what we have learned in today's session.

10:30-11:30 **Room E1**

ESR meets Ireland

Meets 13
Ireland's experience: what can be learned

Presiding
A. Brady; Cork/IE
(adrianbrady@me.com)
P. M. Cunningham; Navan/IE
(pmmcunningham@gmail.com)

Moderators
A. Brady; Cork/IE
P. M. Cunningham; Navan/IE

Meets 13-1
Radiology in the dark age: cyberattack 2021
N. Sheehy; Dublin/IE
(niallsheehy@gmail.com)

Learning Objectives:
1. To understand the variety of effects the ransomware attack had on radiology departments in Ireland.
2. To hear about the short and long-term responses – what worked and what did not.
3. To use our experience to assist the development of strategies for dealing with cyberattacks on both a local and national level.

Meets 13-2
Artificial intelligence for emergency radiology
P. McLaughlin; Cork/IE

Learning Objectives:
1. To introduce a selection of AI algorithms designed to detect emergency pathologies on radiographs and cross-sectional imaging studies.
2. To illustrate the diagnostic performance characteristics of these AI algorithms with a focus on their diagnostic strengths and weaknesses.
3. To provide a framework to help with the selection, validation and evaluation of AI algorithms in the practice of emergency radiology.

Meets 13-3
Vertebral augmentation and the myth of real-world evidence
M. O'Reilly; Limerick/IE

Learning Objectives:
1. To define and describe vertebral augmentation techniques used in the treatment of osteoporotic vertebral compression fractures.
2. To contrast and reflect on how evidence strength depends on study design.
3. To examine how immortal time bias impacts the current literature and "real-world" evidence.
Author Disclosures:
Michael O'Reilly: Grant Recepient: RSNA Research Fellow Grant 2019/20; Research Grant/Support: Faculty of Radiologists Health Services Research Scholarship 2018-21

Meets 13-4
Intracranial thrombectomy for stroke in Ireland
J. Thornton; Dublin/IE

Learning Objectives:
1. To understand the procedure of thrombectomy and its benefit.
2. To understand the workflow for acute stroke patients in Ireland who undergo thrombectomy.
3. To consider how we may further improve the outcomes in thrombectomy.
Author Disclosures:
John Thornton: Advisory Board: Perfuze; Consultant: Microvention, Perfuze; Research Grant/Support: Microvention, Cerenovous; Share Holder: Perfuze; Speaker: Microvention

Panel discussion: Ireland's experience and radiology today

10:30-11:30 **Room G2**

EBR Session

Organised by the European Board of Radiology (EBR)

EBR 13

Why are digital credentials essential for today's healthcare professionals and medical institutions?

EBR 13-1
Chairperson's introduction
V. Junquero; Barcelona/ES
(vanesa.junquero@myebr.org)

Learning Objectives:
The healthcare industry is evolving and changing as rapidly as the world around us. Medical credentialing is essential to maintain high safety standards in medicine. On the one hand, it verifies that healthcare professionals are adequately trained and certified. On the other hand, it ensures having the required professional experience to provide healthcare services to patients. Therefore, it is in the interest of all stakeholders (medical institutions and healthcare professionals) to demonstrate professionalism in a healthcare setting using blockchain technology. Good healthcare relies on trust; this way, you will be able to assure both your employer and your patients of your bona fides. Not only the world around us but also the healthcare industry is changing at a rapid pace. Examinees expect to receive their credentials instantly so that employers and recruiters can verify them. Nobody has time to wait; this is why everyone is committed to the "one-click" accreditation experience. All stakeholders have changed the way we see and interact in today's world. Therefore, if you are a healthcare professional, you should join our webinar about credentials to remain competitive - and powerful - in today's radiological age. The session will tackle the following questions: What do digital credentials consist of? Why are digital credentials required nowadays? How will you benefit from shareable and verifiable digital credentials?
Author Disclosures:
Vanesa Junquero: Employee: European Board of Radiology

EBR 13-2
What do digital credentials consist of?
V. Junquero; Barcelona/ES
(vanesa.junquero@myebr.org)
Author Disclosures:
Vanesa Junquero: Author: European Board of Radiology

EBR 13-3
Why are digital credentials required nowadays?
L. Beer; Vienna/AT
(Lucian.beer@meduniwien.ac.at)
E. Jordán; Barcelona/ES
Author Disclosures:
Ernesto Jordan: Employee: European Board of Radiology

EBR 13-4
How will you benefit from shareable and verifiable digital credentials?
V. Junquero; Barcelona/ES
(vanesa.junquero@myebr.org)
L. Beer; Vienna/AT
(Lucian.beer@meduniwien.ac.at)
Author Disclosures:
Vanesa Junquero: Author: European Board of Radiology

Discussion

10:30-11:30 **Room K1**

Refresher Course: Vascular

RC 1315

Pros and Cons: Doppler US is the only imaging modality required to plan lower limb revascularisation

RC 1315-1
Chairperson's introduction
D. L. Tarnoki; Budapest/HU
(tarnoki4@gmail.com)

Learning Objectives:
1. To assess the most accurate and cost-effective imaging modality for planning lower limb revascularisation in patients with critical limb ischemia.
2. To discuss if and how diagnostic algorithms should be influenced by patient-specific factors.

RC 1315-2
Pro
R. Bokkers; Groningen/NL

Learning Objectives:
This house believes that Doppler US is the only imaging modality required to plan lower limb revascularisation.
Author Disclosures:
Reinoud P H Bokkers: Advisory Board: Guerbet LLC; Grant Recepient: Eureka, Horizon Europe. ZonMw (The Netherlands Organization for Health Research and Development). RVO (Dutch Ministry of Economic Affairs and Climate Policy). Siemens Healthineers (unrestricted research grant)

RC 1315-3
Con
S. Pradella; Florence/IT

Learning Objectives:
This house believes that Doppler US is NOT the only imaging modality required to plan lower limb revascularisation.

Panel discussion: Is it time to define patient-specific diagnostic algorithms to plan lower limb arterial revascularisation?

10:30-11:30 **Room K2**

Clinical Trials in Radiology

CTiR 13

Clinical Trials in Radiology 1

CTiR 13-1
Chairpersons' introduction
M. Dewey; Berlin/DE
N. I. Traykova; Plovdiv/BG
(nikoletatraikova@gmail.com)

CTiR 13-2
First results from the randomised controlled mammography screening with artificial intelligence trial (MASAI)
K. Lang[1], V. Josefsson[1], A-M. Larsson[1], H. Sartor[1], S. Larsson[1], C. Högberg[1], S. Saha[1], I. Andersson[1], A. Rosso[2]; [1]Lund/SE, [2]Malmö/SE

Purpose: To investigate the effect on early screening performance measures and workload in mammography screening with artificial intelligence (AI).
Methods or Backround: Screening participants in Southwest Sweden were randomised to double-reading without AI (standard of care, SoC) or to AI-integrated screening (1:1). In the intervention arm, screen exams were triaged to low- and high-risk groups based on AI-derived risk scores (ScreenPoint, Transpara v 1.7 score 1–9 and 10, respectively). Low-risk exams were single read and high-risk exams double read. Computer-aided detection marks were available for exams with risk score 8–10. Extra high-risk cases (top 1%) were flagged in the worklist. A per protocol analysis on screening safety was performed after 80,000 enrolled women. Early screening performance

measures and workload were compared using the Fisher exact test with 95% confidence intervals.
Results or Findings: 40,024 women were screened with SoC and 39,996 with AI-integrated screening. The mean age was 55.3 years in both arms. The intervention led to 44 additional recalls and 41 additional detected cancers. Recall rates for SoC and AI-screening were 2.0% (95% CI: 1.9; 2.2) vs. 2.2% (2.0; 2.3), a ratio of 1.06 (0.96; 1.16), P=0.278. Corresponding cancer-detection rates per 1000 were 5.1 (4.4; 5.8) vs. 6.1 (5.4; 6.9), a ratio of 1.20 (1.00; 1.45, P=0.052). The false-positive rate and the consensus-meeting rate was similar for both arms (1.5% and 3.9%). The screen-reading workload was reduced by 44.3% using AI.
Conclusion: This randomised-controlled trial has shown that mammography screening with AI can be performed at maintained low rates of consensus meetings, recalls and false positives, and with a potential increase in the cancer-detection rate, whilst substantially reducing the screen-reading workload.
Limitations: Single-institution trial.
Ethics committee approval: This study was approved by the Swedish Ethical Review Authority.
Funding for this study: Funding was received from The Swedish Cancer Society, Regional Cancer Registry in Collaboration, Lund University ALF-funds.
Author Disclosures:
Ingvar Andersson: Nothing to disclose
Aldana Rosso: Nothing to disclose
Viktoria Josefsson: Nothing to disclose
Anna-Maria Larsson: Nothing to disclose
Stefan Larsson: Nothing to disclose
Kristina Lang: Advisory Board: Siemens Healthineers
Sanjib Saha: Nothing to disclose
Hanna Sartor: Nothing to disclose
Charlotte Högberg: Nothing to disclose

CTiR 13-3
Discussant
T. Sella; Jerusalem/IL

CTiR 13-4
Tomosynthesis as a primary test for breast cancer screening: a multicentre randomised controlled trial (MAITA)
V. Iotti[1], P. Pattacini[1], A. Frigerio[2], L. Giordano[2], P. Mantellini[3], V. Magni[4], G. Romanucci[5], S. A. Montemezzi[5], P. Giorgi Rossi[1]; [1]Reggio Emilia/IT, [2]Turin/IT, [3]Florence/IT, [4]Milan/IT, [5]Verona/IT

Purpose: MAITA is a multicentric randomised trial comparing tomosynthesis (DBT) plus synthetic-2D mammography or digital mammography (DM) versus DM with respect to the incidence of advanced cancers (interval and following round) and interval cancers.
Methods or Backround: The investigators conduct four randomised trials (NCT02698202, NCT02590315, NCT03587259, NCT04461808) in five centres with the same protocol. Consenting women 45 to 69 years old were randomised in the DBT-arm or DM-arm and screened according to the randomisation arm for one round, then all with DM after two years. All examinations received double independent readings, with a third if discordant. Baseline results (detection and recall rate), interval cancers, and overall cumulative incidence after the second round of screening were reported.
Results or Findings: We enrolled 114,151 women (50,856 in the DBT-arm and 63,295 in the DM-arm) with baseline results available; interval cancers and cumulative incidence at the second round are now available for 100,743 women. At baseline detection rate was higher in the DBT-arm (0.79% vs. 0.52%; IRR 1.51 CI95% 1.31-1.75); recall rate was heterogeneously higher in the DBT-arm (5.84% vs 4.96; RR 1.18 CI95% 1.12-1.24). Interval cancer rate is similar in the two arms (0.15% vs 0.15%, IRR 0.93 CI95% 0.63-1.37); cumulative incidence showed an excess of 21% of cancers in the DBT-arm (RR 1.21 CI95% 1.09-1.35).
Conclusion: Despite 51% higher detection rate with DBT, interval cancer rate was similar in the two arms and cumulative incidence in the two rounds was still 20% higher. Our data suggest that DBT is more sensitive than DM in finding slowly developing lesions.
Limitations: Longer follow up is needed to assess the clinical importance of cancers detected by DBT and not visible at DM.
Ethics committee approval: MAITA has bee registred in ClinicalTrials.gov with ClinicalTrials.gov Identifier: NCT04461808. The Ethics committee approval of Comitato Etico Area Vasta Emilia Nord (AVEN) is n° 2018/0042332, approved the 13/04/2018. The amendments have been presented and approved the 15/10/2018 by Comitato Etico AVEN n° 2018/0114269.
Funding for this study: Funding was received from the Italian Public Ministry of Health (RF-2016-02363686).
Author Disclosures:
Valentina Iotti: Speaker: GE Healthcare Speaker: Bayer
Pierpaolo Pattacini: Nothing to disclose
Paola Mantellini: Nothing to disclose
Livia Giordano: Nothing to disclose
Giovanna Romanucci: Nothing to disclose
Alfonso Frigerio: Nothing to disclose
Stefania Anna Montemezzi: Nothing to disclose
Paolo Giorgi Rossi: Nothing to disclose
Veronica Magni: Nothing to disclose

CTiR 13-5
Discussant
M. Álvarez-Benito; Córdoba/ES
(marinaalvarezbenito@telefonica.net)

CTiR 13-7
Discussant
M. Dietzel; Erlangen/DE
Author Disclosures:
Matthias Dietzel: Board Member: European Journal of Radiology (EJR); CEO: School of Radiology (SOR), Radiologie Weiterbildung (RW); Founder: School of Radiology (SOR), Radiologie Weiterbildung (RW); Owner: School of Radiology (SOR), Radiologie Weiterbildung (RW)

CTiR 13-9
Discussant
V. Logager; Copenhagen/DK

10:30-11:30 **Room N**

Refresher Course: Musculoskeletal

RC 1310
Ultrasound in musculoskeletal radiology

RC 1310-1
Chairperson's introduction
A. S. Klauser; Innsbruck/AT

RC 1310-2
High-frequency and ultra-high frequency ultrasound
L. M. Sconfienza; Milan/IT
(io@lucasconfienza.it)

Learning Objectives:
1. To discuss the current advances in state-of-the-art high-frequency and ultra-high frequency ultrasound.
2. To discuss the main indications and clinical applications.
3. To demonstrate the ultrasound semiology of pathologic conditions.
Author Disclosures:
Luca Maria Sconfienza: Other: Financial relationships with Esaote SPA, Bracco Imaging Italia, Abiogen, Pfizer, Novartis, Janssen-Cilag, Samsung Medison, GE Medical, MSD, Merck Serono, R.A.W. Srl all unrelated to current presentation

RC 1310-3
MSK elastography
Z. Snoj; Ljubljana/SI

Learning Objectives:
1. To explain the techniques used in ultrasound elastography of the musculoskeletal system.
2. To describe ultrasound elastography findings in musculoskeletal radiology.

RC 1310-4
Interventional MSK ultrasound
E. E. Drakonaki; Iraklion/GR
(drakonaki@yahoo.gr)

Learning Objectives:
1. To discuss the indications for ultrasound-guided treatment and intervention.
2. To describe the prerequisites and technique.
3. To discuss the advantages and disadvantages of ultrasound-guided intervention compared to other imaging-guided modalities.
Author Disclosures:
Elena E. Drakonaki: Speaker: GE Healthcare workshop at ECR 2023

Panel discussion: New clinical roles for musculoskeletal ultrasound

10:30-11:30 **Studio**

Round Table Session

RT 13

How to optimise collaboration in cardiac imaging

RT 13-1
Chairpersons' introduction
C. Loewe; Vienna/AT
(christian.loewe@meduniwien.ac.at)
R. Vliegenthart; Groningen/NL
(r.vliegenthart@umcg.nl)

Learning Objectives:
1. To evaluate current practices in interpreting and reporting cardiac imaging.
2. To discuss the optimal means of ensuring the best outcomes for patients.
3. To consider the roles of different specialist groups in this discipline.
Author Disclosures:
Christian Loewe: Speaker: GE Healthcare, Siemens Healthineers, Bracco
Rozemarijn Vliegenthart: Research Grant/Support: Institutional research grants, Siemens Healthineers; Speaker: Bayer, Siemens Healthineers

RT 13-2
ESCR/ESR vision on cardiac radiology
R. Vliegenthart; Groningen/NL
(r.vliegenthart@umcg.nl)
Author Disclosures:
Rozemarijn Vliegenthart: Research Grant/Support: Institutional research grants, Siemens Healthineers; Speaker: Bayer, Siemens Healthineers

RT 13-3
Reporting cardiac CT and MR: a collaborative model
D. Kerins; Cork/IE
(d.kerins@ucc.ie)

RT 13-4
Training and expertise for cardiac imaging: how to define optimal standards
C. Loewe; Vienna/AT
(christian.loewe@meduniwien.ac.at)
Author Disclosures:
Christian Loewe: Speaker: GE Healthcare, Siemens Healthineers, Bracco

RT 13-5
Discussion
C. Loewe; Vienna/AT
(christian.loewe@meduniwien.ac.at)
R. Vliegenthart; Groningen/NL
(r.vliegenthart@umcg.nl)
D. Kerins; Cork/IE
(d.kerins@ucc.ie)
M. Okujava; Tbilisi/GE
(okujava@gmx.net)
S. E. Petersen; London/UK
T. Seyfarth; Erlangen/DE
C. Catalano; Rome/IT
(Carlo.Catalano@uniroma1.it)
Author Disclosures:
Christian Loewe: Speaker: GE Healthcare, Siemens Healthineers, Bracco
Rozemarijn Vliegenthart: Research Grant/Support: Institutional research grants, Siemens Healthineers; Speaker: Bayer, Siemens Healthineers
Steffen Erhard Petersen: Board Member: ESC and EACVI
Tobias Seyfarth: Employee: Siemens Healthineers
Carlo Catalano: Advisory Board: ESR

10:30-12:00 **Open Forum ESR at Work**

E³ - European Diploma Prep Session

E³ 1323

Neuro

E³ 1323-1
Chairperson's introduction
S. Van Cauter; Leuven/BE

E³ 1323-2
A. Congenital and white matter disorders of the brain
A. Rossi; Genoa/IT
(andrearossi@gaslini.org)

Learning Objectives:
1. To understand the development, normal anatomy, and normal variants of the brain.
2. To become familiar with common congenital disorders of the brain and neurocutaneous syndromes.
3. To learn the imaging features and differential diagnoses of white matter disease, inflammation, and neurodegeneration.

E³ 1323-3
B. Neurovascular disorders and trauma of the brain
M. Vernooij; Rotterdam/NL
(m.vernooij@erasmusmc.nl)

Learning Objectives:
1. To become familiar with the normal anatomy and normal variants of the craniocervical arterial and venous system.
2. To learn the causes and imaging features of stroke, haemorrhage, and other common vascular lesions of the brain, and their relevance to interventional neuroradiology.
3. To understand the imaging features of traumatic injury to the brain.
Author Disclosures:
Meike W. Vernooij: Board Member: I am Chair of EDiR's Written Evaluation Committee and Board Member of EDiR Scientific Board

E³ 1323-4
C. Tumours of the brain and spine
M. M. Thurnher; Vienna/AT

Learning Objectives:
1. To understand the normal anatomy and normal variants of the spine, spinal cord, and nerve roots.
2. To learn about the imaging features of benign and malignant tumours of the neurocranium.
3. To become familiar with the imaging features of benign and malignant tumours of the spine.
Author Disclosures:
Majda M. Thurnher: Speaker: Guerbet

10:30-12:00 **Open Forum Radiographers**

Professional Challenges Session

PC 13

Health and wellbeing of medical imaging professionals: can we do more?

PC 13-1
Chairpersons' introduction
J. McNulty; Dublin/IE
(jonathan.mcnulty@ucd.ie)
M. G. M. Hunink; Rotterdam/NL
Author Disclosures:
Myriam G. M. Hunink: Research Grant/Support: German Innovation Fund; Other: Royalties for textbook on Decision Making in Health and Medicine - Cambridge University Press

PC 13-2
Ergonomics and professional safety: what more can be done?
F. Serranheira; Lisbon/PT
(serranheira@ensp.unl.pt)

Learning Objectives:
1. To understand the relations between work and health/disease.
2. To explore interactions between people and their work.
3. To create awareness about why and how to improve the workplace (ergonomically) for all medical imaging professionals.

PC 13-3
Latest developments for safe manual handling: practises within medical imaging
C. Sá dos Reis; Lausanne/CH

Learning Objectives:
1. To identify the main sources of work-related musculoskeletal disorders for medical imaging professionals.
2. To explain the impact of work-related musculoskeletal disorders.
3. To discuss strategies for safe manual handling of patients and equipment in medical imaging departments.

PC 13-4
Supporting through innovation: improving the mental health of medical imaging professionals
P. Cornacchione; Rome/IT
(patriziacornacchione@gmail.com)

Learning Objectives:
1. To develop knowledge and skills to provide support for mental health.
2. To discuss the relevance of proactive mental health promotion.
3. To identify positive characteristics to foster mental health management.

Panel discussion: What practical measures need to be implemented to protect the health of medical imaging professionals?

Short mindfulness intervention

10:30-12:00 **Room A**

Special Focus Session

SF 13
Breast imaging through different phases of life

SF 13-1
Chairperson's introduction
R. M. Pijnappel; Utrecht/NL

SF 13-2
Imaging of women under 30
M. Sklair-Levy; Tel Aviv/IL
(mirisklair@gmail.com)

Learning Objectives:
1. To name and identify the normal anatomy in women under 30.
2. To list benign and malignant pathology.
3. To describe the imaging and diagnostic multimodality approach in women under 30.

SF 13-3
Imaging of the postoperative breast
N. A. Healy; Cambridge/UK
(nualahealy@gmail.com)

Learning Objectives:
1. To list the indications for performing postoperative imaging, particularly breast MRI.
2. To discuss issues and difficulties with performing breast MRI in the early postoperative period.
3. To describe and provide examples of the imaging features of breast cancer recurrence in the reconstructed breast.

SF 13-4
Imaging of elderly women
A. Tardivon; Paris/FR
(anne.tardivon@curie.net)

Learning Objectives:
1. To define the notion of elderly women.
2. To discuss the interest in a breast cancer screening strategy after 74 years.
3. To discuss imaging workup in elderly women with newly-diagnosed breast cancer.
4. To describe the different surveillance strategies in treated patients.

Panel discussion: Is breast density considered the same for the different phases of life?

10:30-12:00 **Room B**

E^3 - Advanced Courses: Interactive Teaching Sessions for Young (and not so Young) Radiologists

E^3 1321
New directions in cardiac imaging

E^3 1321-1
Mapping techniques for advanced tissue characterisation
J. Bremerich; Basle/CH

Learning Objectives:
1. To become familiar with the MRI physical principles and imaging protocols of parametric mapping.
2. To learn about the potential of multiparametric MRI in heart tissue characterisation.
3. To discuss the current challenges and future directions for heart tissue characterisation.
Author Disclosures:
Jens Bremerich: Advisory Board: Guerbet, SA; Speaker: Boehringer Ingelheim

E^3 1321-2
Cardiac arrhythmia and fusion imaging
A. Bulum; Zagreb/HR
(antonio.bulum@gmail.com)

Learning Objectives:
1. To learn about the prognostic impact of preoperative assessment of cardiac electromechanical dyssynchrony in patients scheduled for CRT-implantation.
2. To learn about the role of fusion on CT/MRI images and electrocardiographic data for atrial and ventricular scar identification as the source of the arrhythmia.
3. To understand how cardiac fusion imaging and heart 3D representation may aid electrophysiological invasive treatment in patients with arrythmogenic scars.

10:30-12:00 **Room C**

New Horizons Session

NH 13
MRI and CT functional imaging of the kidney

NH 13-1
Chairperson's introduction
R. J. Méndez; Madrid/ES
(ramiro.mendez@outlook.com)

NH 13-2
Spectral CT: applications in kidney masses characterisation
E. Danse, S. van Nieuwenhove; Brussels/BE
(etienne.danse@uclouvain.be)

Learning Objectives:
1. To list three different applications of spectral CT in kidney masses.

2. To differentiate incidental kidney masses from complicated cysts.
3. To apply spectral CT technology to classify the kidney masses.

NH 13-3
Functional renal MRI: how to do it, and where do we stand?
A. Ljimani; Düsseldorf/DE
(alexandra.ljimani@med.uni-duesseldorf.de)

Learning Objectives:
1. To provide an overview of the state-of-the-art and the clinical relevance of MRI biomarkers for renal diseases.
2. To summarise the current form of renal MRI contrasts (BOLD, ASL perfusion, diffusion) and next-level innovations refining their content.
3. To understand the possible utilisation of functional renal MRI in clinics.
4. To understand the need for biological validation of renal MR markers to clarify the link to biology and physiology.
5. To recognise the challenges of functional renal MRI.

NH 13-4
23Na-MRI for assessment of kidney function
A. M. Hötker; Zurich/CH

Learning Objectives:
1. To explain the basic concepts of 23Na MRI and the challenges it imposes in research and clinical routine.
2. To describe the potential of 23Na MRI in comparison to 1H MRI in assessing kidney function, in particular, measurement of the corticomedullary sodium gradient.
3. To reflect on potential clinical applications of 23Na MRI in acute and chronic kidney disease.

NH 13-5
Kidney segmentation in MRI techniques and clinical applications
F. G. Zöllner; Mannheim/DE
(frank.zoellner@medma.uni-heidelberg.de)

Learning Objectives:
1. To name and describe the use of renal volumes in functional renal imaging analysis.
2. To list different approaches to renal image segmentation.
3. To describe challenges and limitations in clinical translation.

Panel discussion: Functional imaging of the kidney. Is it time to move to clinical practice?

10:30-12:00 **Room D**

EIBIR Session

EIBIR 13

European Research Agenda for medical applications of ionising radiation: the EURAMED rocc-n-roll project

EIBIR 13-1
Chairperson's introduction
G. Frija; Paris/FR
(guyfrija@gmail.com)

EIBIR 13-2
Medical radiation application research needs and radiation protection
K. Riklund; Umea/SE
(katrine.riklund@umu.se)

Learning Objectives:
1. To learn about the need for research in the medical application of ionising radiation.
2. To appreciate radiation protection development for medical needs.
3. To understand the connection between the medical application and radiation protection.

Author Disclosures:
Katrine Riklund: Advisory Board: University of Nottingham Imaging External Advisory Board, Prismap, SAMIRA, PCCT Steering Committee GE Healthcare; Board Member: Dicom Port AB, Collective Minds Radiology AB, SciLifeLab Sweden; Research Grant/Support: Euramed rocc-n-roll NFRP-2019-2020 GA 899995, EuCanImage H2020-SC1-FA-DTS-2019-1 GA 952103, EUCAIM DIGITAL-2022-CLOUD-AI-02 GA 101100633

EIBIR 13-3
Links between centres of excellence and research infrastructures for the field of medical applications of ionising radiation research
J.-M. Dolo; Gif sur Yvette/FR

Learning Objectives:
1. To learn about the actual landscape of the research ecosystem between centres of excellence (CoE) and research infrastructures (RI) for medical applications of ionising radiation.
2. To appreciate the organisational challenges in Europe through a SWOT analysis.
3. To understand the needs and issues of CoE for a structuring research area based on the recommendations proposed through the identified research priorities.

EIBIR 13-4
Generating a framework for improved transfer of knowledge to industry and clinical routine
C. Hoeschen; Magdeburg/DE
(christoph.hoeschen@ovgu.de)

Learning Objectives:
1. To learn about the problems in the transfer and translation of developments and research findings from various projects into industrial products and finally clinical use.
2. To appreciate the approaches of the EURAMED rocc-n-roll project to help overcome the problems with transfer and translation based on surveys and analyses carried out by the project.
3. To become familiar with a newly developed framework based on the evaluations for overcoming or easing legal aspects of medical technologies using ionising radiation as well as reducing the problems to translate new methodologies into clinical practice using standardised approaches, including possibilities for improving evidence of corresponding studies and facilitate the applicability of new procedures.

EIBIR 13-5
A consensus-based European Strategic Research Agenda for medical applications of ionising radiation
C. Hoeschen; Magdeburg/DE
(christoph.hoeschen@ovgu.de)

Learning Objectives:
1. To learn what a strategic research agenda is, what purposes it has and what the EURAMED rocc-n-roll project will develop to state research priorities for medical applications of ionising radiation.
2. To appreciate the proposed content and topics which will focus on medical applications and integrate the main contributions from related topics like medical radiation protection, infrastructures, digitalisation, etc.
3. To understand that the EURAMED rocc-n-roll SRA promotes a patient-centric approach to all proposed research and development ideas and will thus focus on personalised medicine and how it can benefit from new approaches to and developments in imaging and therapy applications of ionising radiation.

EIBIR 13-6
Statement on the EC perspective and SAMIRA context
G. Simeonov; Luxembourg/LU
(georgi.simeonov@ec.europa.eu)

Discussion

10:30-12:00 **Room E2**

E³ - Advanced Courses: Radiology of the Afterlife

E³ 1322

Radiological imaging and the humanities

E³ 1322-1
Chairperson's introduction
W. M. Klein; Nijmegen/NL
(willemijn.klein@radboudumc.nl)

Learning Objectives:
Radiology techniques are not only used in clinical settings but can also be surprisingly valuable for non-living or dead objects, such as paintings and musical instruments.

E³ 1322-2
Paintings: imaging in the study of art
M. Alfeld; Delft/NL

E³ 1322-3
Radiology at the museum: from objects to historical figures as patients
P. Charlier; Paris/FR
(ph_charlier@yahoo.fr)

E³ 1322-4
CT of musical instruments
F. A. Pameijer; Utrecht/NL
(f.a.pameijer@umcutrecht.nl)

Panel discussion: Future directions and suggestions for the non-medical use of radiological modalities

10:30-12:00 **Room G1**

E³ - Advanced Courses: Prenatal, Neonatal, Paediatric Imaging

E³ 1318
Foetal imaging and intervention

E³ 1318-1
Chairperson's introduction
E. Vázquez; Barcelona/ES
(elida.vazquez@vallhebron.cat)

E³ 1318-2
Assessing perinatal neurodevelopment
G. Kasprian; Vienna/AT
(gregor.kasprian@meduniwien.ac.at)

Learning Objectives:
1. To discuss the concept of “MR phenotyping” of neurodevelopmental disorders.
2. To be familiar with potential prognostic findings on prenatal imaging.
3. To understand the MR imaging phenotype of infection with SARS-CoV-2 during pregnancy
Author Disclosures:
Gregor Kasprian: Grant Recepient: FA771E0315, PURPOSE, BIO PSYC; Investigator: Pimiento/WWTF

E³ 1318-3
Foetal MRI: finding the keys to genetic diagnosis
M. Rebollo Polo; Barcelona/ES
(Monica.RebolloPolo@hcuge.ch)

Learning Objectives:
1. To review the main prenatal genetic testing currently available: advantages and disadvantages.
2. To introduce the concept of “prenatal phenotyping” in the context of “Human Phenotype Ontology”: searching the appropriate terminology.
3. To discuss the potential added value of deep phenotyping with targeted ultrasound, fetal and postmortem MRI.

E³ 1318-4
Minimally invasive foetal surgery
M. Aertsen; Leuven/BE
(michael.aertsen@uzleuven.be)

Learning Objectives:
1. To chose the appropriate sequences before and after fetal surgery.
2. To describe the most common associated brain abnormalities in spina bifida before and after surgery and complicated monochorionic diamniotic pregnancies.
3. To describe the relevant findings in congenital diaphragmatic hernia, including lung volumetry.

10:30-12:00 **Room O**

Trainees in Focus

IF 13
What are the key ingredients of a successful imaging-based multidisciplinary meeting?

IF 13-1
Chairperson's introduction
E. Neri; Pisa/IT
(emanuele.neri@med.unipi.it)

Learning Objectives:
Residents will become familiar with the key ingredients to prepare and operate a successful multidisciplinary tumour board. They will understand what the referrer needs to know and what the referrer expects, the importance of speaking a common language, and why it is essential to have good background knowledge. They will equally learn about the daily practical issues required for a successful tumour board.
Author Disclosures:
Emanuele Neri: Speaker: GE Healthcare, Bayer

IF 13-2
Please understand my questions: what the referrer needs from the radiologist
G. L. Beets; Amsterdam/NL
(g.beets@nki.nl)

Learning Objectives:
1. To understand the point of view and expectations of the clinician.
2. To appreciate the importance of the radiologists' clinical background knowledge.

IF 13-3
A good answer requires a good question: what the radiologist needs from the referrer
E. Neri; Pisa/IT
(emanuele.neri@med.unipi.it)

Learning Objectives:
1. To appreciate the importance of detailed information.
2. To understand the difficulties involved with external image files.
Author Disclosures:
Emanuele Neri: Speaker: GE Healthcare, Bayer

IF 13-4
How to prepare and operate a successful tumour board
C. Dromain; Lausanne/CH
(Clarisse.Dromain@chuv.ch)

Learning Objectives:
1. To learn about the practical issues of a multidisciplinary tumour board.
2. To appreciate the importance of good preparation.

Panel discussion: What are the key ingredients of a successful imaging-based multidisciplinary meeting?

12:30-13:30 **Open Forum ESR at Work**

Open Forum Session

OF 14E
Clinical audit in diagnostic radiology

OF 14E-1
Chairperson's introduction
R. Klöckner; Mainz/DE
(roman.kloeckner@uksh.de)
Author Disclosures:
Roman Klöckner: Advisory Board: Boston Scientific, Bristol-Myers Squibb, Guerbet, Roche, and SIRTEX; Speaker: BTG, EISAI, Guerbet, Ipsen, Roche, Siemens, SIRTEX, and MSD Sharp & Dohme

OF 14E-2
What is a clinical audit and why is it important in diagnostic radiology?
N. Reynders-Frederix; Brussels/BE

Learning Objectives:
1. To understand the concept behind a clinical audit, why it is important and what types of problems it addresses.
2. To learn the key ingredients of a successful audit as an effective quality improvement tool.

OF 14E-3
The ESR Esperanto project
D. C. Howlett; Eastbourne/UK

Learning Objectives:
1. To learn about the key features of the Esperanto audit tool of the ESR.
2. To understand how the new Esperanto tool can be applied in clinical practice.

OF 14E-4
My personal experience with an audit in diagnostic radiology
D. Katsifarakis; Athens/GR
(dikatsifarakis@gmail.com)
H. Bailey; Manchester/UK
(Helen.Bailey@wwl.nhs.uk)

Learning Objectives:
1. To describe the key elements an external auditor should focus on.
2. To learn what a department should expect from an audit process.
3. The reality of clinical audit and quality improvement projects in a UK radiology training post.

Open forum discussion: How to increase engagement and impact of clinical audit in radiology?

12:30-13:30 **Open Forum Radiographers**

Open Forum Session

OF 14R
The path to becoming a successful radiographer

OF 14R-1
Chairperson's introduction
A. Matjašič; Ljubljana/SI

Learning Objectives:
1. To present experiences and challenges of becoming the most influential radiographer.
2. To discuss experiences and challenges of becoming a successful research radiographer.
3. To discuss radiographer pathways for becoming involved in national and international organizations.

OF 14R-2
How to become the most influential radiographer?
J. McNulty; Dublin/IE
(jonathan.mcnulty@ucd.ie)

OF 14R-3
How to become a successful research radiographer?
B. R. Mussmann; Odense/DK
(bo.mussmann@rsyd.dk)

OF 14R-4
How to contribute to national and international organisations as a radiographer?
G. Paulo; Coimbra/PT
(gpaulo@icloud.com)

Open forum discussion

12:30-13:30 **Open Forum Trainees**

Open Forum Session

OF 14T
How to improve your PET-CT reports

OF 14T-1
Chairperson's introduction
A. Brady; Cork/IE
(adrianbrady@me.com)

Learning Objectives:
The PET-CT session will consist of a 15- minute lecture on how to improve PET-CT reports, followed by a 45- minute interactive discussion of reports and how to improve them. Audience participation will be encouraged, with many opportunities for a dynamic back-and-forth discussion between members of the audience and speakers.

OF 14T-2
Tips on improving your PET-CT reports
T. Wagner; London/UK
(Thomas.Wagner@nhs.net)

Learning Objectives:
1. To write concise and clear reports answering the clinical question.
2. To summarise complex findings and create a well-structured interpretation with clear recommendations.

OF 14T-3
Short cases review, interactive discussion and critiquing of reports
T. Wagner; London/UK
(Thomas.Wagner@nhs.net)

Learning Objectives:
1. To critique reports and suggest ways of improving them.
2. To discuss various ways to adapt reports to the clinical context, the findings and the referring team.

12:30-13:30 **Room A**

E^3 - The Beauty of Basic Knowledge: Screening

E^3 25C
Breast cancer screening

E^3 25C-1
Chairperson's introduction
B. Brkljačić; Zagreb/HR
(boris@brkljacic.com)

Learning Objectives:
At the end of this session, the participants will have gained knowledge about the benefit-to-harm ratio of risk-stratified screening for breast cancer. They will be able to appropriately use the different imaging modalities. Lastly, they will understand how artificial intelligence may improve screening performance.

E^3 25C-2
The pros and cons of breast cancer screening in the general population
F. J. Gilbert; Cambridge/UK
(fjg28@cam.ac.uk)

Learning Objectives:
1. To learn about the effectiveness of screening, summary of meta-analysis.
2. To be aware of the overdiagnosis risk.
Author Disclosures:
Fiona J. Gilbert: Consultant: Google; Research Grant/Support: GE Healthcare, Bracco, Hologic, Lunit

E^3 25C-3
Breast cancer screening: which modalities?
P. A. T. Baltzer; Vienna/AT

Learning Objectives:
1. To review the performance of mammography, digital tomosynthesis and ultrasound.
2. To understand breast density implication on screening modalities.
Author Disclosures:
Pascal A.T. Baltzer: Grant Recepient: Competitive and industry (BRACCO) funding for research on CEM screening

E³ 25C-4
Breast cancer screening using MRI
R. M. Mann; Nijmegen/NL
(r.mann@rad.umcn.nl)

Learning Objectives:
1. To learn about the target population.
2. To learn about the stage shift with MRI screening.
3. To review optimised abbreviated protocols.
Author Disclosures:
Ritse Maarten Mann: Board Member: EUSOBI; Research Grant/Support: Siemens, Bayer, Screenpoint, BD, Medtronic, Koning, Seno, PA Imaging

E³ 25C-5
Breast screening and artificial intelligence (AI): what can we expect?
I. Thomassin-Naggara; Paris/FR
(isabelle.thomassin@tnn.aphp.fr)

Learning Objectives:
1. To learn how to use AI model in clinical practice.
2. To be aware of the current limitations of AI.
3. To understand about the evaluation of AI solutions (DRIM IA initiative).
Author Disclosures:
Isabelle Thomassin-Naggara: Advisory Board: Bayer, Bracco, Guerbet, Bard; Speaker: GE, Siemens, Hologic, Canon, Guerbet, Fujifilm, ICAD incepto, GSK

12:30-13:30 **Room B**

E³ - The Beauty of Basic Knowledge: Sports Injuries

E³ 24B
Muscle and bone in the athlete

E³ 24B-1
Chairperson's introduction
F. M. H. M. Vanhoenacker; Antwerp/BE

Learning Objectives:
Muscle and bone are fundamental to the mechanics of movement required for all sporting activities. In the first presentation, the features of the paediatric skeleton will be highlighted, which make it vulnerable to avulsion injuries. Common avulsion sites will be reviewed, and their imaging features will be described. Grading muscle injury is important when predicting the ability of an athlete to return to play. The important features of muscle injury that need to be identified on imaging will be discussed in the second presentation. Finally, the third presentation will focus on the mature skeleton and the imaging features of stress injury. In common with all the sessions in this course, each speaker will also be asked to present a case that they have learned from in their career on any sports imaging topic. Having presented the case, the speaker will explain what made that case a learning experience.

E³ 24B-2
Avulsion injury and the paediatric skeleton
A. P. Toms; Norwich/UK

E³ 24B-3
A sports injury I learned from
A. P. Toms; Norwich/UK

E³ 24B-4
Muscle injury, diagnosis and grading
M. Tzalonikou; Athens/GR
(tzalonikou3@gmail.com)

E³ 24B-5
A sports injury I learned from
M. Tzalonikou; Athens/GR
(tzalonikou3@gmail.com)

E³ 24B-6
Stress fractures in the mature skeleton
F. M. H. M. Vanhoenacker; Antwerp/BE

E³ 24B-7
A sports injury I learned from
F. M. H. M. Vanhoenacker; Antwerp/BE

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

Refresher Course: Chest

RC 1404
Artificial intelligence (AI) and technological improvements in chest imaging: the transition from research to practice

RC 1404-1
Chairperson's introduction
J. Biederer; Heidelberg/DE
(juergen.biederer@gmx.net)
Author Disclosures:
Jürgen Biederer: Research Grant/Support: Siemens, Bayer; Speaker: Roche, Boehringer Ingelheim, Fuji

RC 1404-2
AI in chronic obstructive pulmonary diseases (COPD)
M. de Bruijne; Rotterdam/NL

Learning Objectives:
1. To learn about AI techniques used to quantify emphysema and airway properties in chest CT.
2. To learn how AI can help in the diagnosis and prognosis of patients with COPD.
3. To understand the current limitations of AI in COPD.

RC 1404-3
AI in interstitial lung diseases
G. Chassagnon; Paris/FR

Learning Objectives:
1. To understand the processes by which computers learn lung CT patterns.
2. To understand the potential applications of AI for ILD.
3. To understand the advantages of computer analysis of CTs over visual CT analysis.
Author Disclosures:
Guillaume Chassagnon: Consultant: Gleamer; Speaker: Chiesi, Boehringer

RC 1404-4
AI in lung cancer
J. B. Seo; Seoul/KR

Learning Objectives:
1. To understand the current status of AI applications in lung cancer imaging.
2. To learn how to improve the detection of lung nodules in lung cancer CT screening using AI.
3. To learn how to use AI combined with radiomics in the characterisation of lung nodules and lung cancer staging.
Author Disclosures:
Joon Beom Seo: Founder: co-founder of Promedius co. Korean Medical AI company; Share Holder: Coreline Soft Co / Promedius Co / Anymedi Co

Panel discussion: Clinical applications of AI in thoracic imaging

12:30-13:30 **Room G2**

Refresher Course: Imaging Informatics / Artificial Intelligence and Machine Learning

RC 1405

Structured reporting: ready for clinical routine?

RC 1405-1
Chairperson's introduction
S. Bisdas; London/UK

RC 1405-2
Why and how to integrate structured reporting in clinical routine
L. Faggioni; Pisa/IT
(lfaggioni@sirm.org)

Learning Objectives:
1. To learn about the benefits of structured reporting for diagnosis.
2. To appreciate the benefits of structured reporting in the communication with referrers and patients.
3. To understand the challenges of integrating structured reporting in clinical workflows.
4. To review existing solutions for structured reporting and template collections.

RC 1405-3
How to develop well-structured report templates for a multidisciplinary environment
M. Huisman; Utrecht/NL

Learning Objectives:
1. To understand the challenges of integrating structured reporting in clinical workflows.
2. To provide suggestions for the advantages and efficient use of structured reporting in tumour MDTs.
3. To review successful real-world implementations in different organ systems.
Author Disclosures:
Merel Huisman: Board Member: EuSoMII; Employee: Radboud UMC

RC 1405-4
Is there a place for structured reporting in interventional radiology?
I. Bargellini; Pisa/IT
(irenebargellini@hotmail.com)

Learning Objectives:
1. To learn about the specifics of using structured reporting pertaining to interventional radiology.
2. To understand the value of structured reporting in the follow-up and adverse events documentation.
3. To appreciate the evolving paradigm in a real-world setting and upcoming advances.

Panel discussion: Where does the radiologist meet the clinician when it comes to structured reporting?

12:30-13:30 **Room K1**

Refresher Course: Hybrid, Molecular and Translational Imaging

RC 1406

Pros and Cons: Total-body and long axial field of view (LAFOV) PET/CT are an imaging revolution

RC 1406-1
Chairperson's introduction
T. Beyer; Vienna/AT
(thomas.beyer@meduniwien.ac.at)
Author Disclosures:
Thomas Beyer: CEO: Dedicaid GmbH; Founder: Dedicaid GmbH; Research Grant/Support: Siemens Healthineers

RC 1406-2
Pro
B. M. Fischer; Copenhagen/DK

Learning Objectives:
This house believes that total-body and LAFOV PET/CT are an imaging revolution.
Author Disclosures:
Barbara Malene Fischer: Grant Recepient: Novo Nordic Foundation; Speaker: Siemens Healthineers

RC 1406-3
Con
S. G. Nekolla; Munich/DE

Learning Objectives:
This house believes that total-body and LAFOV PET/CT are NOT an imaging revolution.

Panel discussion: Total-body and LAFOV PET/CT: revolution or just more of the same?

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

Trainees in Focus

IF 14

The cycle of life in IR – How to remain entertained

IF 14-1
Chairpersons' introduction
M. de Bucourt; Berlin/DE
M. Krokidis; Athens/GR

IF 14-2
Teaching is entertaining - the IR academy
J. Theysohn; Essen/DE

IF 14-3
Academic IR - a contradiction by itself?
U. Fehrenbach; Berlin/DE

IF 14-4
Combination of diagnostic and intervention - the Vienna model
F. Wolf; Vienna/AT

IF 14-5
Serving many countries - my IR career pathway
M. Krokidis; Athens/GR

IF 14-6
Three university campuses one IR - the Berlin infrastructure
M. de Bucourt; Berlin/DE

IF 14-7
Panel discussion

14:00-15:00 **Open Forum ESR at Work**

EDiR Session

Organised by the European Board of Radiology (EBR)

EDiR 15

EDiR simulation session: real exam cases with feedback from the examiners – paediatric radiology

EDiR 15-1
Chairperson's introduction
L. Oleaga Zufiría; Barcelona/ES
(lauraoleaga@gmail.com)

EDiR 15-2
EDiR simulation
L. Beer; Vienna/AT
(Lucian.beer@meduniwien.ac.at)
E. Twomey; Dublin/IE
(eilish.twomey@cuh.ie)

Learning Objectives:
1. To experience a slightly different kind of EDiR; multiple response questions, short cases, and clinically oriented reasoning evaluation (CORE) cases as you would find in an actual exam but with a focus on a subspecialty.
2. To analyse and solve theoretical and hands-on cases.
3. To become familiar with the clue patterns of the EDiR questions.
4. To gain knowledge about the most challenging cases of this simulation.
5. To understand and assimilate the fundamentals of a subspecialty.
6. To learn the most relevant EDiR educational tools.

Scientific discussion and Q&A

14:00-15:00 **Open Forum Radiographers**

Open Forum Session

OF 15R

How to develop a successful academic career

OF 15R-1
Chairperson's introduction
N. Mekis; Ljubljana/SI
(nejc.mekis@zf.uni-lj.si)

Learning Objectives:
1. To present experiences and challenges of undertaking an academic radiographer career.
2. To identify and discuss how to overcome challenges of being an academic radiographer.
3. To motivate radiographers towards an effective academic career.
Author Disclosures:
Nejc Mekis: Other: Scientific subcommittee co-chair

OF 15R-2
How and where to start an academic career as a radiographer?
J. Santos; Coimbra/PT
(joanasantos@estescoimbra.pt)

OF 15R-3
What are the challenges of an academic career?
M. F. McEntee; Cork/IE
(mark.mcentee@ucc.ie)

OF 15R-4
What are the pros and cons of an academic career in radiography?
A. England; Cork/IE
(aengland@ucc.ie)
Author Disclosures:
Andrew England: Board Member: EFRS; Other: ECR 2023 PPC

Open forum discussion

14:00-15:00 **Open Forum Trainees**

Open Forum Session

OF 15T

How to report MSK MRI studies

OF 15T-1
Chairperson's introduction
A. Brady; Cork/IE
(adrianbrady@me.com)

Learning Objectives:
The MSK session will consist of a 15-minute lecture on how to improve musculoskeletal imaging reports, followed by a 45- minute interactive discussion of reports and how to improve them. Audience participation will be encouraged, with many opportunities for a dynamic back-and-forth discussion between members of the audience and speakers.

OF 15T-2
Tips on improving your MSK reports
J. F. Griffith; Hong Kong/CN
(griffith@cuhk.edu.hk)

Learning Objectives:
1. To learn how to improve report readability.
2. To understand the importance of clear, clinically relevant reports.

OF 15T-3
Short cases review, interactive discussion and critiquing of reports
J. F. Griffith; Hong Kong/CN
(griffith@cuhk.edu.hk)

Learning Objective:
1. To appreciate that report writing is a lifelong evolving process that benefits from constructive criticism and recommendation.

14:00-15:00 **Room K2**

Refresher Course: Hybrid, Molecular and Translational Imaging

RC 1506

Artificial intelligence is here: have you noticed?

RC 1506-1
Chairperson's introduction
I. Buvat; Orsay/FR
(irene.buvat@u-psud.fr)
Author Disclosures:
Irène Buvat: Board Member: Journal of Nuclear Medicine, European Journal of Nuclear Medicine and Molecular Imaging, Molecular Imaging and Biology; Research Grant/Support: Siemens Healthineers, GE Healthcare, Dosisoft

RC 1506-2
AI: just another tool in the radiologists toolbox
T. Küstner; Tübingen/DE
(thomas.kuestner@med.uni-tuebingen.de)

Learning Objectives:
1. To learn about the fundamental processes and technical aspects of AI.
2. To learn about current AI solutions in image reconstruction and image processing.
3. To discuss the potential challenges and risks of AI in clinical practice.

RC 1506-3
AI in imaging before it reaches the radiologist
F. L. Andersen; Copenhagen/DK

Learning Objectives:
1. To learn about the limitations of state-of-the-art image reconstruction.
2. To learn about how AI can be used in image reconstruction and how it can use multi-modal information (e.g., inclusion of anatomical data from MRI).
3. To learn about future AI directions for image reconstruction.

RC 1506-4
AI as a tool to assist the radiologist
V. J. Goh; London/UK
(vicky.goh@kcl.ac.uk)

Learning Objectives:
1. To learn about the current status of AI in image analysis and reading.
2. To learn about the current status of AI in imaging to improve patient management.
3. To discuss how AI will affect clinical radiology: positively or negatively?
Author Disclosures:
Vicky Goh: Research Grant/Support: Siemens Healthineers

Panel discussion: Will AI enhance radiologist skills and improve patient management?

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

E³ - Young ECR Programme: Radiology Trainees Forum (RTF)

RTF Quiz
X-Men: the emergency game

Quiz Masters
M. Francone; Milan/IT
(marco.francone@hunimed.eu)
A. Jacquier; Marseille/FR
(alexis.jacquier@ap-hm.fr)

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

Multidisciplinary Session

MS 15
Rectal cancer: Watch and Wait treatment - a multidisciplinary approach

MS 15-1
Chairperson's introduction
R. G. H. Beets-Tan; Amsterdam/NL
(r.beetstan@nki.nl)

Learning Objectives:
The session aims to provide information on new treatment options (organ preservation) for rectal cancer patients. The attendees will learn about these patients' selection and monitoring tools and the role of MR imaging. Based on case discussions, the attendees will learn how to interpret MRI and how MRI would impact treatment decisions.

MS 15-2
Watch and Wait treatment in 2023: what should radiologists know
G. L. Beets; Amsterdam/NL
(g.beets@nki.nl)

Learning Objectives:
1. To learn about non-surgical organ preserving treatment.
2. To understand when and how to treat regrowth during follow-up of patients.
3. To understand the optimal follow-up schedule during Watch and Wait.

MS 15-3
Detection of regrowth: how do we do that
M. Maas; Amsterdam/NL
(moniquemaas@live.nl)

Learning Objectives:
1. To know the role of MRI in selecting for Watch and Wait.
2. To know how MRI performs in the detection of regrowth.
3. To learn how to interpret MRI and ist pitfalls for detection of regrowth.

MS 15-4
Multidisciplinary case presentation and discussion
R. G. H. Beets-Tan; Amsterdam/NL

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

Special Focus Session

SF 15
The lasting effect of COVID-19

SF 15-1
Chairperson's introduction
A. R. Larici; Rome/IT
(annarita.larici@unicatt.it)

SF 15-2
Long COVID-19 in thoracic imaging
N. Sverzellati; Parma/IT

Learning Objectives:
1. To define which patients may benefit from imaging after COVID-19.
2. To learn about the correct terminology in reporting computed tomography (CT) scans in patients with post-COVID-19 sequelae.
3. To improve the interpretation of serial CT changes of long COVID-19.

SF 15-3
COVID-19: always in my heart?
J. A. Luetkens; Bonn/DE
(julian.luetkens@ukbonn.de)

Learning Objectives:
1. To learn about cardiac complications associated with COVD-19 infection.
2. To increase knowledge on imaging protocols for detection of myocardial pathologies after COVID-19 infection.
3. To describe the prognostic value of noninvasive cardiac imaging in patients with long COVID-19 disease.

SF 15-4
Lasting neurological sequelae following COVID-19
D. Kozić; Novi Sad/RS
(dusko.b.kozic@gmail.com)

Learning Objectives:
1. To describe the follow-up of severe neurological forms of COVID-19.
2. To discuss the possible consequences of mild Sars-Cov-2 infections on brain imaging.
3. To summarise the main radiological data of long COVID-19.

Panel discussion: Long COVID-19? That is the question

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

E³ - Young ECR Programme: Basic Sessions

Organised by the ESR

BS 15
Abdominal viscera: imaging the liver

BS 15-1
Chairperson's introduction
N. Kartalis; Stockholm/SE
Author Disclosures:
Nikolaos Kartalis: Other: Institutional consultation fees by Bayer and Ascelia Pharma

BS 15-2
Imaging diffuse liver disease
M. Ronot; Clichy/FR
(maxime.ronot@aphp.fr)

Learning Objectives:
1. To present the current imaging techniques for evaluating diffuse liver disease.
2. To describe the typical imaging features of diffuse liver disease.

BS 15-3
Imaging of cystic liver lesions
V. Vilgrain; Clichy/FR

Learning Objectives:
1. To present the current imaging techniques for evaluating cystic liver lesions.
2. To become familiar with the typical imaging findings of cystic liver lesions.

BS 15-4
Imaging of solid liver lesions
G. Brancatelli; Palermo/IT
(gbranca@yahoo.com)

Learning Objectives:
1. To present the current imaging techniques for solid liver lesions.
2. To become familiar with the typical imaging findings of solid liver lesions.

14:00-15:30 **Room E1**

E³ - Advanced Courses: Young Adults, Fitness and Sports

E³ 1519
Sports trauma in young adults

E³ 1519-1
Chairperson's introduction
P. Robinson; Leeds/UK
(philip.robinson10@nhs.net)

E³ 1519-2
Overuse injuries
C. W. A. Pfirrmann; Zurich/CH

Learning Objectives:
1. To learn about the sport-specific patterns of overuse injuries in young adults.
2. To name and identify sites where overuse injuries in adolescent athletes occur.
3. To be able to recommend the appropriate imaging modality for a specific clinical problem in young athletes.

E³ 1519-3
Anterior cruciate ligament (ACL) injuries in young athletes
A. P. Parkar; Bergen/NO
(apparkar@gmail.com)

Learning Objectives:
1. To understand how ACL injuries in the young differ from adults.
2. To know which ACL-related injuries to look for in young athletes.
3. To know about the issues regarding surgical treatment of young athletes.

E³ 1519-4
Postoperative imaging of sports injuries
P. Omoumi; Lausanne/CH
(patrick.omoumi@chuv.ch)

Learning Objectives:
1. To describe the main surgical procedures performed in shoulder and knee pathology in young athletes.
2. To differentiate the regular appearance of postoperative imaging from pathology in this context.
3. To summarise and report findings relevant to the surgeon.

E³ 1519-5
Case-based panel discussion: Treasure trove, our best cases
P. Robinson; Leeds/UK
(philip.robinson10@nhs.net)

14:00-15:30 **Room E2**

E³ - Advanced Courses: Radiology of the Afterlife

E³ 1522
Forensic radiology

E³ 1522-1
Chairperson's introduction
L. Boel; Aarhus/DK
(lwb@forens.au.dk)

Learning Objectives:
In criminal law, radiology has proven to be very useful and can serve as evidence, demonstrating the injuries and suggesting the cause and manner of death.

E³ 1522-2
The use of radiology in body findings
D. Gascho; Zurich/CH
(dominic.gascho@irm.uzh.ch)

E³ 1522-3
Radiology as evidence in criminal lawsuits
J. Kroll; Maastricht/NL

E³ 1522-4
Non-accidental imaging, paediatric forensic radiology
R. R. van Rijn; Amsterdam/NL
Author Disclosures:
Rick R. Van Rijn: Author: Upcoming second edition: Forensic aspect of paediatric fractures - Publisher: Springer

E³ 1522-5
Penetrating trauma
C. Offiah; London/UK
(c.offiah@nhs.net)

Panel discussion: How hard/worthy is the radiological evidence?

14:00-15:30 **Room G1**

E³ - Advanced Courses: Prenatal, Neonatal, Paediatric Imaging

E³ 1518
Perinatal imaging and intervention (including foetal virtopsy and imaging/IR for placental problems)

E³ 1518-1
Chairperson's introduction
M. Rebollo Polo; Barcelona/ES
(Monica.RebolloPolo@hcuge.ch)

E³ 1518-2
Why we should image the placenta with MR
L. Manganaro; Rome/IT
(lucia.manganaro@uniroma1.it)

Learning Objectives:
1. To describe the placenta accreta spectrum.
2. To assess the impact of MRI findings in the diagnosis of placental adhesion disorders and the choice of delivery management.
3. To observe the impact of diffusion-weighted imaging in the evaluation of placenta in fetuses with intrauterine growth restriction.

E³ 1518-3
Foetal postmortem imaging: an overview of current techniques and future perspectives
O. J. Arthurs; London/UK

Learning Objectives:
1. To understand the utility of XR, CT, and MR in fetal PM imaging.
2. To be familiar with indications for imaging use in different scenarios.
3. To understand where advanced techniques such as Micro CT may help.

E³ 1518-4
How to build a multidisciplinary perinatal group?
R. Llorens; Valencia/ES

Learning Objectives:
1. To understand the importance of the multidisciplinary approach in perinatal medicine.
2. To learn how to organise a perinatal multidisciplinary team, including several medicine specialists.
3. To see how experts from different specialities come together to make a definitive diagnosis and care plan for patients with fetal anomalies.

14:00-15:30 **Room K1**

E³ - Advanced Courses: Interactive Teaching Sessions for Young (and not so Young) Radiologists

E³ 1521b
Family cancer syndromes

E³ 1521b-1
HBOC syndrome and beyond
F. J. Gilbert; Cambridge/UK
(fjg28@cam.ac.uk)

Learning Objectives:
1. To illustrate the spectrum of genetic mutations responsible for HBOC.
2. To become familiar with the appropriate imaging studies in HBOC.
3. To learn how to integrate different imaging techniques.
Author Disclosures:
Fiona J. Gilbert: Equipment Support Recipient: GE Healthcare; Research Grant/Support: GE Healthcare, Bracco, Hologic; Speaker: GE Healthcare

E³ 1521b-2
Multiple endocrine neoplasia (MEN)
G. Zamboni; Verona/IT
(gzamboni@hotmail.com)

Learning Objectives:
1. To became familiar with the spectrum of manifestations of MEN syndromes.
2. To illustrate with the imaging features of MEN.
3. To correlate the imaging findings with the pathologic diagnosis.

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

E³ - Advanced Courses: Imaging of Ageing

E³ 1520
The pathology of the ageing brain

E³ 1520-1
Chairperson's introduction
A. van der Hoorn; Groningen/NL
(a.van.der.hoorn@umcg.nl)

E³ 1520-2
Imaging of amyloid-related diseases of the central nervous system
H. R. Jäger; London/UK
(r.jager@ucl.ac.uk)

Learning Objectives:
1. To describe the characteristic imaging findings of cerebral amyloid angiopathy to the updated Boston criteria.
2. To understand the connection between cerebral amyloid angiopathy and Alzheimer's disease.
3. To be aware of the spectrum of clinical presentations in amyloid-related disease, including acute presentations such as CAA related inflammations.

E³ 1520-3
Multimodality imaging of other types of neurodegenerative disorders
F. Barkhof; Amsterdam/NL
(f.barkhof@vumc.nl)

Learning Objectives:
1. To understand the strengths and weaknesses of structural MRI in dementia.
2. To learn the indications for molecular imaging and biomarker assessments.
3. To appreciate the heterogeneity of Alzheimer's disease and its differential diagnosis.
4. To be able to perform a structured report on suspected dementia.
Author Disclosures:
Frederik Barkhof: Advisory Board: Biogen, Merck, Combinostics, Prothena, Eisai; Board Member: Queen Square Analytics; Consultant: Celltrion, IXICO, Roche; Grant Recepient: EU-IMI, EPSRC, UK-MSS; Research Grant/Support: GE healthcare, Merck, Biogen

E³ 1520-4
State-of-the-art imaging of acute stroke
A. Dörfler; Erlangen/DE

Learning Objectives:
1. To present basics and imaging protocols for multimodal CT applications in acute stroke.
2. To learn about improved patient selection for interventional stroke therapy.
3. To know about advanced imaging and postprocessing techniques for mmCT.
4. To gain knowledge about current CT-based automated stroke software options.

E³ 1520-5
Primary brain tumours in the elderly
K. L. Salzman; Salt Lake City, UT/US

Learning Objectives:
1. To describe the common primary brain tumours in the elderly.
2. To review the potential non-neoplastic tumour mimics in the elderly.

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

E³ - Advanced Courses: Interactive Teaching Sessions for Young (and not so Young) Radiologists

E³ 1521a
Practical applications of radiomics

E³ 1521a-1
Breast cancer
P. A. T. Baltzer; Vienna/AT

Learning Objectives:
1. To understand the potential for breast cancer by considering imaging as the data source.
2. To learn about the most recent practical applications of radiomics in breast imaging and intervention.
3. To discuss how the application of radiomics could affect the management of patients with breast cancer.
Author Disclosures:
Pascal A.T. Baltzer: Owner: teaching platform: school-of radiology.com

E³ 1521a-2
Ovarian cancer
E. Sala; Cambridge/UK

Learning Objectives:
1. To understand the potential for ovarian cancer by considering imaging as the data source.
2. To learn about the most recent practical applications of radiomics in ovarian cancer.
3. To discuss how radiomics could affect the management of patients with ovarian cancer.

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

Trainees in Focus

IF 15

High resolution at low dose: where and why cone-beam CT will replace multidetector CT

IF 15-1
Chairperson's introduction
B. De Foer; Antwerp/BE
(bert.defoer@gza.be)

Learning Objectives:
Residents will understand the technical principles, advantages and limitations of cone-beam CT (CBCT) and where CBCT outperforms multidetector CT (MDCT). Current clinical applications in the head and neck will be presented with a special focus on the utility of CBCT in daily practice. Practical clinical indications in morphologic and functional musculoskeletal imaging will be reviewed. Key pathologies as imaged with CBCT will be presented, and how to interpret them.

IF 15-2
Technical principles, dose and artefacts of cone-beam CT
M. Kortesniemi; Helsinki/FI
(mika.kortesniemi@hus.fi)

Learning Objectives:
1. To understand the technical principles of CBCT and its advantages and disadvantages.
2. To become familiar with the current array of devices for clinical imaging using cone-beam CT.

IF 15-3
CBCT in the head and neck
B. De Foer; Antwerp/BE
(bert.defoer@gza.be)

Learning Objectives:
1. To understand the current clinical indications for CBCT in the head and neck.
2. To get familiarised with the appearance of key pathologies.

IF 15-4
CBCT in musculoskeletal imaging
S. Boudabbous; Geneva/CH
(sanaboudabous@yahoo.fr)

Learning Objectives:
1. To understand the current role of CBCT in morphologic and functional MSK imaging.
2. To get familiarised with the appearance of key pathologies.

Panel discussion: Will CBCT replace MDCT in certain clinical scenarios?

16:00-17:00 **Open Forum Radiographers**

Open Forum Session

OF 16R

EFRS Patient-Centred Care Awards

OF 16R-1
Chairperson's introduction
C. Beardmore; London/UK

OF 16R-2
EFRS initiatives to improve patient care
A. England; Cork/IE
(aengland@ucc.ie)

Learning Objectives:
1. To learn about the importance of patient-centred care for radiographers.
2. To appreciate the role of the EFRS in driving forward patient-centred care.
3. To understand opportunities for highlighting successful patient-centred care initiatives.
Author Disclosures:
Andrew England: Board Member: EFRS; Other: ECR 2023 PPC

OF 16R-3
Role of the ESR-PAG in improving patient care
C. Justich; Vienna/AT
(cjustich@me.com)

Learning Objectives:
1. To learn about the role of patient representatives in supporting patient care initiatives.
2. To appreciate the role of the ESR-PAG in combination with the EFRS.
3. To understand the importance of patient voice in adjudicating the PCC awards.
Author Disclosures:
Caroline Justich: Founder: Be accepted

OF 16R-4
EFRS 2022 PCC winner: RadChat
N. Julka-Anderson; London/UK
(rad_chat@outlook.com)
J. McNamara; London/UK
(joanna.mcnamara@shu.ac.uk)

Learning Objectives:
1. To learn about the RadChat initiative.
2. To appreciate the impact of RadChat on patient care.
3. To understand the plans for continuing the RadChat initiative and for wider dissemination.
Author Disclosures:
Naman Julka-Anderson: Founder: Naman Julka-Anderson and Jo McNamara are co-founders and co-hosts of Rad Chat podcast
Joanna McNamara: Author: Sponsored by OSL

OF 16R-5
EFRS 2022 PCC runner up: Patient-Centred Communication Interface
C. Coelho; Porto/PT
(claudiacoelhortt@gmail.com)

Learning Objectives:
1. To learn about the ATARP Patient-Centred Communication Interface.
2. To appreciate how a Patient-Centred Communication Interface can improve patient care.
3. To understand the plans for the ATARP Patient-Centred Communication Interface.

Panel discussion: How can we effectively disseminate a successful PCC initiative?

16:00-17:00 **Room K1**

Refresher Course: Radiographers

RC 1614

Developing the "perfect" radiography training programme

RC 1614-1
Chairpersons' introduction
A. Bajinskis; Riga/LV
S. Jeganathan; Perth, WA/AU
(Sanjay.Jeganathan@perthradclinic.com.au)

Learning Objectives:
1. To describe a range of pre-registration training models for radiography education.
2. To examine the evidence regarding requirements for modern radiography education programmes, especially focusing on the potential for virtual/online environments.
3. To discuss the role of key stakeholders in shaping future radiography education.
Author Disclosures:
Sanjay Jeganathan: Board Member: The Royal Australian and New Zealand College of Radiologists; Employee: Perth Radiological Clinic & WA Helath

RC 1614-2
Radiography training models across Europe
P. Bezzina; Msida/MT
(Paul.bezzina@um.edu.mt)

Learning Objectives:
1. To provide an overview of current teaching methods used in the various programmes of studies.
2. To address the challenges and opportunities that may be available to both educators and students in the delivery of radiography education.
3. To propose models for radiography programmes and modern and alternative ways of teaching.

RC 1614-3
Developing the 'perfect' radiography training programme: How can modern teaching methods be implemented in radiography education
B. Chaka; Bradford/UK
(b.chaka@bradford.ac.uk)

Learning Objectives:
1. To understand different modern teaching methods applicable in radiography education.
2. To consider current and future opportunities.
3. To explore the challenges and enablers of these teaching methods.

RC 1614-4
Shaping the future of radiography education
J. McNulty; Dublin/IE
(jonathan.mcnulty@ucd.ie)

Learning Objectives:
1. To explore the key topics which must be considered as we look to the future of radiography curricula.
2. To consider the requirements for sustainable radiography education.
3. To plan our next steps in future-proofing radiography education.

Panel discussion: What is the best pre-registration training model for radiography education

16:00-17:00 **Room K2**

E³ - Young ECR Programme: Basic Sessions

Organised by the ESR

BS 16
Vascular

BS 16-1
Chairperson's introduction
V. E. Sinitsyn; Moscow/RU
(vsini@mail.ru)

BS 16-2
Imaging of vasculitis
M. Francone; Milan/IT
(marco.francone@hunimed.eu)

Learning Objectives:
1. To present the current imaging techniques to evaluate vasculitis.
2. To demonstrate typical imaging findings.

BS 16-3
Imaging of the traumatic and non-traumatic aorta
H. Alkadhi; Zurich/CH
(hatem.alkadhi@usz.ch)

Learning Objectives:
1. To become familiar with the optimal imaging protocol for imaging the aorta.
2. To present the most frequent imaging findings of acute aortic disease.

BS 16-4
Imaging of aneurysmal diseases
C. Loewe; Vienna/AT
(christian.loewe@meduniwien.ac.at)

Learning Objectives:
1. To present the current imaging techniques to evaluate aneurysmal diseases.
2. To demonstrate the typical imaging findings.
Author Disclosures:
Christian Loewe: Speaker: GE Healthcare, Siemens Healthineers, Bracco

16:00-17:30 **Open Forum ESR at Work**

Professional Challenges Session

Organised by the ESR Ultrasound Subcommittee

PC 16
Professional challenges in ultrasound

PC 16-1
Chairperson's introduction
A. Brady; Cork/IE
(adrianbrady@me.com)

PC 16-2
Lung COVID-19: radiology or physician led in ITU
M. Radzina; Riga/LV
(mradzina@gmail.com)

Learning Objectives:
1. To describe lung ultrasound patterns related to COVID-19, 2D US and CEUS in lung lesion characterisation and follow-up.
2. To highlight the added value of radiologists in ITU for lung lesion characterisation and follow-up with the emphasis on advantages and disadvantages.
3. To give an insight in differences of radiologist and physician tasks in ITU setting and specific situations, for example, in obstetrics.

PC 16-3
Advanced measurements in liver disease: who should lead?
A. K. P. Lim; London/UK
(a.lim@imperial.ac.uk)

Learning Objectives:
1. To understand the current advances of ultrasound for assessment of the liver.
2. To understand the clinical value and limitations of ultrasonic measurement for assessing chronic liver disease.
3. To understand the importance of a symbiosis between manufacturers, imaging researchers and clinicians for advancing these technologies as a clinical tool.
Author Disclosures:
Adrian K. P. Lim: Advisory Board: canon medical systems; Equipment Support Recipient: philips, samsung, canon

PC 16-4
On-call ultrasound: is this needed?
T. Fischer; Berlin/DE
(thom.fischer@charite.de)

Learning Objectives:
1. To learn that night call represents a crucial educational experience for radiology residents.
2. To understand that intensive "pre-call" training rotation to improve scanning skills is important.
3. To provide interpretations of CT and ultrasound together in emergency cases.
Author Disclosures:
Thomas Fischer: Advisory Board: Canon, Siemens, Bracco; Equipment Support Recipient: Canon, Siemens; Speaker: Canon, Siemens, Bracco

PC 16-5
Musculoskeletal ultrasound: are advanced practitioners the answer?
K. Satchithananda; London/UK

Learning Objectives:
1. To address who can and what training is needed to deliver this service.
2. To look at who can train this group.
3. To understand the governance and oversight for the safe delivery of services.
4. To point out limitations of the practice.

PC 16-6
Prostate biopsy: for urology only?
J.-M. Correas; Paris/FR
(jean-michel.correas@aphp.fr)

Learning Objectives:
1. To understand the concept of multiparametric ultrasound (US), especially for prostate imaging.
2. To understand the added value of combined reading of MRI and US.
3. To understand the role of fusion imaging using MRI and US for prostate biopsy.
Author Disclosures:
Jean Michel Correas: Equipment Support Recipient: Canon MS, Hologic, FujiFilm Healthcare; Investigator: Bracco SA, Guerbet SA; Speaker: Canon MS, FujiFilm Healthcare (Hitachi-Aloka), Philips US, Siemens Healthineers, Hologic

Panel discussion: Role of non-radiologist in ultrasound practice

16:00-17:30 **Open Forum Trainees**

E³ - Young ECR Programme: Radiology Trainees Forum (RTF)

TF

Highlighted lectures on important topics from neurological, head and neck and musculoskeletal imaging

TF-1
Chairperson's introduction
M. Reim; Tartu/EE
(reimmartin@gmail.com)

TF-2
Dementia imaging. When it's normal and when it's pathologic? WML and atrophy
G. D'Anna; Castellanza/IT
(gennaro.danna@gmail.com)

Learning Objectives:
1. To understand what's the meaning of "ageing brain."
2. To become familiar with the most useful indicators of dementia on neuroimaging.
3. To take a look at quantitative imaging on dementia.

TF-3
Incidental neck findings. When do I need more images? Neck cysts, thyroid nodules on CT. When to order US, MRI, and when to leave it in peace?
R. Saat; Tallinn/EE
(riste.saat@gmail.com)

Learning Objectives:
1. To identify the most frequent incidental imaging findings and cystic lesions in the neck.
2. To describe the signs of potential malignancy of thyroid nodules, cystic neck lesions, and neck lymph nodes.
3. To distinguish abnormal neck findings with and without the need for further routine or urgent referral.
4. To understand the advantages and disadvantages of different imaging modalities.
5. To understand the need for and recommend appropriate additional imaging studies.

TF-4
A systematic approach in reporting knee MRI
A. H. Karantanas; Iraklion/GR
(akarantanas@gmail.com)

Learning Objectives:
1. To present a systematic approach in reporting the injured knee MRI in the growing skeleton.
2. To present a systematic approach in reporting the injured knee MRI in the young adult athlete.
3. To present a systematic approach in reporting the non-injured painful knee MRI in the middle-aged and elderly patients.
4. To understand the importance of the tailored MRI protocol as related to the clinical question.

Panel discussion: Key messages

16:00-17:30 **Room A**

E³ - Advanced Courses: Young Adults, Fitness and Sports

E³ 1619

Imaging the Olympics: experience and challenges

E³ 1619-1
Chairperson's introduction
M. D. Crema; Paris/FR
Author Disclosures:
Michel Daoud Crema: Share Holder: Boston Imaging Core Lab, LLC

E³ 1619-2
Facts and figures: Rio 2016
A. Guermazi; Boston, MA/US
(guermazi@bu.edu)

Learning Objectives:
1. To describe the frequency of imaging-depicted sports-related injuries during the 2016 Summer Olympic Games in Rio de Janeiro, Brazil.
2. To describe the onsite radiologic services and their role in managing elite athletes with sports-related injuries during the Olympic Games.
3. To report on imaging utilisation for diagnosing sports-related injuries at the Rio de Janeiro 2016 Summer Olympics.
Author Disclosures:
Ali Guermazi: Consultant: Pfizer, TissueGene, Novartis, TrialSpark, Coval, ICM, Medipost; Share Holder: BICL, LLC

E³ 1619-3
The Winter Olympics experience
B. B. Forster; Vancouver, BC/CA
(Bruce.Forster@vch.ca)

Learning Objectives:
1. To understand the unique challenges of planning and executing an imaging programme at the Winter Olympic Games.
2. To compare and contrast the imaging equipment and human resources needed at the Winter and Summer Games.
3. To examine other administrative challenges that must be overcome to allow safe and inspiring Games to proceed and to learn what it was really like inside the fence.
Author Disclosures:
Bruce Forster: Consultant: International Olympic Commission Games Group

E³ 1619-4
Milestones to Paris 2024
M. D. Crema; Paris/FR

Learning Objectives:
1. To identify specificities of overuse injuries in athletes.
2. To understand the strong entanglement between imaging, clinical examination and sports management to make a decision.
3. To be aware of the 2022 changes to the World Anti-Doping Agency List and their implication for pain management in athletes.
Author Disclosures:
Michel Daoud Crema: Share Holder: Boston Imaging Core Lab, LLC

Panel discussion: On call for Olympic athletes: the high-level sports radiologist

16:00-17:30 **Room B**

E³ - Advanced Courses: Interactive Teaching Sessions for Young (and not so Young) Radiologists

E³ 1621
Genitourinary incidentalomas

E³ 1621-1
Adrenal
S. Ramanathan; Doha/QA
(drrmsubbu@gmail.com)

Learning Objectives:
1. To illustrate the spectrum of imaging findings in adrenal incidentalomas.
2. To explain the key points in the differential diagnosis.
3. To learn how to avoid interpretation pitfalls.

E³ 1621-2
Renal
M. A. Cova; Trieste/IT

Learning Objectives:
1. To illustrate the spectrum of imaging findings in renal incidentalomas.
2. To explain the key points in the differential diagnosis.
3. To learn how to avoid interpretation pitfalls.

16:00-17:30 **Room C**

Special Focus Session

SF 16
Cutting edge imaging in heart rhythm disorders

SF 16-1
Chairperson's introduction
L. Natale; Rome/IT
(luigi.natale@unicatt.it)
Author Disclosures:
Luigi Natale: Speaker: GE Healthcare Symposium at ECR 2023

SF 16-2
Arrhythmogenic cardiomyopathy: beyond the 2010 Task Force Criteria
D. J. Murphy; Dublin/IE

Learning Objectives:
1. To name the cardiac MRI components of the 2010 arrhythmogenic right ventricular cardiomyopathy (ARVC) task force criteria.
2. To reflect on the issues presented by the task force criteria in the diagnosis of arrhythmogenic cardiomyopathy in 2023.
3. To understand the rationale behind the proposed Padua criteria for arrhythmogenic cardiomyopathy.

SF 16-3
The role of imaging in guiding ventricular tachycardia ablation
H. Cochet; Pessac/FR

Learning Objectives:
1. To describe the mechanism of scar-related ventricular tachycardia (VT) and list its main underlying aetiology.
2. To apply appropriate imaging protocols, including selecting the most relevant modality, for VT ablation guidance.
3. To describe how imaging data is used during VT ablation and how it affects procedural outcomes.
Author Disclosures:
Hubert Cochet: Consultant: Fineheart, Guerbet; Founder: inHEART; Share Holder: inHEART; Speaker: Siemens Healthineers, Abbott, Biosense Webster, Biotronik

SF 16-4
Cardiac imaging in atrial fibrillation: more than pulmonary veins anatomy
P. Claus; Leuven/BE
(piet.claus@uzleuven.be)

Learning Objectives:
1. To describe based on the current ESC guidelines the role of imaging in the diagnosis and management of atrial fibrillation (AF).
2. To describe the relative value of echocardiography, MRI, CT and nuclear imaging to assess atrial anatomy, function and tissue substrate in AF patients.
3. To describe the added value of imaging data in AF ablation therapy.

SF 16-5
CMR in patients with pacemakers/ICDs
J. Bremerich; Basle/CH

Learning Objectives:
1. To distinguish safety from image-degradation issues.
2. To know the standard procedure in MR conditional devices.
3. To understand off-label use in patients with nonconditional devices.
Author Disclosures:
Jens Bremerich: Advisory Board: Guerbet, SA; Speaker: Boehringer Ingelheim

Panel discussion: How to get the most out of CMR in patients with arrhythmias?

16:00-17:30 **Room D**

EuroSafe Imaging Session

EU 16
Medical radiation exposure in pregnancy

EU 16-1
Chairperson's introduction
C. Granata; Genoa/IT

EU 16-2
Common indications, justification and optimisation of radiologic procedures during pregnancy
J. Kasznia-Brown; Bristol/UK
(jk_b@me.com)

Learning Objectives:
1. To appreciate the most common radiologic procedures performed on pregnant women.
2. To understand the peculiar aspects of the justification of radiologic procedures.
3. To learn how to reduce conceptus exposure during radiologic procedures.

EU 16-3
Medical irradiation and dose exposure to the conceptus
A. Trianni; Trento/IT
(annalisa.trianni@apss.tn.it)

Learning Objectives:
1. To appreciate the usual dose exposure to the conceptus for the most common radiologic procedures.
2. To learn about the radiation-related risks of health effects for the conceptus according to the developmental stage and dose exposure.
3. To understand how a qualified expert can estimate the absorbed dose of the conceptus after an x-ray procedure.

EU 16-4
Communicating risk and benefit of medical irradiation to pregnant women
I. Kralik; Zagreb/HR

Learning Objectives:
1. To understand how the participation of pregnant women undergoing radiologic procedures can be emotional.
2. To appreciate what information pregnant women want when undergoing a radiologic procedure.
3. To learn how to communicate simply and clearly the risk and benefits of a radiologic procedure for the mother and the conceptus.

Panel discussion: How to deal with a woman who is unaware of pregnancy and has undergone a radiological procedure?

16:00-17:30 **Room G1**

E³ - Advanced Courses: Prenatal, Neonatal, Paediatric Imaging

E³ 1618

Pitfalls in neonatal and paediatric imaging related to normal development: MSK, neuro, abdomen

E³ 1618-1
Chairperson's introduction
I. Barber; Esplugues de Llobregat/ES
(ibarber@sjdhospitalbarcelona.org)

E³ 1618-2
Normal variant vs pathology in the MSK system
A. Bartoloni; Rome/IT

Learning Objectives:
1. To identify the main pitfalls in musculoskeletal neonatal and paediatric imaging.
2. To distinguish normal variant vs pathology in musculoskeletal neonatal and paediatric imaging.
3. To realise how differentiating normal variants from pathology influences diagnosis in the neonatal and paediatric musculoskeletal system.

E³ 1618-3
Normal development of the paediatric brain
M. I. Argyropoulou; Ioannina/GR
(margyrop@uoi.gr)

Learning Objectives:
1. To become familiar with age-related changes in the paediatric brain.
2. To learn how to adapt imaging protocols to the paediatric population.
3. To acquire knowledge about pitfalls related to maturation.

E³ 1618-4
Pitfalls in neonatal and paediatric abdominal imaging
S. G. F. Robben; Maastricht/NL

Learning Objectives:
1. To identify normal variants (potential pitfalls) of the abdomen in neonates and children.
2. To discriminate abdominal normal variants (and even normal anatomy) from pathology.
3. To realize that ultrasonography in neonates and children gives the radiologist great power, but also a great responsibility.

16:00-17:30 **Room G2**

ESHI(MT) Session

ESHI(MT)

Artificial intelligence (AI) in hybrid imaging

ESHI(MT)-1
Chairpersons' introduction
C. C. Cyran; Munich/DE
T. Küstner; Tübingen/DE
(thomas.kuestner@med.uni-tuebingen.de)

Learning Objectives:
Artificial intelligence (AI) promises to shape the future of medical imaging and improve the diagnostic process's efficiency, accuracy and efficacy. In particular, AI can potentially enable standardised quantitative image analysis supporting tailored diagnostic and therapeutic decisions for whole-body oncological hybrid imaging. This session will provide an overview of the role of AI in hybrid imaging and give insights into current technical developments in the field, as well as an update on associated activities by the European Society of Hybrid, Molecular and Translational Imaging (ESHI-MT).
Author Disclosures:
Clemens C. Cyran: Advisory Board: Siemens Healthineers; Speaker: Mint, AAA, Brainlab

ESHI(MT)-2
AI in hybrid imaging: general concepts and future directions
T. Küstner; Tübingen/DE
(thomas.kuestner@med.uni-tuebingen.de)

ESHI(MT)-3
The autoPET challenge 2022: how to advance AI in hybrid imaging
M. Früh; Tübingen/DE

ESHI(MT)-4
A closer look at the ESHI(MT) AI research strategy: autoPET 2.0 and beyond
C. C. Cyran; Munich/DE
Author Disclosures:
Clemens C. Cyran: Advisory Board: Siemens; Speaker: Brainlab, mint

Panel discussion

16:00-17:30 **Room M**

E³ - Advanced Courses: Imaging of Ageing

E³ 1620

Imaging thoracoabdominal disorders in the elderly

E³ 1620-1
Chairperson's introduction
F. Catapano; Milan/IT
(federica.catapano@humanitas.it)

Learning Objectives:
1. To review the different pathophysiologic mechanisms in ischaemic heart disease.
2. To analyse the current role of non-invasive imaging in patients with suspected coronary artery disease (CAD).
3. To examine the main imaging findings displayed by non-invasive imaging in patients with myocardial infarction.

E³ 1620-2
Non-invasive imaging of ischaemic heart disease
F. Catapano; Milan/IT
(federica.catapano@humanitas.it)

E³ 1620-3
Abdominal emergencies in the geriatric patient
E. Dick; London/UK

Learning Objectives:
1. To categorise different causes of abdominal pain in the elderly, including pathology outside the abdomen.
2. To create or refine a personal algorithm for analysing imaging of an elderly patient with abdominal pain.
3. To integrate clinical history, including polypharmacy, with clinical findings and reflect on the fact that the elderly may present with minor symptoms but have greater morbidity than younger people for the same condition.

E³ 1620-4
Imaging the elderly with shortness of breath
H. A. van Piggelen-Gietema; Maastricht/NL
(hester.gietema@mumc.nl)

Learning Objectives:
1. To know the most common causes of shortness of breath in the elderly.
2. To distinguish changes due to "normal" ageing from actionable causes of shortness of breath.
3. To be able to choose the suitable imaging protocol for this population.

E³ 1620-5
State-of-the-art imaging of sarcopenia
V. Vasilevska-Nikodinovska; Skopje/MK
(v_vasilevska@yahoo.com)

Learning Objectives:
1. To define sarcopenia as a disease and apply the appropriate imaging modality for its assessment in different settings.
2. To describe muscle strength tests and physical performance tests.

3. To list the muscles or muscle groups important for the evaluation of sarcopenia on each imaging modality (DEXA scan, CT, MR, US).
4. To perform a quantitive and qualitative assessment of muscles in the diagnosis of sarcopenia.

16:00-17:30 **Room N**

Multidisciplinary Session

MS 16

Steno-occlusive disease of carotid and vertebra basilar arteries

MS 16-1
Chairperson's introduction
J. Thornton; Dublin/IE
(john.thornton78@gmail.com)
Author Disclosures:
John Thornton: Advisory Board: Perfuze; Consultant: Microvention, Perfuze; Grant Recepient: Microvention; Research Grant/Support: Cerenovous; Share Holder: Perfuze; Speaker: Microvention

MS 16-2
Imaging of internal carotid and vertebral artery disease
S. Looby; Dublin/IE
(seamuslooby@hotmail.com)

Learning Objectives:
1. To describe the different imaging modalities to diagnose internal carotid and vertebral artery disease, as well as the best imaging technique in each modality and refer to international guidelines on use of each, interpretation of findings and implications for patient management.
2. To provide many imaging examples of atherosclerotic stenosis and occlusion, dissection and other rarer diseases of the internal carotid and vertebral arteries.

MS 16-3
Management of carotid and vertebral artery atherosclerosis
K. Boyle; Dublin/IE
(karlboyle@beaumont.ie)

Learning Objectives:
1. To recognise the role of best medical therapy in management of atherosclerosis.
2. To describe advances in carotid plaque imaging.
3. To identify high risk groups that may benefit most from revascularisation.

MS 16-4
What is the role of CEA in the treatment of carotid atherosclerosis
D. Moneley; Dublin/IE

Learning Objectives:
1. To look at the selection of patients with symptomatic and asymptomatic carotid disease for treatment with CEA.
2. To consider decision to treat with CEA or CAS.
3. To look at timing of intervention in patients with significant carotid disease for treatment.

MS 16-5
ECIC bypass for occlusive cerebrovascular disease, is there still a role for bypass surgery
M. Javadpour; Dublin/IE

Learning Objective:
1. To review the indications and outcomes of cerebral revascularisation for cerebrovascular occlusive disease.

MS 16-6
Multidisciplinary discussion: subtitle requested
J. Thornton; Dublin/IE
Author Disclosures:
John Thornton: Advisory Board: Perfuze; Consultant: Perfuze, Microvention; Research Grant/Support: Microvention; Share Holder: Perfuze

Saturday, March 4

08:00-09:00 **Open Forum ESR at Work**

Open Forum Session

Organised by European Institute for Biomedical Imaging Research (EIBIR)

OF 17E

Funding the future of imaging: the ESR Research Seed Grant

OF 17E-1
Chairpersons' introduction
M. Smits; Rotterdam/NL
(marion.smits@erasmusmc.nl)
G. P. Krestin; Rotterdam/NL
(g.p.krestin@erasmusmc.nl)

Learning Objectives:
1. To become familiar with the ESR Research Seed Grant projects.
2. To learn about novel research and pilot studies in the fields of artificial intelligence and interventional oncologic radiology.
3. To appreciate the ESR Research Seed Grant funding scheme.
Author Disclosures:
Marion Smits: Consultant: Bracco (paid to institution); Speaker: GE Healthcare (paid to institution), AuntMinnie (paid to institution)

OF 17E-2
The brain age biomarker initiative in stroke
M. Bretzner; Lille/FR
(martin.bretzner@univ-lille.fr)
Author Disclosures:
Martin Bretzner: Research Grant/Support: This work is funded by the 2022 ESR Research Seed Grants program which was kindly supported by an unrestricted, non-exclusive grant from GE Healthcare

OF 17E-3
PI-QUAL and artificial intelligence: a pilot study to test a novel tool to assess the quality of multiparametric MRI of the prostate
F. Giganti; London/UK
Author Disclosures:
Francesco Giganti: Consultant: Lucida Medical; Grant Recepient: ESR - EIBIR Research Seed Grant funded by GE; Investigator: Recipient of the 2020 Young Investigator Award (20YOUN15) funded by the Prostate Cancer Foundation / CRIS Cancer Foundation

OF 17E-4
Diffusion probabilistic models to reduce the use of contrast agent in breast MRI
T. Nolte; Aachen/DE
(tnolte@ukaachen.de)

OF 17E-5
Foetal MRI radiomics for machine learning-assisted lung maturation assessment and outcome prediction
F. Prayer; Vienna/AT
Author Disclosures:
Florian Prayer: Grant Recepient: funding from the Seed Grant funding programme of the European Society of Radiology (ESR) in collaboration with the European Institute for Biomedical Imaging Research (EIBIR) kindly supported by an unrestricted, non-exclusive grant from GE Healthcare

OF 17E-6
Artificial intelligence for fracture detection in paediatric osteogenesis imperfecta
S. C. Shelmerdine; London/UK

OF 17E-7
A convolutional neural network for automated segmentation of solid renal tumours on CT images
J. Uhlig; Göttingen/DE
(johannes.uhlig@med.uni-goettingen.de)
Author Disclosures:
Johannes Uhlig: Grant Recepient: Siemens Healthineers; Investigator: Siemens Healthineers, Pfizer; Speaker: Bayer Health

OF 17E-8
Feasibility and pathophysiologic implications of endovascular portal vein arterialisation in a porcine model
R. M. Mathy; Heidelberg/DE
Author Disclosures:
René Michael Mathy: Grant Recepient: ESR Research Seed Grant

OF 17E-9
ICE STUDY - to detect cryoimmunologic response induced by ultrasound-guided cryoablation on early breast cancer: evaluation of specific local and circulating markers
F. Galati; Rome/IT
Author Disclosures:
Francesca Galati: Research Grant/Support: EIBIR SEED GRANT

OF 17E-10
Safety and oncologic outcome of percutaneous cryo-ablation compared to partial nephrectomy for T1b RCC: a propensity score matching analysis
E. G. Klompenhouwer; Amsterdam/NL
Author Disclosures:
Elisabeth Genevieve Klompenhouwer: Research Grant/Support: ECR seed grant

Open forum discussion

08:00-09:00 **Open Forum Radiographers**

Open Forum Session

OF 17R

Role of the radiographer in non-patient imaging

OF 17R-1
Chairperson's introduction
M. Zanardo; Milan/IT
(moreno.zanardo@unimi.it)

Learning Objectives:
1. To discuss options for non-patient imaging: the role of the radiographer.
2. To present other workplace (non-clinical) job opportunities for radiographers.
3. To examine opportunities to expand the field of radiography outside of human imaging.

OF 17R-2
What are the challenges of X-ray imaging in industry?
R. Us; Ljubljana/SI

OF 17R-3
Working within the aerospace industry as a radiographer
P. Murray; Dublin/IE
(pat.murray@dublinaerospace.com)

OF 17R-4
Experiences of radiographers working in veterinary practice
S. Petit; Berne/CH

Open forum discussion

08:00-09:00 **Open Forum Trainees**

Open Forum Session

OF 17T

Getting involved in subspecialty committees: a young radiologist's perspective

OF 17T-1
Chairperson's introduction
A. P. Parkar; Bergen/NO
(apparkar@gmail.com)

Learning Objectives:
A session dedicated to young radiologists, which will describe what young radiologists can learn from involvement in subspecialty society committees and how they can drive future radiology.

OF 17T-2
Young ESGAR
K. N. de Paepe; London/UK
(katja.depaepe@icr.ac.uk)

Learning Objectives:
1. To discuss opportunities for residents to be involved in ESGAR.
2. To discuss the benefits of networking for residents and how this can change future radiology.

OF 17T-3
Young EUSOBI
P. Clauser; Vienna/AT
(clauser.p@hotmail.it)

Learning Objectives:
1. To discuss opportunities for residents to be involved in EUSOBI.
2. To discuss the benefits of networking for residents and how this can change future radiology.
Author Disclosures:
Paola Clauser: Speaker: Siemens Healthineers

OF 17T-4
Young ESOI
D. Caruso; Rome/IT
(dcaruso85@gmail.com)

Learning Objectives:
1. To discuss opportunities for residents to be involved in ESOI.
2. To discuss the benefits of networking for residents and how this can change future radiology.
Author Disclosures:
Damiano Caruso: Consultant: Bayer, Bracco, GE

OF 17T-5
Young EuSoMII
M. Klontzas; Iraklion/GR

Learning Objectives:
1. To discuss opportunities for residents to be involved in EuSoMII.
2. To discuss the benefits of networking for residents and how this can change future radiology.
Author Disclosures:
Michail Klontzas: Board Member: EuSoMII

Open forum discussion: The importance of networking

08:00-09:00 **Room A**

Refresher Course: Emergency Imaging

RC 1717

Unmissable for emergency radiologist: imaging findings of life-threatening conditions

RC 1717-1
Chairperson's introduction
G. Masselli; Rome/IT
(gabriele.masselli@uniroma1.it)

RC 1717-2
Life-threatening conditions in emergency neuroimaging
A. Ugarte; San Sebastian/ES
(ane.ugartenuno@gmail.com)

Learning Objectives:
1. To emphasise the importance of detecting life-threatening conditions such as herniation, shift, and medulla-pons infarcts in emergency neuroimaging.
2. To learn the imaging findings of life-threatening conditions in CNS.
3. To learn severe acute neurologic conditions may appear with subtle imaging findings on CT and MRI.

RC 1717-3
Heart, lungs and big vessels: chest in danger!
M. Scaglione; Castel Volturno/IT

Learning Objectives:
1. To be aware of the critical imaging findings in the chest such as: heart injury in trauma, myocarditis, MI, acute heart failure, acute pulmonary oedema, ARDS, mediastinal vessel dissection and rupture.
2. To be familiar with chest CT protocol optimisation in patients presenting acute respiratory symptoms in order to catch imaging findings of critical chest emergencies.
3. To learn the importance of awareness of imaging findings of chest emergencies in the management of patients.

RC 1717-4
Imaging findings of life-threatening abdominal emergencies
A. Paisant; Angers/FR

Learning Objectives:
1. To be familiar with imaging findings of mainstay life-threatening acute abdominal conditions such as acute thrombosis of main vessels, perforations, and severe bleeding.
2. To learn about complications after abdominal surgery beyond anastomotic dehiscence.
3. To understand the role of interventional radiology when there is intra-abdominal active bleeding or abdominal collection.

Panel discussion: pearls and pitfalls in imaging of life-threatening conditions

08:00-09:00 **Room B**

E³ - The Beauty of Basic Knowledge: Sports Injuries

E³ 24C

Lower limb injury patterns in the athlete

E³ 24C-1
Chairperson's introduction
A. Kassarjian; Pozuelo De Alarcón/ES

Learning Objectives:
Although we often refer to a patient having a single injury, multiple structures are frequently injured due to a sports injury. The structures involved are often predictable when the primary injury is recognised, particularly when the mechanism of injury is understood. Associated injuries play an important role in determining the management of the primary injury and need to be highlighted in the radiologists' report. In this session, patterns of injury associated with anterior cruciate ligament tears, patellofemoral dislocations and ankle sprains will be emphasised to familiarise the audience with important sites to review when a primary injury has been recognised. In common with all the sessions in this course, each speaker will also be asked to present a case that they have learned from in their career on any sports imaging topic. Having presented the case, the speaker will explain what made that case a learning experience.

E³ 24C-2
The ACL is torn: what else to look for?
R. Pedersen; Toensberg/NO
(pedersen70@gmail.com)

E³ 24C-3
A sports injury I learned from
R. Pedersen; Toensberg/NO
(pedersen70@gmail.com)

E³ 24C-4
This patient has a patella dislocation: what should I review on the MRI?
M. Adriaensen; Heerlen/NL

E³ 24C-5
A sports injury I learned from
M. Adriaensen; Heerlen/NL

E³ 24C-6
This patient has an ankle sprain: what structures must I review?
A. Kassarjian; Pozuelo De Alarcón/ES

E³ 24C-7
A sports injury I learned from
A. Kassarjian; Pozuelo De Alarcón/ES

08:00-09:00 **Room C**

Refresher Course: Abdominal and Gastrointestinal

RC 1701
Imaging to guide surgical approach

RC 1701-1
Chairperson's introduction
L. Martí-Bonmatí; Valencia/ES
(marti_lui@gva.es)
Author Disclosures:
Luis Marti-Bonmati: Advisory Board: Member of the non-profit Scientific Advisory Boards of Quibim SL and the Girona Biomedical Research Institute

RC 1701-2
Liver transplantation: imaging of the donor
C. O'Brien; Toronto, ON/CA
(Ciara.O'brien@uhn.ca)

Learning Objectives:
1. To become familiar with the procedure of LDLT.
2. To understand how to image a potential live liver donor.
3. To become familiar with the biliary and vascular anatomy pertinent to surgical planning.

RC 1701-3
Follow-up imaging in pancreas transplantation
P. S. Sidhu; London/UK
(paulsidhu@btinternet.com)

Learning Objectives:
1. To discuss the clinical need for pancreatic transplantation, with co-transplant in kidney and other organs.
2. To discuss the surgical approach that influences the imaging procedures.
3. To discuss the possible complications that will be seen on imaging.
4. To discuss the best imaging strategy for the post-pancreatic transplant patient.

Panel discussion: What is needed in the workflow to ensure that imaging information provides accurate surgical guidance?

08:00-09:00 **Room D**

EIBIR Session

EIBIR 17
Advances in cancer diagnosis and treatment: EIBIR projects

EIBIR 17-1
Chairperson's introduction
R. G. H. Beets-Tan; Amsterdam/NL

EIBIR 17-2
Optical imaging for neuronavigation in brain tumour surgery: the HyperProbe project
F. Pavone; Florence/IT

Learning Objectives:
1. To learn about tissue morphochemistry.
2. To learn about tour border identification.
3. To understand how to assist surgeons in tumour removal.

EIBIR 17-3
Holistic and trustworthy AI evaluation in breast cancer imaging: the RadioVal project
K. Lekadir; Barcelona/ES
(karim.lekadir@ub.edu)

Learning Objectives:
1. To learn about the FUTURE-AI guidelines for trustworthy AI in medicine and medical imaging.
2. To appreciate the value of the guidelines for guiding AI designers, developers, and evaluators.
3. To understand how they can be applied based on a real-world use case in breast cancer imaging.

EIBIR 17-4
A European swarm learning network for training of AI algorithms for breast cancer detection in MRI: The ODELIA project
D. Truhn; Aachen/DE

Learning Objectives:
1. To learn about the role of swarm learning in collaborative development of AI models.
2. To appreciate the need for collaboration for the training of robust models.
3. To understand the benefit that AI can bring to MRI of the breast.

EIBIR 17-5
European funding opportunities for oncology
P. Gordebeke; Vienna/AT
(pgordebeke@eibir.org)

Learning Objectives:
1. To learn about EIBIR activities and support services.
2. To understand how EIBIR can increase funding success.
3. To become familiar with European research funding opportunities, in particular, Horizon Europe.

Discussion

08:00-09:00 **Room E1**

Refresher Course: Musculoskeletal

RC 1710
Musculoskeletal tumours

RC 1710-1
Chairperson's introduction
M.-A. Weber; Rostock/DE

RC 1710-2
Imaging cartilaginous tumours
M. C. De Jonge; Utrecht/NL
(milkodejonge@gmail.com)

Learning Objectives:
1. To review the incidence and prevalence of chondroid lesions in bone.
2. To describe the typical imaging findings of chondroid lesions on conventional imaging and MRI.
3. To discuss the difference in imaging findings between benign and malignant chondroid lesions.
4. To understand what to do with equivocal cases i.e. what to do with an indeterminate lesion if found incidentally.
5. To determine when and how to biopsy.

RC 1710-3
Imaging soft tissue tumours
I. S. Örgüc; Manisa/TR
(sebnemorguc@hotmail.com)

Learning Objectives:
1. To be aware of the updates and discuss major changes and concepts in the 2020 WHO Classification of soft tissue tumours.
2. To review the clinical history, location, x-ray, ultrasound, and MRI features of soft tissue tumours.
3. To determine the subset of soft tissue tumours with typical imaging features and to demonstrate examples of radiological signs.
4. To differentiate soft tissue tumours with indeterminate characteristics, which should be directed to biopsy.

RC 1710-4
Post-treatment evaluation of soft tissue and bone tumours
J. C. Vilanova; Girona/SP
(kvilanova@comg.cat)

Learning Objectives:
1. To know the imaging techniques than can be applied to evaluate tumour response.
2. To understand advanced functional, multiparametric MR imaging techniques to follow up skeletal tumours after treatment.
3. To learn the different criteria to evaluate tumour response.

Panel discussion: What are the challenges you face, and what new advances in the near future do you think will aid diagnosis?

08:00-09:00 **Room E2**

Refresher Course: Chest

RC 1704

Diagnostic precision in fibrotic lung disorders: lumpers and splitters

RC 1704-1
Chairperson's introduction
C. de Margerie-Mellon; Paris/FR
(constance.de-margerie@aphp.fr)
Author Disclosures:
Constance De Margerie-Mellon: Consultant: Boerhinger Ingelheim, Pfizer, Gilead Science, Bracco

RC 1704-2
Do we still need a diagnosis of fibrotic interstitial lung disease (ILD)?
F. Bonella; Essen/DE

Learning Objectives:
1. To understand how to appropriately correlate disease behaviour and predict the prognosis based on the different fibrotic ILDs diagnoses.
2. To understand the efficacy and safety of different treatment approaches tailored to the different fibrotic ILDs diagnoses.
3. To define progressive fibrotic ILDs and choose the best treatment option for this lumped group of fibrotic ILDs with similar disease behaviour.

RC 1704-3
HRCT features of individual fibrotic lung diseases
H. Prosch; Vienna/AT
(helmut.prosch@meduniwien.ac.at)

Learning Objectives:
1. To appreciate the importance of a systematic approach to fibrosing lung diseases.
2. To learn about the CT criteria of the most important fibrosing lung diseases.
3. To understand the importance of a multidisciplinary discussion for the diagnosis of fibrosing lung diseases.
Author Disclosures:
Helmut Prosch: Advisory Board: Boehringer Ingelheim; Research Grant/Support: Boehringer Ingelheim, Astra Zeneca, Siemens; Speaker: Boehringer Ingelheim, Roche, Novartis, Janssen, BMS, MSD

RC 1704-4
Longitudinal imaging metrics in the evaluation of fibrotic lung diseases
A. Poellinger; Berne/CH

Learning Objectives:
1. To understand the reasons for evaluating fibrosis extent on imaging.
2. To understand the methods of assessing for longitudinal changes in fibrosing lung disease on CT and other imaging.
3. To understand the limitations and challenges of imaging in documenting longitudinal disease severity in fibrotic lung disease.

Panel discussion: Precision in the diagnosis of fibrotic lung disorders

08:00-09:00 **Room G1**

Refresher Course: Physics in Medical Imaging

RC 1713

Discontinuing patient shielding in radiology: the wind of change

RC 1713-1
Chairperson's introduction
P. Gilligan; Dublin/IE
(paddygilligan@mater.ie)
Author Disclosures:
Paddy Gilligan: Board Member: president of efomp board member euramed

RC 1713-2
The physicist's point of view
M. Sans Merce; Geneva/CH
(marta.sansmerce@hcuge.ch)

Learning Objectives:
1. To understand the rationale for discontinuing shielding from the medical physicist's point of view.
2. To discuss harmful effects.
3. To learn in which situation and cases it can be used.

RC 1713-3
The radiographer's point of view
G. Paulo; Coimbra/PT
(gpaulo@icloud.com)

Learning Objectives:
1. To know the benefits of performing an examination without shielding from the technical point of view.
2. To learn how to communicate these choices with adult patients and parents of paediatric patients.
3. To be able to implement technical protocols, including shielding policies.

RC 1713-4
The radiologist's point of view
C. Granata; Genoa/IT

Learning Objectives:
1. To understand why it is time to stop shielding from the radiologist's point of view.
2. To learn when shielding can affect diagnostic information.
3. To discuss the justification for discontinuing shielding in the lifelong context, from pregnancy to adult patients.

RC 1713-5
The regulatory point of view
K. Petrova; Prague/CZ
(karla.petrova@sujb.cz)

Learning Objectives:
1. To understand the role of different regulatory bodies in the practice of patient shielding.
2. To appreciate the reasons why the shielding was recommended by regulatory bodies.
3. To discuss the possible solutions for not requiring shielding on the national level.

Panel discussion: What is the easiest way to leave the shielding behind

08:00-09:00 **Room M**

Refresher Course: Genitourinary

RC 1707
Imaging of the female pelvis

RC 1707-1
Chairperson's introduction
R. Forstner; Salzburg/AT
(r.forstner@salk.at)

RC 1707-2
Imaging of malignant endometriosis: how does imaging help to identify malignant transformation
H. D. Paixão, T. M. Cunha; Lisbon/PT
(paixao@campus.ul.pt)

Learning Objectives:
1. To describe the imaging features of the different localisations of endometriosis.
2. To identify imaging findings of malignant endometriosis.
3. To learn how to follow these patients after treatment.
Author Disclosures:
Helena Dinis Paixão: Author: Helena Paixão, Teresa Margarida Cunha; Speaker: Helena Paixão

RC 1707-3
Uterine sarcoma: types and differential diagnosis
L. S. Fournier; Paris/FR
(laure.fournier@aphp.fr)

Learning Objectives:
1. To describe the imaging features of the uterine sarcomas.
2. To learn the strengths and weaknesses of MRI for assessing uterine sarcomas.
3. To learn how to use a diagnostic algorithm in myometrial masses.

RC 1707-4
Congenital anomalies: The American Society for Reproductive Medicine (ASRM) 2021 classification
C. Maciel; Porto/PT
(tina_maciel@yahoo.com)

Learning Objectives:
1. To describe the imaging features of the different uterine congenital anomalies according to the ASRM 2021 classification.
2. To compare ASRM with ESRHE/ESGE classification system.
3. To appreciate the value of MRI in treatment planning and the evaluation of post-treatment complications.

Panel discussion: The value of the different imaging techniques in these situations

08:00-09:00 **Room N**

E³ - ECR Master Class (Vascular)

E³ 1726
Stroke: everything you need to know in 2023

E³ 1726-1
Chairperson's introduction
W. van Zwam; Maastricht/NL
(w.van.zwam@mumc.nl)

Learning Objectives:
1. To know which patients can currently benefit from Endovascular Treatment (EVT).
2. To know which imaging criteria are required to select patients for EVT.
3. To know currently available techniques for EVT with their advantages and disadvantages.

Author Disclosures:
Wim van Zwam: Advisory Board: Philips; Research Grant/Support: MrClean_Late, funded by Dutch HeArt Foundation, Dutch Brain Council, Holland Health, Medtronic, Stryker; Speaker: Stryker, Cerenovus, Philips, NicoLab

E³ 1726-2
State-of-the-art diagnosis
S. Gerevini; Bergamo/IT
(sgerevini@asst-pg23.it)

Learning Objectives:
1. To know the still used scoring system for early ischemic changes at nonenhanced CT (ASPECTS).
2. To know how to acquire multiphase CT angiography (three phases) for a complete assessment of the intracranial vasculature including evaluation of collateral flow.
3. To understand the technical background of CT perfusion and understand the value of different perfusion parameters. Pros and cons.

E³ 1726-3
What is new in endovascular management
R. Gandini; Rome/IT
(roberto.gandini@fastwebnet.it)

Learning Objectives:
1. To discuss the possibility of treating distal vessels.
2. To discuss the recent devices for the treatment of stroke.
3. To consider the potential role of stents in case of repeated unsuccessful steps.

E³ 1726-4
Role of AI in stroke management
S. Payabvash; New Haven, CT/US
(sam.payabvash@yale.edu)

Learning Objectives:
1. To summarise currently available commercial AI tools for stroke imaging workflow.
2. To discuss AI tools in the research phase for stroke imaging.
3. To discuss future research and development areas for AI in stroke imaging.

Panel discussion: Logistical challenges in stroke diagnosis and treatment. Is there room for improvement?

09:30-10:00 **Room A**

Plenary Lecture

PL 3
Plenary Lecture

Presiding
A. Brady; Cork/IE
(adrianbrady@me.com)

PL 3-1
Controlling our destiny: practising ethical radiology in a world of AI and institutionalised medicine
R. Geis; Fort Collins, CO/US
Author Disclosures:
Raym Geis: Advisory Board: Innosphere Ventures Funds

10:30-11:00 **Open Forum Trainees**

Open Forum Session

Organised by the European Board of Radiology (EBR)

OF 18T

Tackle twisted cases, win your place in an EDiR examination (part 4)

OF 18T-1
Chairperson's introduction
L. Oleaga Zufiría; Barcelona/ES
(lauraoleaga@gmail.com)

Learning Objectives:
1. To dive into and experience the wonders of general radiology.
2. To prepare thoroughly for the exam while having a good time with other peers.
3. To gain deep knowledge of abdominal and urogenital radiology and have the opportunity to grow.

OF 18T-2
Let the games begin
W. Schima; Vienna/AT
(wolfgang.schima@khgh.at)

Learning Objectives:
1. To scan and interpret two cases of today's subspecialty and possible outcomes based on the attendees' decisions.
2. To get to know and team up with peers from all over the world to help as many patients as possible.
3. To solve the quiz to win an EDiR examination place.

OF 18T-3
Pooling of conclusions and perceptions
W. Schima; Vienna/AT
(wolfgang.schima@khgh.at)

Learning Objectives:
1. To jointly summarise and review what we have learned in today's session.

10:30-11:30 **Open Forum Radiographers**

Open Forum Session

OF 18R

Neuroimaging: what does the future hold?

OF 18R-1
Chairperson's introduction
H. Söderlund; Oslo/NO
(henricso@yahoo.se)

Learning Objectives:
1. To discuss the current and state of the art CT imaging protocols for stroke imaging: the radiographers' and radiologists' perspectives.
2. To discuss current and state of the art MRI protocols of stroke imaging from a radiographers' and radiologists' perspectives.
3. To examine the best possibilities for the presentation of stroke imaging with new technologies.

OF 18R-2
Current and new CT imaging protocols of stroke imaging: the radiographer's perspective
D. Hribar; Ljubljana/SI
Author Disclosures:
Dejan Hribar: Other: Clinical education specialist - Siemens Healthineers

OF 18R-3
Current and new CT imaging protocols of stroke imaging: the radiologist's perspective
J. Sá Silva; Porto/PT
(jose.msas.silva@gmail.com)

OF 18R-4
Current and new MR imaging protocols of stroke imaging: the radiographer's perspective
C. Tsiotsios; Limassol/CY
(crtsiotsios@gmail.com)

OF 18R-5
Current and new MR imaging protocols of stroke imaging: the radiologist's perspective
A. Rodrigues; Lisbon/PT
(alexandraslrodrigues@gmail.com)

Open forum discussion

10:30-11:30 **Room E1**

Refresher Course: Cardiac

RC 1803

The crucial role of the radiologist at the heart of the multidisciplinary cardiac team

RC 1803-1
Chairperson's introduction
R. Salgado; Antwerp/BE
(rodrigo.salgado@uza.be)

RC 1803-2
Cardiac CT and MRI in the cardiac team: the role of the radiologist in patients with chronic coronary syndromes
C. Loewe; Vienna/AT
(christian.loewe@meduniwien.ac.at)

Learning Objectives:
1. To provide an update on the recently published guidelines on chronic coronary syndromes.
2. To define the role of cardiac CT and MRI in decision-making for patients with chronic coronary syndromes.
3. To describe the role of the radiologist within the chronic coronary syndromes team.
Author Disclosures:
Christian Loewe: Speaker: GE Healthcare, Siemens Healthineers, Bracco

RC 1803-3
The value of the radiologist in the planning of valvular disease treatment
J.-N. Dacher; Rouen/FR
(jndacher@gmail.com)

Learning Objectives:
1. To become familiar with the technical requirements of cardiac CT and MRI in the assessment of valvular heart disease.
2. To understand the complementary roles of echocardiography, cardiac CT, and MRI in planning non-surgical and surgical valve intervention.
3. To learn how to structure a radiology report before non-surgical and surgical treatment of valvular heart disease.
Author Disclosures:
Jean-Nicolas Dacher: Consultant: Amicus Therapeutics, Takeda, General Electric, Microport; Research Grant/Support: Takeda; Speaker: General Electric, Amicus, Takeda

RC 1803-4
The vital role of the radiologist in the congenital cardiac team
A. J. B. S. Madureira; Porto/PT
(ajbmadureira@gmail.com)

Learning Objectives:
1. To understand what makes a good congenital heart team.
2. To define the role of the radiologist in the congenital cardiac team.
3. To understand how to build the team and what success looks like.

Panel discussion: Why should radiologists be a crucial part of cardiac teams in the future?

10:30-11:30 **Room K1**

Refresher Course: Head and Neck

RC 1808

Follow-up in head and neck cancer: hybrid imaging and new tracers

RC 1808-1
Chairperson's introduction
B. De Foer; Antwerp/BE
(bert.defoer@gza.be)

RC 1808-2
PET/CT: pitfalls in the head and neck and how to avoid them
B. Purohit; Singapore/SG

Learning Objectives:
1. To identify various types of image interpretation pitfalls in PET-CT studies of the head and neck.
2. To describe the pathophysiological mechanisms leading to false positive & false negative studies.
3. To describe and reflect on the complementary role of cross-sectional imaging like contrast-enhanced CT (CECT), contrast-enhanced MRI (CEMRI) with diffusion-weighted imaging (DWI) & ultrasound (US) to solve diagnostic dilemmas.

RC 1808-3
PET/MRI: challenges and outcome in head and neck imaging
M. Becker; Geneva/CH

Learning Objectives:
1. To describe the advantages of combined diffusion-weighted imaging (DWI), MRI and PET information for the post-treatment evaluation of head and neck squamous cell carcinoma.
2. To learn how to deal with discrepant morphologic MRI, DWI, and fluorodeoxyglucose (FDG) PET results for the assessment of recurrent disease.
3. To discuss the predictive value of morphologic, DWI, and FDG PET-derived biomarkers on treatment outcomes in head and neck squamous cell carcinoma.
Author Disclosures:
Minerva Becker: Grant Recepient: grant supported by the Swiss National Science Foundation SNF 320030_173091/1

Panel discussion: Clinical impact of imaging follow-up

10:30-11:30 **Room K2**

Clinical Trials in Radiology

CTiR 18

Clinical Trials in Radiology 2

CTiR 18-1
Chairpersons' introduction
M. Dewey; Berlin/DE
C. Catalano; Rome/IT
(Carlo.Catalano@uniroma1.it)
Author Disclosures:
Carlo Catalano: Advisory Board: ESR

CTiR 18-3
Discussant
H. Alkadhi; Zurich/CH

CTiR 18-5
Discussant
I. Žuža; Rijeka/HR

CTiR 18-6
Artificial intelligence-enabled opportunistic screening for coronary artery calcium and thoracic aortic disease on low-dose, non-gated CT scans: a sub-analysis of the National Lung Screening Trial
D. Mastrodicasa[*1], S. Dossabhoy[1], A. Yasin[1], S. van Velzen[2], M. Leipzig[1], G. Mistelbauer[1], I. Isgum[2], M. J. Willemink[3], C. Watkins[1], D. Fleischmann[1]; [1]Stanford, CA/US, [2]Amsterdam/NL, [3]San Diego, CA/US

Purpose: To determine the prognostic value of opportunistic screening for coronary artery calcium (CAC), thoracic aorta calcium (TAC) and aneurysm (TAA) in a population-based lung cancer screening cohort.
Methods or Backround: In the National Lung Screening Trial (NLST), patients (n=53,454) aged 55–75 years at risk for lung cancer were randomised to chest radiography or CT screening. We used low-dose baseline CT scans to automatically extract thoracic aorta diameters, CAC and TAC scores using a bundle of artificial intelligence (AI) algorithms. CAC and TAC scores were calculated using a dedicated AI algorithm prototype. Aortic diameters were estimated using a second AI algorithm prototype to automatically detect TAA. Patients were followed up for all-cause mortality. CAC and TAC scores, baseline aortic diameters, and the presence of TAA were tested as predictors of 5-year mortality using Kaplan-Meier analysis and Cox proportional hazards modeling.
Results or Findings: Out of 1,266 patients, 51 (4%) deaths occurred during a median follow-up of 81 months. Patients who died had a higher median (IQR) CAC (189 (41,1429) vs. 145 (5,652), p=0.063), median TAC (1010 (406-4,613) vs. 691 (146-2,039), p=0.013), and median maximum aortic diameter (27.5 (26.3-29.0) vs. 26.9 (25.1-28.5) mm, p=0.061). AI-detected diameters revealed TAA in 286 (22%) patients. Cox regression models demonstrated a small but statistically significant increase in the 5-year mortality hazard for CAC (HR=1.00041 (95%CI 1.00024-1.00058, p<0.001), TAC (HR=1.00010, 95%CI 1.00005-1.00015, p<.001), and maximum aortic diameter (HR=1.11190, 95%CI=1.02580-1.20536, p<0.001).
Conclusion: In this ongoing sub-analysis of the NLST, median TAC and maximum aortic diameter were significantly higher in patients who died and could be used as predictors of 5-year mortality. AI-based screening can leverage data automatically extracted from lung cancer screening chest CT to potentially improve patient management and reduce mortality.
Limitations: A limitation of the study is the fact that a retrospective cohort was used.
Ethics committee approval: Research Compliance Office, Stanford University: IRB Protocol 56063. This protocol ("Evaluation of Thoracic Aortic Aneurysm Mortality with Low-Dose Computed Tomographic Screening") is being withdrawn because based on the information provided in this application, the IRB has determined that this research does not involve human subjects as defined in 45 CFR 46.102(f) or 21 CFR 50.3(g).
Funding for this study: No funding was received for this study.
Author Disclosures:
Dominik Fleischmann: Nothing to disclose
Matthew Leipzig: Nothing to disclose
Ivana Isgum: Nothing to disclose
Claire Watkins: Nothing to disclose
Shernaz Dossabhoy: Nothing to disclose
Sanne van Velzen: Nothing to disclose
Gabriel Mistelbauer: Nothing to disclose
Martin J. Willemink: Nothing to disclose
Aleena Yasin: Nothing to disclose
Domenico Mastrodicasa: Consultant: Segmed Inc. Shareholder: Segmed Inc.

CTiR 18-7
Discussant
M. Williams; Edinburgh/UK
Author Disclosures:
Michelle Claire Williams: Speaker: Canon Medical Systems, Siemens Healthineers and Novartis

CTiR 18-9
Discussant
M. Pirnat; Maribor/SI
(maja.pirnat@ukc-mb.si)
Author Disclosures:
Maja Pirnat: Advisory Board: Bayer

10:30-11:30 **Room M**

ESR Undergraduate Subcommittee Session

UG

Back to the basics: imaging for undergraduates

UG-1
Chairperson's introduction
V. J. Goh; London/UK
(vicky.goh@kcl.ac.uk)

Learning Objectives:
Imaging plays a key role in the management of patients. It is important for young doctors to know the basic principles of imaging techniques and to be able to explain how imaging works and how safe the tests are to their patients. This interactive session aims to explain the key principles of imaging modalities.
Author Disclosures:
Vicky Goh: Grant Recepient: Siemens Healthineers

UG-2
Basics of x-ray imaging
A. P. Parkar; Bergen/NO
(apparkar@gmail.com)

Learning Objectives:
1. To explain the basic principles of x-ray imaging.
2. To explain the basic principles and requirements for radiation safety.

UG-3
Basics of ultrasound imaging
C. Chew; Glasgow/UK

Learning Objectives:
1. To explain the basic principles of ultrasound imaging.
2. To provide examples of how ultrasound imaging is applied for diagnosis.

UG-4
Basics of computed tomography imaging
G. Zamboni; Verona/IT
(gzamboni@hotmail.com)

Learning Objectives:
1. To explain the basic principles of computed tomography imaging.
2. To provide examples of how computed tomography imaging is applied for diagnosis.

UG-5
Basics of magnetic resonance imaging
S. Gourtsoyianni; Athens/GR
(sgty76@gmail.com)

Learning Objectives:
1. To explain the basic principles of magnetic resonance imaging.
2. To provide examples of how magnetic resonance imaging is applied for diagnosis.

Panel discussion: The questions you always wanted to ask in medical school but did not!

10:30-11:30 **Room N**

Refresher Course: Abdominal and Gastrointestinal

RC 1801

Scarred for life: imaging fibrosis in the abdomen and pelvis

RC 1801-1
Chairperson's introduction
D. Miletić; Rijeka/HR

RC 1801-2
Inflammatory bowel disease, small bowel and perianal
J. Rimola; Barcelona/ES
(jrimola@clinic.cat)

Learning Objectives:
1. To understand the range of responses where inflammatory bowel disease affects the small bowel or perianal region.
2. To understand how imaging can detect small bowel and perianal fibrosis.
3. To know the imaging features of fibrosis in inflammatory bowel disease.
Author Disclosures:
Jordi Rimola Gibert: Advisory Board: Gilead, Takeda, Agomab, Janssen, Boehringer Ingelheim, Lumen; Consultant: Alimentiv; Grant Recepient: Abbvie, Genentech; Speaker: Takeda, Jannsen, Gilead

RC 1801-3
Liver and pancreas
S. M. Ertürk; Istanbul/TR
(smerturk@gmail.com)

Learning Objectives:
1. To understand how fibrosis develops in the liver and pancreas.
2. To understand how imaging can detect liver and pancreatic fibrosis.
3. To know the imaging features that differentiate fibrosis from malignancy in the liver and pancreas.
Author Disclosures:
Sükrü Mehmet Ertürk: Speaker: Siemens Bayer GE

RC 1801-4
Mesentery and retroperitoneum
M. J. Lahaye; Amsterdam/NL

Learning Objectives:
1. To understand how inflammation and fibrosis develop in the mesentery and retroperitoneum.
2. To understand how imaging can detect mesenteric and retroperitoneal fibrosis.
3. To know the imaging features that can differentiate fibrosis from inflammatory and malignant diseases in the mesentery and retroperitoneum.

Panel discussion: Do we need better techniques to map and quantify fibrosis?

10:30-12:00 **Open Forum ESR at Work**

E³ - European Diploma Prep Session

E³ 1823

Breast

E³ 1823-1
Chairperson's introduction
A. Chiorean; Cluj-Napoca/RO
(chiorean_angi@yahoo.com)

E³ 1823-2
A. Fundamentals of mammography
J. Tanner; Cambridge/UK

Learning Objectives:
1. To understand the anatomy, normal appearances, variants, and abnormalities of the female breast.

2. To become familiar with the technical aspects of diagnostic mammography, especially regarding dose and image quality.
3. To become familiar with the principles of current practice and risk/benefit analysis in breast cancer screening.

E³ 1823-3
B. Breast cancer diagnosis and interventions
T. Sella; Jerusalem/IL
(tamarse@hadassah.org.il)

Learning Objectives:
1. To learn about the differentiation of benign and malignant breast disease.
2. To understand the principles and basic application of standardised diagnostic categorisation systems such as BI-RADS® (the ACR breast imaging reporting and data system).
3. To become familiar with indications, contraindications, and technical aspects of image-guided interventional breast procedures.

E³ 1823-4
C. Advanced imaging of the female breast
E. M. Fallenberg; Munich/DE

Learning Objectives:
1. To understand the role of advanced imaging techniques in the evaluation of the breast.
2. To learn to use the added value of new techniques for lesion classification in mammography, ultrasound, and MRI.
3. To recognise the major imaging challenges for common indications of breast imaging.
Author Disclosures:
Eva Maria M. Fallenberg: Advisory Board: Bayer Healthcare, GE Healthcare, BD; Board Member: Vice-Chair AG-Mammadiagnostik DRG Executive Board Member EUSOBI Member Steering-Commitee-S3-Guidelines Member AGO-Guidelinecommitee Breast Cancer Member EFSUM Breast Ultrasound Commitee Member ESR Quality, Safety, and Standards Committee; Grant Recepient: DFG; Speaker: GE Healthcare, Bayer Healthcare, Guerbet, Siemens Healthyneers, BD, Roche

10:30-12:00 **Room A**

E³ - Advanced Courses: Imaging of Ageing

E³ 1820
Ageing joints

E³ 1820-1
Chairperson's introduction
M. C. De Jonge; Utrecht/NL
(milkodejonge@gmail.com)

Learning Objectives:
1. To discuss osteoarthritis in general and prevalence in hand-wrist-elbow.
2. To discuss appropriateness of imaging.
3. To discuss the relevance of basic imaging and advanced imaging.
4. To discuss the choice of advanced imaging.
5. To discuss the future of imaging.

E³ 1820-2
Degenerative hand, wrist, and elbow conditions: state-of-the-art imaging
M. C. De Jonge; Utrecht/NL
(milkodejonge@gmail.com)

E³ 1820-3
Hip arthroplasty
P. D. Afonso; Lisbon/PT
(p.diana.a@gmail.com)

Learning Objectives:
1. To get familiar with hip arthroplasties.
2. To identify the common post-surgical findings and understand what surgeons look for.
3. To recognise potential complications on imaging (including component loosening and periprosthetic fractures).

E³ 1820-4
Imaging of microcrystal disorders
M. Reijnierse; Leiden/NL
(m.reijnierse@lumc.nl)

Learning Objectives:
1. To learn the importance of including calcifications in radiographic reports.
2. To understand the cascade of reactions leading to joint inflammation in crystal deposition diseases.
3. To demonstrate the application of dual-energy CT in diagnosing gout.

E³ 1820-5
Fractures in the elderly
J. Teh; Oxford/UK
(jamesteh1@googlemail.com)

Learning Objectives:
1. To understand the importance of fragility fractures in the elderly.
2. To recognise the common fractures encountered in the elderly, including atypical femoral fractures.
3. To be aware of management principles and to be familiar with specific treatments such as vertebroplasty.

10:30-12:00 **Room B**

State of the Art Symposium

SA 18
Degenerative spine imaging

SA 18-1
Chairperson's introduction
A. Ramos; Madrid/ES
(ramosana3@yahoo.es)

SA 18-2
Terminology: we should understand each other
C. Schorlemmer; Barcelona/ES
(cschorlemmer@telemedicineclinic.com)

Learning Objectives:
1. To describe the prevalence, by age, of common degenerative spine conditions.
2. To summarise and illustrate the standard lexicon and classification scheme for degenerative lumbar disk pathology.
3. To establish a common language to describe disc degeneration, disc protrusion/herniation, discarthrosis, spinal canal stenosis, facet joint arthrosis, and interspinous processes arthrosis.

SA 18-3
Not just the discs, please: complete evaluation of the images
Z. Rumboldt; Rovinj-Rovigno/HR
(puz3@yahoo.com)

Learning Objectives:
1. To understand the importance of joints, ligaments, and muscles, as well as to recognise and describe the pathological changes of these structures.
2. To perform a complete evaluation of the available images, including detecting spondylolysis, sacral fractures, sacroiliitis and early infection.
3. To optimise the imaging protocols and formulation of the radiology reports.

SA 18-4
MRI vs CT for the degenerative spine
T. Baptista; Lisbon/PT
(jtbaptista@gmail.com)

Learning Objectives:
1. To define the different anatomical locations affected by degenerative pathology of the spine.
2. To distinguish the indications and clinical significance of CT and MRI in the setting of degenerative pathology of the spine.
3. To identify the limitations of CT and MRI in evaluating the degenerative spine.

Panel discussion: What and how to report?

10:30-12:00 **Room C**

Special Focus Session

SF 18a

When the radiologist makes the difference

SF 18a-1
Chairperson's introduction
R. G. H. Beets-Tan; Amsterdam/NL

Learning Objectives:
To learn about the relevant role of the radiologist in the multidisciplinary team. To understand the relevant questions from the gynaecology and liver tumour multidisciplinary team and how these can be answered with imaging. To review current multidisciplinary approaches and potential difficulties.

SF 18a-2
The radiologist's role in multidisciplinary teams (MDTs)
D. Halpenny; Dublin/IE

Learning Objectives:
1. To learn about the radiologist's role in the multidisciplinary team and understand how radiologists can add value to multidisciplinary team management.
2. To know the results of the ESOI survey on MDTs.
3. To review current multidisciplinary approaches and potential difficulties.

SF 18a-3
The gynaecology team
E. Sala; Cambridge/UK

Learning Objectives:
1. To know the relevant clinical questions from the multidisciplinary management team of gynaecological tumours.
2. To understand how these questions can be answered with imaging.
3. To review current multidisciplinary approaches; how we do it in our institution.

SF 18a-4
The liver team
M. Ronot; Clichy/FR
(maxime.ronot@aphp.fr)

Learning Objectives:
1. To know the relevant clinical questions from the multidisciplinary management team of liver tumours.
2. To understand how these questions can be answered with imaging.
3. To review current multidisciplinary approaches; how we do it in our institution.

Panel discussion: How can radiologists add value to multidisciplinary team management?

10:30-12:00 **Room D**

EuroSafe Imaging Session

EU 18

ESR collaboration with the European Commission and IAEA to increase quality and safety of imaging in clinical practice

EU 18-1
Chairperson's introduction
B. Brkljačić; Zagreb/HR
(boris@brkljacic.com)

EU 18-2
The EC SAMIRA Action Plan - quality and safety pillar: opportunities for collaboration with professional societies and expected impact
G. Simeonov; Luxembourg/LU
(georgi.simeonov@ec.europa.eu)

EU 18-3
IAEA initiatives to improve access and to strengthen the practice of medical imaging
D. Paez; Vienna/AT
(d.paez@iaea.org)

Learning Objectives:
1. To analyse inequities in access to medical imaging.
2. To describe the IAEA's initiatives to improve the quality and safety of imaging clinical practice.
3. To discuss synergies and areas of cooperation between ESR, IAEA, and EC to improve imaging practice worldwide.

EU 18-4
Building the bridge between clinical professionals and regulators. IAEA Technical Cooperation Programme in Europe on radiation protection in medicine: opportunities for collaboration with ESR EuroSafe Imaging
J. N. Vassileva; Vienna/AT
(J.N.Vassileva@gmail.com)

Learning Objectives:
1. To introduce the IAEA safety standards and guidance related to radiation protection in medicine.
2. To name challenges for safety standards' implementation in the clinical practice of Member States participating in the IAEA Technical cooperation programme for Europe and Central Asia.
3. To outline the IAEA work toward building a bridge between clinical professionals and regulators.

Panel discussion

10:30-12:00 **Room E2**

E³ - Advanced Courses: Interactive Teaching Sessions for Young (and not so Young) Radiologists

E³ 1821

Safety of radiologic contrast media in adults, children, and pregnancy

E³ 1821-1
Acute non-renal adverse reactions to iodinated contrast
O. Clément; Paris/FR
(olivier.clement@aphp.fr)

Learning Objectives:
1. To illustrate the spectrum of acute non-renal adverse reactions after radiologic contrast media injection.
2. To become familiar with the treatment of acute non-renal adverse reactions.
Author Disclosures:
Olivier Clément: Advisory Board: Bayer; Author: Bracco

E³ 1821-2
Gadolinium-based agents: NSF, deposition, and other adverse reactions
C. C. Quattrocchi; Rome/IT
(carlocosimoquattrocchi@gmail.com)

Learning Objectives:
1. To understand the pathophysiology, diagnosis, and risk factors of gadolinium deposition in tissues.
2. To illustrate the clinical consequences of gadolinium deposition in different tissues.
3. To illustrate the spectrum of acute adverse reactions after gadolinium-based contrast media injection.

E³ 1821-3
Contrast media extravasation
G. Roditi; Glasgow/UK
(Giles.Roditi@glasgow.ac.uk)

Learning Objectives:
1. To understand the pathophysiology, diagnosis, and risk factors of contrast media extravasation.
2. To illustrate how to prevent, reduce the severity, and manage contrast media extravasation.

Author Disclosures:
Giles Hannibal Roditi: Speaker: GE Healthcare, Bracco SPA

10:30-12:00 **Room G1**

E³ - Advanced Courses: Prenatal, Neonatal, Paediatric Imaging

E³ 1818
Child abuse

E³ 1818-1
Chairperson's introduction
I. Barber; Esplugues de Llobregat/ES

E³ 1818-2
Neuroimaging for non-accidental head injury in childhood
M. Raissaki; Iraklion/GR
(mraissaki@yahoo.gr)

Learning Objectives:
1. To review clinical and imaging features of non-accidental head injury.
2. To describe imaging protocols in children with a suspected non-accidental head injury.
3. To emphasize differential diagnoses and pitfalls.
Author Disclosures:
Maria Raissaki: Advisory Board: Maria Raissaki

E³ 1818-3
Skeletal imaging of child abuse (non-accidental injury)
A. C. Offiah; Sheffield/UK
(a.offiah@sheffield.ac.uk)

Learning Objectives:
1. To understand when to deviate from the standard images obtained in suspected inflicted injury of children.
2. To learn which fractures are highly suspicious for abuse.
3. To identify the important radiographic features of key differential diagnoses.

E³ 1818-4
Improving child protection in healthcare: peer counselling, education, and research
O. Berthold; Berlin/DE
(o.berthold@drk-kliniken-berlin.de)

Learning Objectives:
1. To define the differences, advantages and disadvantages of different types of legal frameworks governing child abuse reporting in different European countries.
2. To realize how important peer counselling services are in managing child abuse cases well.
3. To modify own approaches to child abuse cases and look for ways to improve the handling of child abuse cases.

10:30-12:00 **Room G2**

Special Focus Session

SF 18b
Photon-counting CT

SF 18b-1
Chairperson's introduction
S. T. Schindera; Aarau/CH
(sschindera@aol.com)

SF 18b-2
Technical advancements
T. G. Flohr; Forchheim/DE
(Thomas.flohr@siemens-healthineers.com)

Learning Objectives:
1. To understand the differences between photon-counting CT detectors and established energy-integrating scintillator CT detectors.
2. To understand the benefits and challenges of photon-counting CT detectors.
3. To understand how the technical benefits of photon-counting CT translate into improved clinical applications.
Author Disclosures:
Thomas Flohr: Employee: Siemens Healthcare GmbH, Forchheim, Germany

SF 18b-3
Review of clinical applications
A. Euler; Zurich/CH

Learning Objectives:
1. To list the possible post-processing options of photon-counting CT and their clinical application.
2. To reflect on the current body of literature regarding clinical photon-counting CT.
3. To describe the potential pitfalls of functional imaging with photon-counting CT.
Author Disclosures:
Andre Euler: Speaker: Siemens Healthineers

SF 18b-4
Focus on image quality and dose
S. Si-Mohamed; Lyon/FR

Learning Objectives:
1. To differentiate the technical aspects of the energy integrating detector from the photon-counting detector.
2. To list the advantages of this technology for improving the dose efficiency and image quality.
3. To understand the impact of this technology on different clinical tasks and image quality.

Panel discussion: What should we expect in the next three years?

10:30-12:00 **Room O**

Trainees in Focus

IF 18
Understanding reporting errors in radiology and how to reduce them

IF 18-1
Chairperson's introduction
A. Brady; Cork/IE
(adrianbrady@me.com)

Learning Objectives:
In this session, the audience will learn why and how reporting errors occur and what we can do to reduce them. The psychophysiological mechanisms of visual attention and visual perception will be introduced, followed by the presentation of cases from daily practice illustrating perceptual errors (in which an important abnormality is simply not seen), cognitive errors (in which the meaning of the finding is not correctly interpreted), and satisfaction of search errors. A practical approach to reporting and reducing errors will be presented. The audience will have the possibility to interact actively in the session.

IF 18-2
How do radiologists find what they are looking for?
J. M. Wolfe; Boston, MA/US
(jwolfe@bwh.harvard.edu)

Learning Objectives:
1. To understand the basic psychophysiological mechanisms of visual attention and visual search behaviour.
2. To appreciate their implications on medical image perception.

IF 18-3
What I missed, what I misinterpreted and why?
M. G. Mack; Munich/DE
(m.mack@radiologie-muenchen.de)

Learning Objectives:
1. To illustrate top perceptual and cognitive error cases from daily practice.
2. To understand why the errors occurred.

IF 18-4
How to deal with reporting errors?
A. Brady; Cork/IE
(adrianbrady@me.com)

Learning Objectives:
1. To understand the most effective strategies to minimise reporting errors.
2. To learn how to deal with reporting errors once they have occurred.

Panel discussion: Do more and better images make things better?

12:30-13:30 **Open Forum ESR at Work**

Open Forum Session

Organised by EuroSafe Imaging

OF 19E

Dose reduction systems

OF 19E-1
Chairpersons' introduction
G. Paulo; Coimbra/PT
(gpaulo@icloud.com)
D. Akata; Ankara/TR
(dakata@hacettepe.edu.tr)

OF 19E-2
Dose reduction tools in CT
M. Kortesniemi; Helsinki/FI
(mika.kortesniemi@hus.fi)

Learning Objectives:
1. To describe the measurement tools of radiation output for CT.
2. To learn about dose reduction methods and challenges in CT.
3. To understand the impact of CT technical features in image quality.

OF 19E-3
Dose reduction tools in interventional radiology
G. Eldem; Ankara/TR
(goncaeldem@gmail.com)

Learning Objectives:
1. To define FGI dose descriptors.
2. To describe patient dose reduction strategies in FGI.
3. To discuss the strategies to reduce occupational exposure.

OF 19E-4
Radiation protection challenges in paediatric imaging
G. Paulo; Coimbra/PT
(gpaulo@icloud.com)

Learning Objectives:
1. To identify the main challenges in radiation protection for paediatric imaging.
2. To discuss the solutions for non paediatric hospitals to adapt protocols towards dose reduction for paediatric patients.
3. To learn how to communicate radiation risks in paediatric imaging.

Open forum discussion: Radiation protection of patients and staff: how to raise awareness amongst health professionals?

12:30-13:30 **Open Forum Radiographers**

Open Forum Session

OF 19R

Post-registration training opportunities for radiographers

OF 19R-1
Chairperson's introduction
V. Syrgiamiotis; Athens/GR
(syrgiamiotisvasilis@gmail.com)

Learning Objectives:
1. To discuss opportunities for post-registration training in computed tomography (CT).
2. To discuss options of post-registration training in magnetic resonance imaging.
3. To discuss opportunities for post-registration training in ultrasound (US).

OF 19R-2
Post-registration training in computed tomography
F. Zarb; Msida/MT
(francis.zarb@um.edu.mt)

OF 19R-3
Post-registration training in magnetic resonance imaging
P. C. Murphy; Cork/IE
(peter.murphy@alliancemedical.ie)

OF 19R-4
Post-registration training in ultrasound
A. de Bock; Brussels/BE

Open forum discussion

12:30-13:30 **Open Forum Trainees**

Open Forum Session

OF 19T

Career development: differing career paths in radiology

OF 19T-1
Chairperson's introduction
V. Pozdniakova; Oslo/NO
(v.a.pozdnyakova@gmail.com)

Learning Objectives:
Part of a series of sessions where distinguished professors of radiology together with their young residents are invited to share their experience, their vision, and give advice and guidance to the younger generation of radiologists about what it is to be a radiologist.

OF 19T-2
Life as a department chair
R. G. H. Beets-Tan; Amsterdam/NL

Learning Objectives:
1. To define what a day in the life of a department chair entails.
2. To learn about the career benefits and the challenges of managing a department.

OF 19T-3
Life as an academic
N. Kartalis; Stockholm/SE

Learning Objectives:
1. To define what a day in the life of an academic radiologist entails.
2. To learn about the career benefits and the challenges of being an academic radiologist.
Author Disclosures:
Nikolaos Kartalis: Other: Institutional consultation fees: Bayer, Ascelia Pharma

OF 19T-4
Life in industry
G. Makris; London/UK

Learning Objectives:
1. To learn about opportunities for radiologists in industry.
2. To understand steps, benefits and risks in moving from clinical practice to industry roles.
Author Disclosures:
Gregory Makris: Employee: Bayer AG

OF 19T-5
Private equity: providing a different perspective
M. Notohamiprodjo; Tübingen/DE
(Mike.Notohamiprodjo@die-radiologie.de)

Learning Objectives:
1. To learn about opportunities for radiologists outside the clinical routine.
2. To define how radiologists can gain investment in radiology start-ups.
Author Disclosures:
Mike Notohamiprodjo: Advisory Board: Easy Radiology, Mediaire, Bayer; Share Holder: Easy Radiology, Mediaire; Speaker: Siemens

Open forum discussion: How does a career evolve?

12:30-13:30 **Room A**

E³ - The Beauty of Basic Knowledge: Screening

E³ 25D

Colorectal cancer screening with CT colonography (CTC): where are we?

E³ 25D-1
Chairperson's introduction: An update of ESGAR recommendations
J. Stoker; Amsterdam/NL

Learning Objectives:
At the end of this session, the participants will have gained knowledge regarding the quality standards for CT colonography, the main pitfalls to avoid during interpretation and the role of artificial intelligence.

E³ 25D-2
Diagnostic performance of faecal immunochemical test (FIT) and CT colonography for non-invasive colorectal cancer screening
S. A. Taylor; London/UK

Learning Objectives:
1. To learn about FIT performance for colorectal cancer detection.
2. To learn about screening trial results evaluating CT colonography.
3. To learn about the positive rate and referral to colonoscopy for both tests.

E³ 25D-3
Bowel preparation for CT colonography: new trends
T. Mang; Vienna/AT

Learning Objectives:
1. To learn about patient acceptability of reduced vs. full preparation.
2. To review different barium-based tagging regimens.
3. To understand their role in diagnostic accuracy.

E³ 25D-4
CT colonography: avoiding traps and pitfalls
P. Lefere; Hooglede/BE
(radiologie@skynet.be)

Learning Objectives:
1. To learn about technique-related pitfalls.
2. To learn about anatomy-related pitfalls.
3. To learn about 2D and 3D imaging-related pitfalls.

E³ 25D-5
Machine learning based CTC screening: the way to go?
E. Neri; Pisa/IT
(emanuele.neri@med.unipi.it)

Learning Objectives:
1. To learn about the impact of computer-aided detection on CT colonography.
2. To learn about deep learning electronic cleansing.
3. To review the role of texture analysis for polyp characterisation.
Author Disclosures:
Emanuele Neri: Speaker: GE Healthcare, Bayer

12:30-13:30 **Room B**

E³ - The Beauty of Basic Knowledge: Sports Injuries

E³ 24D

Upper limb injury patterns in the athlete

E³ 24D-1
Chairperson's introduction
A. S. Vieira; Porto/PT
(alberto.vieira@cuf.pt)

Learning Objectives:
Although we often refer to a patient having a single injury, multiple structures are frequently injured due to a sports injury. The structures involved are often predictable when the mechanism of injury is understood. Recognising injury patterns allows a careful review of the relevant structures that need to be commented on in the radiologists' report. In this session, patterns of shoulder injury associated with overhead sporting activities, such as throwing, will be discussed in the first presentation. The second presentation will focus on the wrist and particularly the patterns of injury that are seen in golfers and tennis players, frequently involving structures on the ulnar aspect of the wrist. Finally, attention will turn to the elbow, where mechanisms of ligament tear and their associated injuries will be highlighted. In common with all the sessions in this course, each speaker will also be asked to present a case that they have learned from in their career on any sports imaging topic. Having presented the case, the speaker will explain what made that case a learning experience.

E³ 24D-2
Patterns of shoulder injury in overhead athletes
K. Wörtler; Munich/DE

E³ 24D-3
A sports injury I learned from
K. Wörtler; Munich/DE

E³ 24D-4
Patterns of wrist injury in tennis and golf
A. B. Rosskopf; Zurich/CH
(andrea.rosskopf@balgrist.ch)

E³ 24D-5
A sports injury I learned from
A. B. Rosskopf; Zurich/CH

E³ 24D-6
Patterns of ligament injury at the elbow: what to look for
A. J. Grainger; Cambridge/UK

E³ 24D-7
A sports injury I learned from
A. J. Grainger; Cambridge/UK

12:30-13:30 **Room G2**

EBR Session

Organised by the European Board of Radiology (EBR)

EBR 19

Online education and online examinations since the COVID-19 pandemic: the Accreditation Council in Imaging (ACI) and the European Diploma in Radiology (EDiR)

EBR 19-1
Chairperson's introduction
H. J. Lamb; Leiden/NL
(h.j.lamb@lumc.nl)

EBR 19-2
The changing world of education since the COVID-19 pandemic started
P. Ricci; Rome/IT
(paolo.ricci@uniroma1.it)

Learning Objectives:
1. To explain the changes observed in online education since COVID-19 started.
2. To learn about the trend observed in the ACI surveys performed between 2017 and 2020.
3. To discuss the future of on-site and online education based on the evolution of the EACCME criteria.
Author Disclosures:
Paolo Ricci: Advisory Board: ACI Scientific Director

EBR 19-3
Digital technology and European exam diplomas
L. Oleaga Zufiría; Barcelona/ES
(lauraoleaga@gmail.com)

Learning Objectives:
1. To learn the impact of digital technology on e-examinations quality.
2. To determine the radiological community's perception of participating in remote-proctored examinations from home.

Discussion

12:30-13:30 **Room K1**

Refresher Course: Neuro

E³ 1926

WHO brain neoplasms update

E³ 1926-1
Chairperson's introduction
A. Ramos; Madrid/ES
(ramosana3@yahoo.es)

E³ 1926-2
Adult brain neoplasm update
A. van der Hoorn; Groningen/NL
(a.van.der.hoorn@umcg.nl)

Learning Objectives:
1. To become familiar with the 2021 WHO classification of adult brain neoplasms.
2. To understand the relevant genetics of adult brain neoplasms.
3. To identify differentiating imaging features of adult brain neoplasms.

E³ 1926-3
Paediatric brain neoplasm update
U. Löbel; London/UK
(ulrike.loebel@gosh.nhs.uk)

Learning Objectives:
1. To describe differences between the 2016 and 2021 WHO classification of CNS neoplasms in children.
2. To name newly recognised paediatric CNS neoplasm types/subtypes.
3. To understand the radiologist's role in the diagnosis of a paediatric brain tumour.

E³ 1926-4
Glioma or not?
C. Calli; Izmir/TR

Learning Objectives:
1. To understand and recognise the typical imaging features of gliomas.
2. To get familiar with and be able to list glioma mimickers on imaging studies.
3. To describe the imaging features that differentiate gliomas from mimickers.

Panel discussion: Glioma multidisciplinary tumour board (MDTB) - how radiology changes management

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

E³ - Young ECR Programme: Basic Sessions

Organised by the ESOR

BS 19

Radiologic anatomy: heart and great vessels

BS 19-1
Chairperson's introduction
C. Loewe; Vienna/AT
(christian.loewe@meduniwien.ac.at)
Author Disclosures:
Christian Loewe: Speaker: GE Healthcare, Siemens Healthineers, Bracco

BS 19-2
Coronary anatomy: the usual and the suspect
M. Francone; Milan/IT
(marco.francone@hunimed.eu)

Learning Objectives:
1. To learn about the segmental approach to the normal anatomy of coronary arteries and veins.
2. To understand the difference between anatomical variants and anomalies.
3. To become familiar with the most common coronary variations, anomalies, and their clinical relevance.

BS 19-3
Aorta and great arteries: where they are coming from and what can happen
K.-F. Kreitner; Mainz/DE
(Karl-Friedrich.Kreitner@unimedizin-mainz.de)

Learning Objectives:
1. To understand the embryology of the aorta and the great arteries.
2. To learn about the most common congenital disorders.
3. To become familiar with the normal appearance, dimensions, and most common pathologies of the thoracic aorta and great arteries.

BS 19-4
Myocardium and cardiac valves
R. Salgado; Antwerp/BE
(rodrigo.salgado@uza.be)

Learning Objectives:
1. To understand the anatomy of the cardiac valves.
2. To learn about the most common anomalies and diseases of cardiac valves.
3. To become familiar with a segmental approach to myocardial diseases.

Questions and answers

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

Round Table Session

RT 19

Work-life balance in radiology: how do we ensure that the future radiology practice is family- and life-friendly?

RT 19-1
Chairperson's introduction
A. Brady; Cork/IE
(adrianbrady@me.com)

Learning Objectives:
1. To consider how radiology practice can conflict with work-life balance and well-being.
2. To discuss interventions which may improve worker satisfaction and retention in radiology.
2. To evaluate influences which may impact staff retention/loss in radiology.

RT 19-2
What do younger radiologists want to change in radiology practice?
M. Reim; Tartu/EE
(reimmartin@gmail.com)

RT 19-3
Adapting radiology practice to active family life
F. Kilburn-Toppin; Cambridge/UK

RT 19-4
How do we keep radiologists happy, productive and clinically engaged?
G. Boland; Boston, MA/US
(gboland@partners.org)

RT 19-5
Discussion
A. Brady; Cork/IE
(adrianbrady@me.com)
M. Reim; Tartu/EE
(reimmartin@gmail.com)
F. Kilburn-Toppin; Cambridge/UK
G. Boland; Boston, MA/US
(gboland@partners.org)
B. Ertl-Wagner; Toronto, ON/CA
M. Prokop; Nijmegen/NL
(mathias.prokop@radboudumc.nl)
M. Goyen; Hamburg/DE
Author Disclosures:
Birgit B. Ertl-Wagner: Other: Central Reader Bayer Healthcare, Spouse is employee of Siemens Healthineers

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

Image Interpretation Quiz

IIQ

A night at the opera

IIQ -1
Introduction
C. Loewe; Vienna/AT
(christian.loewe@meduniwien.ac.at)
Author Disclosures:
Christian Loewe: Speaker: GE Healthcare, Siemens Healthineers, Bracco

IIQ -2
Rockstars Team
R. Salgado; Antwerp/BE
(rodrigo.salgado@uza.be)
M. Pirnat; Maribor/SI
(maja.pirnat@ukc-mb.si)
Author Disclosures:
Maja Pirnat: Advisory Board: Bayer

IIQ -3
Opera Singers Team
M. Ronot; Clichy/FR
(maxime.ronot@aphp.fr)
I. Bargellini; Pisa/IT
(irenebargellini@hotmail.com)

IIQ -4
Closing words
C. Loewe; Vienna/AT
(christian.loewe@meduniwien.ac.at)
Author Disclosures:
Christian Loewe: Speaker: GE Healthcare, Siemens Healthineers, Bracco

14:00-15:00 **Open Forum ESR at Work**

Open Forum Session

Organised by EuroSafe Imaging

OF 20E

Contact shielding: what we know and we are doing

OF 20E-1
Chairperson's introduction
C. Granata; Genoa/IT

OF 20E-2
Current guidelines, recommendations and legislative documents
M. Sans Merce; Geneva/CH
(marta.sansmerce@hcuge.ch)

Learning Objectives:
1. To learn about the current guidelines, recommendations, and national and international legislation about the use of patient contact shielding.

OF 20E-3
European consensus on patient contact shielding by the GAPS group
P. Gilligan; Dublin/IE
(paddygilligan@mater.ie)

Learning Objectives:
1. To gain a better understanding of the possible benefits and risks from the use of shielding.
2. To learn about the recent guidelines on shielding provided by the European Consensus on Patient Contact Shielding issued by the Gonad and Patient Shielding (GAPS) Group.
Author Disclosures:
Paddy Gilligan: Board Member: president of efomp board member euramed

OF 20E-4
Current practice of patient shielding: results of the European survey on patient shielding by the GAPS group
C. Granata; Genoa/IT

Learning Objective:
1. To learn about the current practice of patient shielding in Europe from the recent European survey on the use of contact shielding by the GAPS Group.

OF 20E-5
No-shielding policy: how to inform patients and caregivers
S. J. Foley; Dublin/IE
(shane.foley@ucd.ie)

Learning Objective:
1. To understand how to communicate the reasons why a no-shielding policy has been implemented in a radiology department.

Open forum discussion: How to overcome the foreseeable issues of the implementation of a no-shielding policy in a radiology department?

14:00-15:00 **Open Forum Radiographers**

E³ - Young ECR Programme: Basic Sessions

Organised by the EFRS

BS 20a

Moving beyond COVID-19: elective opportunities for radiographers

BS 20a-1
Chairperson's introduction
P. Bezzina; Msida/MT
(Paul.bezzina@um.edu.mt)

BS 20a-2
10-year experience in the OPTIMAX Radiography Research Summer School
C. Buissink; Groningen/NL
(c.buissink@pl.hanze.nl)

Learning Objectives:
1. To describe the structure and function of the OPTIMAX initiative.
2. To outline the key successes of the OPTIMAX Summer Schools.
3. To discuss the plans and potential benefits of the future OPTIMAX Summer Schools.

BS 20a-3
How does the ERASMUS radiography group benefit student learning?
J. M. Saude; Porto/PT
(miguelsaude@ess.ipp.pt)

Learning Objectives:
1. To describe the role of the ERASMUS radiography group in radiographer student learning.
2. To explain how participation in an ERASMUS exchange can benefit students.
3. To discuss barriers to expanding the ERASMUS radiography group.

BS 20a-4
How effectively engage young radiographers in CPD
L. A. Rainford; Dublin/IE
(louise.rainford@ucd.ie)

Learning Objectives:
1. To outline the requirements for newly qualified radiographers in terms of CPD.
2. To discuss the benefits of mandatory CPD for radiographers.
3. To discuss the role of the EFRS in guiding the provision of CPD for radiographers.

14:00-15:00 **Open Forum Trainees**

Open Forum Session

OF 20T

Career development: the future subspecialty radiologist (part 1)

OF 20T-1
Chairperson's introduction
M. Neica; Brasov/RO
(mihaela.neica@yahoo.com)

Learning Objectives:
Part of a series of sessions where distinguished professors of radiology together with their young residents are invited to share their experience, their vision, and give advice and guidance to the younger generation of radiologists about what it is to be a radiologist.

OF 20T-2
The future neuroradiologist
M. Smits; Rotterdam/NL
(marion.smits@erasmusmc.nl)

Learning Objectives:
1. To explain innovations and clinical developments in neuroradiology.
2. To discuss how this will impact the role of a neuroradiologist in the next 10 years.
Author Disclosures:
Marion Smits: Consultant: Bracco (paid to institution); Speaker: Auntminnie, GE healthcare (paid to institution)

OF 20T-3
The future thoracic radiologist
M.-P. Revel; Paris/FR
(marie-pierre.revel@aphp.fr)

Learning Objectives:
1. To explain innovations and clinical developments in thoracic radiology.
2. To discuss how this will impact the role of a thoracic radiologist in the next 10 years.
Author Disclosures:
Marie-Pierre Revel: Equipment Support Recipient: Mevis, Aidence, Coreline, Gleamer; Research Grant/Support: French ministry of Health, French Cancer Institute; Speaker: Bracco, MSD, GE Healthcare, Boehringer Ingelheim

OF 20T-4
The future abdominal radiologist
M. M. França; Porto/PT
(mariamanuela.franca@gmail.com)

Learning Objectives:
1. To explain innovations and clinical developments in abdominal radiology.
2. To discuss how this will impact the role of an abdominal radiologist in the next 10 years.

Open forum discussion: What does the future hold for subspecialty radiologists?

14:00-15:00 **Room B**

E³ - The Beauty of Basic Knowledge: Sports Injuries

E³ 24E

Hip and groin: the role of imaging

E³ 24E-1
Chairperson's introduction
R. Sutter; Zurich/CH

Learning Objectives:
Acute and chronic injury relating to the hip and groin can be amongst the most challenging to diagnose and treat. Their diagnosis requires a sound understanding of the anatomy and biomechanics of the region. In the first two presentations, emphasise will be placed on the important findings to be recognised and included in a radiology report concerning femoroacetabular impingement at the hip and relating to groin pain and injury. As well as emphasising abnormalities that should be detected, irrelevant findings which may be seen in asymptomatic individuals will also be highlighted. In the final presentation, the role of ultrasound in addressing sports injuries at the hip will be discussed with particular reference to the dynamic assessment that ultrasound allows. In common with all the sessions in this course, each speaker will also be asked to present a case that they have learned from in their career on any sports imaging topic. Having presented the case, the speaker will explain what made that case a learning experience.
Author Disclosures:
Reto Sutter: Author: Breitenseher Publisher; Other: Balgrist University Hospital has an academic research collaboration with Siemens Healthineers, Balzano Informatik and Bayer

E³ 24E-2
Femoroacetabular impingement: what matters in my report?
R. Sutter; Zurich/CH
Author Disclosures:
Reto Sutter: Author: Breitenseher Publisher; Other: Balgrist University Hospital has an academic research collaboration with Siemens Healthineers, Balzano Informatik and Bayer

E³ 24E-3
A sports injury I learned from
R. Sutter; Zurich/CH
Author Disclosures:
Reto Sutter: Author: Breitenseher Publisher; Other: Balgrist University Hospital has an academic research collaboration with Siemens Healthineers, Balzano Informatik and Bayer

E³ 24E-4
Groin pain and injury: what matters in my report
P. M. Cunningham; Navan/IE
(pmmcunningham@gmail.com)

E³ 24E-5
A sports injury I learned from
P. M. Cunningham; Navan/IE
(pmmcunningham@gmail.com)

E³ 24E-6
Hip imaging: the role of ultrasound
M. Reijnierse; Leiden/NL
(m.reijnierse@lumc.nl)
Author Disclosures:
Monique Reijnierse: Advisory Board: Monique Reijnierse

E³ 24E-7
A sports injury I learned from
M. Reijnierse; Leiden/NL
(m.reijnierse@lumc.nl)

14:00-15:00 **Room D**

ESR Patient Advisory Group (ESR-PAG) Session

PA 20

Which tools are essential for patient care optimisation? Supporting tools for patients, radiologists, radiographers and referring healthcare professionals to optimise communication, data safety, workflow, and patient education

PA 20-1
Chairperson's introduction
A. G. Rockall; London/UK

PA 20-2
How to optimise communication for the needs of patients, radiology departments and referring healthcare professionals
A. England; Cork/IE
(aengland@ucc.ie)
D.-G. Carrié; Toulouse/FR
(dominiquecarrie@wanadoo.fr)

Learning Objectives:
1. To learn about the importance of including the patient's voice in driving improvements in radiology services.
2. To appreciate the exchange.
3. To understand the mutual needs and how they can be met from the radiographers' and radiologists' perspectives.
Author Disclosures:
Andrew England: Board Member: EFRS

PA 20-3
Various required initiatives and tools to benefit patients and the entire healthcare team to meet the future role of the radiology department. Highlighting the effectiveness of different examples in use
C. Cruwys; Glanges/FR
(CCruwys@dense-info.org)
C. Justich; Vienna/AT
(cjustich@me.com)

Learning Objectives:
1. To learn about communication tools (e.g. Communication poster and concepts, Be accepted, How to prepare for your imaging test) for radiologists.
2. To appreciate meeting all needs of all stakeholders involved in the medical process on a multidisciplinary level.
3. To understand the importance of implementing supporting tools, patient education, role models and communication training.
Author Disclosures:
Caroline Justich: Founder: Be accepted

PA 20-4
Patient safety, making the radiology report understandable to the patient and medico-legal/data safety issues
E. Briers; Hasselt/BE
(erikbriers@telenet.be)

Learning Objectives:
1. To learn that patient safety in a radiology department or radiation treatment department should be warranted, but staff should be open to discussing issues with the patient.
2. To appreciate that the patient is entitled to understand his radiology report even if his learning capacity is below average.
3. To understand that the radiology data are the "property" of the patient and that they cannot be used or consulted without the patient's prior consent.

Panel discussion: What are the next steps to improve patients' care and work life in the radiology department?

14:00-15:30 **Room G2**

E³ - Young ECR Programme: Students Session

S 20

Student Session 2

Moderator
V. Pozdniakova; Oslo/NO
(v.a.pozdnyakova@gmail.com)
Author Disclosures:
Viktoriia Pozdniakova: Board Member: RTF board

S 20-2
Anatomical variation of the cervical vagus nerve morphology using high resolution ultrasound
A. Detoraki[*1], E. E. Drakonaki[2]; [1]Nicosia/CY, [2]Heraklion/GR
(an512fey@gmail.com)

Purpose: Vagus nerve morphometry has clinical implications in vagus neurostimulation, used mainly to treat epilepsy. This prospective study aims to describe the variation of vagus nerve morphology at the thyroid level using high-resolution ultrasound (HRUS) and to define HRUS reference values and possible association with anthropometric data.
Methods or Backround: Bilateral cervical vagus nerves of 249 consecutive Caucasian patients without history of neurological disease or diabetes were sonographically examined using a 12-18Mhz probe. The number of fascicles and the cross-sectional area (CSA) at the level of the thyroid lobes were recorded. Three CSA measurements were performed to calculate the mean value.
Results or Findings: The mean fascicle count was 2.4+1.1 (right) and 2+1 (left) (paired t- test, p<0.001). Two nerve patterns were identified: a single hypoechoic fascicular structure (26.2% right, 36.3 % left) and a honeycomb structure of 2-6 discrete fascicles (72.3% right, 63.7% left). Right vagus mean CSA was larger than left (t-test, p-0.000). There was no difference in the CSA values between sex (t-test, p>0.105) and no correlation to age (Pearson's correlation p=0.07). A positive correlation between CSA and BMI was found (Pearson's correlation, p=0.01 right and p=0.05 left). The inter-rater agreement for the CSA measurements was excellent.

Conclusion: The nerve is predominantly oligo-fascicular with a honeycomb appearance. The right vagus has a larger CSA and contains more fascicles than the left. The vagus CSA increases with increasing BMI but does not correlate with age and sex.
Limitations: We used a standard widely available 12-18Mhz high-resolution probe, as the study was performed in a clinical setting. However, ultrahigh frequency (22-70 MHZ) devices may allow better delineation of the nerve size and number of fascicles. Delineation of the nerve cross-sectional area was performed manually (not by software).
Ethics committee approval: This study was approved by Venizeleio General Hospital of Heraklion, in Greece, under the protocol number 14/30-9-20.
Funding for this study: No funding was received for this study.
Author Disclosures:
Elena E. Drakonaki: Nothing to disclose
Anna Detoraki: Nothing to disclose

S 20-3

AI algorithms for classification of the mpMRI image sequences and segmentation of the prostate gland: an external validation study
K. Wang; Beijing/CN
(doriswang0202@163.com)

Purpose: To evaluate the generalisation of the AI algorithms for the classification of the mpMRI image sequences and the segmentation of the prostate gland with a multicenter external dataset.
Methods or Backround: A total of 719 patients who underwent multiparametric MRI (mpMRI) of the prostate were collected retrospectively from two hospitals. Two AI models were tested for their generalisation. One AI model was used to classify the MR images into nine types, i.e., DWI_HighB Value, DWI_LowB Value, ADC map, T2WI_without FatSat, T2WI_FatSat, TIWI_In Phase, T1WI_Out Of Phase, DCE_Before contrast-enhanced, and DCE_After contrast-enhanced. Another AI model was used to segment the area of the prostate gland on T2WI. The effectiveness of the image classification model was evaluated by two radiologists. The accuracy of the segmentation model was evaluated in terms of the Dice similarity coefficient (DSC), volume similarity (VS), and average Hausdorff distance (AHD) and subjectively evaluated by two radiologists.
Results or Findings: 719 MR studies obtained from 9 MR scanners were included, with 11,497 scan sequences and 20551 image groups. The classification AI model predicted 20,274 correct and 277 incorrect for 20,551 image groups. The accuracy of the model for the overall classification of all sequences was 0.989 (95% CI: 0.949-0.955), and the kappa was 0.932 (95% CI: 0.929-0.937). The median DSC predicted by the segmentation model was 0.960 [0.0200, 1.00], the median VS was 0.990 [0.0200, 1.00], and the median AHD was 4.50 [0.510, 71.0] mm. The radiologists subjectively evaluated 715 (99.9%) segmentation results as acceptable, and 1 (0.1%) segmentation result as unacceptable.
Conclusion: The AI models demonstrated good performance in the external validation in the task of image classification and prostate gland segmentation.
Limitations: This segmentation of prostate cancer by AI models should be studied in the next step.
Ethics committee approval: No information provided by the submitter.
Funding for this study: No funding was received for this study.
Author Disclosures:
Kexin Wang: Nothing to disclose

S 20-4

Using artificial intelligence in bridging the experience gap in prostate mpMRI: a prospective multi-reader comparison study of PI-RADS v2.1, PI-QUAL, and reporting time
A. Forookhi, L. Laschena, A. Borrelli, M. Massaro, C. Catalano, V. Panebianco; Rome/IT

Purpose: The aim of the study was to determine the influence of using a semi-automatic commercially available prostate AI software (Quantib Prostate) on inter-reader agreement in PI-RADS scoring, PI-QUAL rating, and reporting times among novice readers in multiparametric MRI.
Methods or Backround: A prospective observational study, with a final cohort of 200 patients undergoing mpMRI scans, was performed at our institution. An expert fellowship-trained urogenital radiologist interpreted all 200 scans based on PI-RADS v2.1. The scans were divided into four equal batches of 50 patients. A final evaluation of the first batch was conducted at the end of the study to assess for any changes in performance. Four independent readers evaluated each batch with and without the use of a 3D Convolutional Neural Network-based software, blinded to expert and individual reports. Dedicated training sessions were held before and after the interpretation of each batch. Image quality rated according to PI-QUAL and reporting times stratified according to steps involved in the software were recorded. Readers' confidence was also evaluated.
Results or Findings: Based on preliminary results, the overall kappa score differences between PI-RADS scoring agreement without and with Quantib were 0.678 to 0.735 for reader AF, 0.629 to 0.478 for reader AB, 0.530 to 0.340 for reader LL and 0.566 to 0.590 for reader MM. Using PI-RADS ≥ 4 as cut-off for biopsy, the AUCs with AI ranged from 0.784 (95% CI: 0.718, 0.850) to 0.846 (95% CI: 0.790, 0.901).
Conclusion: Quantib Prostate could potentially be useful in increasing inter-reader agreement among fully novice readers if used as a supplement to PACS.
Limitations: Generalisability and reproducibility of findings achieved in a high-volume centre. Novice readers are prone to contouring errors which may lead to generated colorimetric maps missing the lesion.
Ethics committee approval: No information provided by the submitter.
Funding for this study: Not applicable.
Author Disclosures:
Valeria Panebianco: Nothing to disclose
Antonella Borrelli: Nothing to disclose
Michele Massaro: Nothing to disclose
Ludovica Laschena: Nothing to disclose
Carlo Catalano: Nothing to disclose
Ali Forookhi: Nothing to disclose

S 20-5

The role of endovascular selective venous sampling (SVS) in lateralisation of parathyroid adenoma in patients with primary hyperparathyreoidism and unconclusive non-invasive radiological findings
A. Solodjankina, A. Kratovska, V. Zaiceva, N. Zdanovskis, A. Mundeciems, P. Ivanova, S. Ponomarjova; Riga/LV
(anastasija.solodjankina@gmail.com)

Purpose: Radiological localisation of parathadenoma may be challenging. The aim of this study was to analyse the association among endovascular selective venous sampling (SVS) in brachiocephalic veins with non-invasive radiological diagnostic methods and histological findings of tissue resection material in the localization of parathyroid adenoma.
Methods or Backround: In this single-centre retrospective cohort study, patients (n=28) with primary hyperparathyreoidism, who underwent SVS from 2017 - 2021 due to inconclusive radiological findings, were included. Parathyreoidectomy was indicated based on the clinical symptoms, results of non-invasive diagnostic imaging methods and the results of SVS. The lateralisation (right or left side of the neck) results of SVS were compared with non-invasive radiological imaging methods - ultrasonography (USG), scintigraphy, computed tomography (CT) and histological data of surgical material.
Results or Findings: By SVS 15 out of 22 (68.18%) pathological glands were correctly identified, in comparison to 10 out of 22 (45.45%) with the US method, 9 out of 22 (40.9%) with the scintigraphy method and 6 out of 22 (27.27%) with CT.
Conclusion: SVS is a minimally invasive diagnostic method for lateralisation of parathyroid adenoma localisation prior to surgical resection in cases with inconclusive results of non-invasive radiological diagnostic methods in order to reduce the risk of complications and resection margins.
Limitations: This study had some limitations, such as a small number of patients who underwent SVS, incomplete non-invasive diagnostic imaging data for some patients, and missing laboratory findings values.
Ethics committee approval: This study was approved by the Riga Stradiņš University ethics committee.
Funding for this study: There was no funding for this study.
Author Disclosures:
Patricija Ivanova: Nothing to disclose
Anastasija Solodjankina: Nothing to disclose
Aina Kratovska: Nothing to disclose
Sanita Ponomarjova: Nothing to disclose
Nauris Zdanovskis: Nothing to disclose
Andrejs Mundeciems: Nothing to disclose
Veronika Zaiceva: Nothing to disclose

S 20-6

Pseudoenhancement in cystic renal lesions with photon-counting CT: impact of virtual monoenergetic images on lesion classification
K. A. Schade, V. Mergen, T. Sartoretti, T. Frauenfelder, H. Alkadhi, A. Euler; Zürich/CH

Purpose: To investigate the impact of virtual monoenergetic images (VMI) from photon-counting detector CT (PCD-CT) on the enhancement and classification of cystic renal lesions.
Methods or Backround: Consecutive adult patients with cystic renal lesions who underwent a triphasic examination on a first-generation dual-source PCD-CT between July 2021 and May 2022 were included. Only non-enhancing cysts (enhancement difference <10HU) between unenhanced and venous phase at 70 keV were included. VMI from 40 to 190keV with increments of

10keV were reconstructed from the venous phase. CT attenuation was measured in each cyst and in adjacent parenchyma in unenhanced and venous VMI. Enhancement between unenhanced and VMI was calculated to classify each lesion as non-enhancing (<10HU), equivocally enhancing (10-19HU), and enhancing (≥20HU). Classification changes as a function of VMI energy were assessed. Pearson correlation coefficient, the Kruskal-Wallis and the chi-square test were used.
Results or Findings: 86 patients with 161 non-enhancing cysts were included. CT attenuation of the cysts increased from higher to lower VMI-energies with a mean attenuation of 4±11 HU at 190keV to 36±17 HU at 40keV. Mean attenuation of the renal parenchyma was 43±4 HU at 190keV and 414±71 HU at 40keV. For each VMI energy, no cyst exhibited enhancement from 70keV to 190keV. At 40, 50, and 60keV, 35%, 29%, and 9% of cysts showed equivocal and 47%, 11%, and 0% definite enhancement, respectively. There was no influence of size (p=0.13) or cyst location (p=0.9) on enhancement classification.
Conclusion: VMI has a relevant impact on enhancement and classification of renal cysts. VMI at energy levels below 70 keV leads to misclassification in a large number of renal cysts.
Limitations: The limitations of this study were the lack of histology.
Ethics committee approval: No information provided by the submitter.
Funding for this study: No funding was received for this study.
Author Disclosures:
Thomas Frauenfelder: Nothing to disclose
Victor Mergen: Nothing to disclose
Thomas Sartoretti: Nothing to disclose
Katharina Alexandra Schade: Nothing to disclose
Andre Euler: Nothing to disclose
Hatem Alkadhi: Nothing to disclose

S 20-7

Pseudo-CT development based on ZTE sequence on PET/MR

N. Quiroga[1], V. Battellino[2], T. Gonzalez Padin[1], M. P. Del Popolo[1], *R. N. Alcalá Marañón*[*1], R. Isoardi[1], F. Gonzalez Nicolini[1], T. Doring[3], D. Fino Villamil[1]; [1]Mendoza/AR, [2]Bariloche/AR, [3]Sao Paulo/BR
(rodrigoalcala00@yahoo.com)

Purpose: Computed tomography (CT) delivers a significant radiation dose and an increased risk of oncological pathologies in comparison to alternative imaging methodologies, particularly in the paediatric population. The aim of this study is to standardise and implement a head pseudo-CT from an MRI, and verify its clinical potential.
Methods or Backround: Head protocols of CT and PET/CT were acquired in 43 subjects, configured to generate attenuation correction maps (AC-maps). In these patients, the Zero Echo Time sequence (ZTE) was also acquired in a PET/MR 3.0 Tesla system. An in-house Python algorithm for image processing was developed to elaborate pseudo-CT based on ZTE (histogram segmentation and registration) and compared to traditional atlas-based PET/MR methods used in PET/MR. Likewise, the ZTE sequence was configured and optimised to detect patterns associated with bone and dense tissue, also taking into account, in its design, its low acquisition time for PET/MR studies. Radiology experts performed a blinded analysis to compare the clinical information provided by pseudo-CT and AC-maps compared with reference CT. This correlation analysis was performed in 15 matrix regions defined in the acquisition FOV.
Results or Findings: The correlation (r>0.4) of ZTE and its clinical utility was higher than atlas methods, which had r<0.3 in regions with bone anatomical variants that were reproduced by the ZTE. The ZTE was 15% higher accuracy except in the skull base regions.
Conclusion: Radiation exposure from CT scanning can be minimised by replacing some scans with MRI-generated pseudo-CT images.
Limitations: The ZTE is restricted by the intrinsic biosafety features of the MRI procedure and the cost of the study, due to its high complexity with expensive equipment.
Ethics committee approval: No information provided by the submitter.
Funding for this study: No financial information to disclose.
Author Disclosures:
Roberto Isoardi: Nothing to disclose
Thomas Doring: Employee: General Electric Healthcare
Rodrigo Nehuen Alcalá Marañón: Nothing to disclose
Federico Gonzalez Nicolini: Nothing to disclose
Daniel Fino Villamil: Nothing to disclose
Trinidad Gonzalez Padin: Nothing to disclose
Victoria Battellino: Nothing to disclose
Nicolas Quiroga: Nothing to disclose
Maria Paula Del Popolo: Nothing to disclose

S 20-8

Role of contrast-enhanced mammography (CEM) in the management of breast architectural distorstions (AD): can CEM help us avoiding unnecessary biopsies?

F. Pugliese[*1], G. Bicchierai[1], D. De Benedetto[1], F. Di Naro[1], F. Amato[2], V. Miele[1], J. Nori[1]; [1]Florence/IT, [2]Agrigento/IT
(francescapugliese28@gmail.com)

Purpose: In order to evaluate the role of CEM in the management of breast AD with low level of suspicion i.e. AD classificated as BIRADS3 in mammography (MG), ultrasound (US) and/or Tomosyntesis (DBT)
Methods or Backround: We retrospectively screened 328 women with 332 AD detected on DBT, MG or US from 01/2017 until 10/2021 and classificate as BIRADS 3 that underwent CEM before biopsy. In CEM recombined images we evaluated the contrast enhancement (CE) of AD according to its presence/absence, type (NME or mass) and size (<10 mm or > 10 mm). AD with enhancement underwent breast biopsy by core needle biopsy or vacuum-assisted biopsy while AD without enhancement underwent imaging follow-up.
Results or Findings: Our gold standard was histology after biopsy for AD with CE and the result of imaging of follow-up for AD without CE. AD with CEM enhancement were found to be 174 (52.4%). Of these 174, 71 were malignant lesions, 28 B3 lesions and 75 benign lesions. AD without enhancement were 158 (47.6%). 26 of these were however subjected to biopsy because in intermediate risk patients (resulted 5 B3 lesions and 21 benign) while 132 were postponed to imaging follow-up. The average follow-up of 18 months was negative for all of 132 patients. The sensitivity, specificity, positive and negative predictive values and accuracy of CEM were 98.63%, 60.62%, 41.38%, 99.37% and 68.98%. The area under the curve determined by ROC for CEM was 0.796 (95% CI, 0.749–0.844).
Conclusion: CEM has shown a high sensitivity and NPV in the evaluation of BIRADS3 AD, this being able to help avoid unnecessary biopsies without compromising cancer detection.
Limitations: It's a single center retrospective study.
Ethics committee approval: No information provided by the submitter.
Funding for this study: No funding was received for this study.
Author Disclosures:
Giulia Bicchierai: Nothing to disclose
Federica Di Naro: Nothing to disclose
Francesca Pugliese: Nothing to disclose
AOU Careggi Diego De Benedetto: Nothing to disclose
Jacopo Nori: Nothing to disclose
Vittorio Miele: Nothing to disclose
Francesco Amato: Nothing to disclose

S 20-9

Study of brain medullary veins on susceptibility-weighted imaging can represent a prognostic biomarker in acute ischemic stroke

K. Roche, L. Oleaga; Barcelona/ES
(kolberoche@gmail.com)

Purpose: To assess the relation between prominent hypointense brain medullary vessels on susceptibility-weighted imaging (SWI) and clinical outcome in acute ischemic stroke (AIS).
Methods or Backround: MRI studies of 63 patients with acute ischemic stroke were retrospectively evaluated. Modified rankin scale (mRS) was used for clinical outcome assessment. Prominent medullary vessels (PMV) were evaluated and rated on SWI by an experienced neuroradiologist. We rated the mRS score into two categories: 0: mRS<=4 and 1: mRS>4. PMV was quantified between 0 (no PMV seen) and 10 as the highest number of PMV seen, then was taken as a numerical variable. Statistical analysis was performed taking mRS as the study variable and number of PMV as the independent variable.
Results or Findings: We used a logistic regression analysis to examine the association of the independent variable (PMV) and the dichotomous dependent variable mRS (0: mRS<= 4 and 1: mRS>4) and we obtained significance with p-value =0.047 and an odds ratio of 1.34 (each increment in the medullary veins rating represents a 34% increase in the probability of having a mRS>4). Using an independent sample mean test comparing the means of PMV in each group of mRS (<=4 and >4), the mean difference of PMV between the two groups was 2.275 (2.60 in <=4 and 4.88 in >4).
Conclusion: Each increment in the medullary veins rating increases the probability of having a mRS>4 by 34%. Thus, higher number of PMV correlates with worse clinical outcome. We conclude that assessing prominent medullary veins on SWI can offer a prognostic value in clinical outcome for patients who suffered an AIS.
Limitations: Number of patients evaluated and bias in the number of PMV measured.

Ethics committee approval: Submitted to the Ethics Committee of the Hospital: Pending final approval.
Funding for this study: No funding was received for this study.
Author Disclosures:
Kolbe Roche: Nothing to disclose
Laura Oleaga: Nothing to disclose

S 20-10
Content-based medical image retrieval of multi-parametric prostate MRI using deep feature vectors: a preliminary multi-centred study
T. A. Kan, A. Karagoz, I. Oksuz, M. E. Seker, M. Yergin, D. Alis, E. Karaarslan; Istanbul/TR
(tarkanatakkan@gmail.com)

Purpose: To explore the performance of content-based medical image retrieval (CBMIR) of bi-parametric prostate MRI scans based on Prostate Imaging Reporting and Data System (PI-RADS) scores.
Methods or Backround: We retrospectively enrolled all 444 bi-parametric prostate MRI scans obtained on 3T scanners in 4 centres. Axial T2W, high b-value DWI, and ADC maps were used for this study. Three radiologists assigned the PI-RADS scores with majority voting following PI-RADS v2. The data was split into training (n=355) and validation (n=89). We used transfer learning on ImageNet pre-trained 2D ConvNext to obtain deep feature vectors. The model was trained using three classes—PI-RADS 1-2, PI-RADS 3, and PI-RADS 4-5. ImageNet model without transfer learning was used as a baseline. The validation dataset subsampled into a query (4 PI-RADS 1-2 scans, 3 PI-RADS 3, and 3 PI-RADS 4-5) and retrieval datasets (30 PI-RADS 1-2 scans, 20 PI-RADS 3, and 29 PI-RADS 4-5). The trained model was used on the query and retrieval datasets to extract deep feature vectors. Mean average precision (mAP) was used as the primary metric to assess retrieval performance.
Results or Findings: CMBIR using the deep feature vectors of the query dataset provided a mAP of 0.77 (baseline = 0.55) for retrieving scans with PI-RADS score 4-5 and 0.37 (baseline 0.35) for score 3 in the retrieval dataset.
Conclusion: CMBIR using deep feature vectors provides promising results in retrieving PI-RADS score 4-5 prostate mpMRI scans yet failed to achieve satisfactory performance on PI-RADS score 3 prostate mpMRI scans. Future studies on a larger sample are warranted to evaluate CMBIR in prostate cancer diagnostics.
Limitations: The limitations of this study were the lack of explainability methods and the fact that only the 2D DL models were explored.
Ethics committee approval: No information provided by the submitter.
Funding for this study: This study has been produced benefiting from the 1001 Science and Technology Grant Program National Program of TUBITAK (ProjectNo:122E022).
Author Disclosures:
Ahmet Karagoz: Nothing to disclose
Ilkay Oksuz: Nothing to disclose
Tarkan Atak Kan: Nothing to disclose
Deniz Alis: Nothing to disclose
Ercan Karaarslan: Nothing to disclose
Mustafa Ege Seker: Nothing to disclose
Mert Yergin: Nothing to disclose

14:00-15:00 **Room K1**

Refresher Course: Abdominal and Gastrointestinal

RC 2001

Saving a bad situation: advanced colorectal malignancy

RC 2001-1
Chairperson's introduction
J. Seligmann; Leeds/UK
(j.seligmann@leeds.ac.uk)
Author Disclosures:
Jenny Seligmann: Advisory Board: Pierre Fabre Medicament, Zentalis, Astra-Zeneca, Elevation Oncology, Merck Serono; Grant Recepient: Amgen, Pierre Fabre Medicament; Speaker: Merck Serono, Pierre Fabre Medicament, Servier

RC 2001-2
Locally advanced primary rectal cancer
M. Maas; Amsterdam/NL
(moniquemaas@live.nl)

Learning Objectives:
1. To know the critical structures to evaluate that define advanced rectal cancer.
2. To know the optimal imaging technique for assessment.
3. To know the most typical areas that are overlooked when assessing tumours.

RC 2001-3
Locally advanced primary colon cancer
L. K. Blomqvist; Stockholm/SE

Learning Objectives:
1. To know the critical structures to evaluate that define advanced colon cancer.
2. To know the optimal imaging technique for assessment.
3. To know the most typical areas that are overlooked when assessing tumours.
Author Disclosures:
Lennart K. Blomqvist: Founder: Collective Minds Radiology; Share Holder: Collective Minds Radiology

RC 2001-4
Hepatic metastasis
F. Vernuccio; Padova/IT
(federicavernuccio@gmail.com)

Learning Objectives:
1. To know the strengths and limitations of CT and MRI for pre-surgical staging, with a focus on DWI and hepatobiliary contrast.
2. To know the most typical areas that are overlooked when assessing liver metastases.
3. To review the challenges of liver staging after chemotherapy.
Author Disclosures:
Federica Vernuccio: Other: Support for participation to prior conferences (2019-2022) (GE, Bracco)

RC 2001-5
Peritoneal metastasis
N. Shah; Basingstoke/UK

Learning Objectives:
1. To know the critical structures to evaluate evaluating peritoneal colorectal metastases.
2. To know the optimal imaging technique for assessment.
3. To know the most typical areas that are overlooked when assessing tumours.

Panel discussion: How to guide the treatment plan?

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

Special Focus Session

SF 20

Insights into vascular ageing

SF 20-1
Chairperson's introduction
N. Kachenoura; Paris/FR
(nadjia.kachenoura@gmail.com)

SF 20-2
Targeting the endothelium: the importance of the microcirculation in ageing and diseases
C. De Ciuceis; Brescia/IT
(carolina.deciuceis@unibs.it)

Learning Objectives:
1. to know the role of microcirculation.
2. To understand the importance of functional and structural alterations in ageing and diseases.
3. To learn ways to assess endothelial function and structure of microcirculation in humans.

SF 20-3
Monitoring the vascular wall: invasive and non-invasive technologies
P. Maurovich-Horvat; Budapest/HU
(maurovich.horvat@gmail.com)

Learning Objectives:
1. To learn about imaging targets and strategies to assess the vascular wall.
2. To learn about imaging methods of the vascular wall anatomy and structure.
3. To learn about imaging methods of vascular wall function.

SF 20-4
Radiomics in vascular imaging
M. Kolossvary; Budapest/HU
(martonandko@gmail.com)

Learning Objectives:
1. To understand the principle of radiomics.
2. To learn the current data on the value of radiomics in macro- and microvascular imaging.
3. To understand perspectives for radiomics in cardiovascular imaging.

SF 20-5
Assessing vascular ageing in humans: insights from MRI
N. Kachenoura; Paris/FR
(nadjia.kachenoura@gmail.com)

Learning Objectives:
1. To understand MRI-based biomarkers of aortic dynamics.
2. To know large artery alterations related to ageing.
3. To understand the relationship between altered aortic dynamics and disease.

Panel discussion: Translating research into clinical practice

14:00-15:30 **Room E1**

Multidisciplinary Session

MS 20
Haematuria

MS 20-1
Chairperson's introduction
J. Belfield; Liverpool/UK

MS 20-2
UK pathway for investigating and managing adult visible haematuria
J. Belfield; Liverpool/UK

Learning Objectives:
1. To describe the imaging pathway in patients with suspected bladder cancer.
2. To describe the MDT process in the United Kingdom.
3. To describe follow-up processes in patients with bladder cancer.

MS 20-3
Cystectomy for bladder cancer: what does the surgeon need to know?
P. Healey; Liverpool/UK
(priya.healey@liverpoolft.nhs.uk)

Learning Objectives:
1. To describe how to stage bladder cancer.
2. To describe imaging with MRI and CT for bladder cancer.
3. To explain important information radiologists need to tell the surgeons in their reports of patients with bladder cancer.

MS 20-4
Radical cystectomy for bladder cancer: how I do it
V. Hanchanale; Liverpool/UK

Learning Objectives:
1. To understand the pre-op TNM staging and surgical viewpoint for muscle-invasive bladder cancer.
2. To understand the steps of radical cystectomy and ileal conduit diversion.
3. To understand the post-op care plan, including radiological support.

MS 20-5
Multidisciplinary case presentation and discussion
J. Belfield; Liverpool/UK

14:00-15:30 **Room E2**

E³ - Advanced Courses: Interactive Teaching Sessions for Young (and not so Young) Radiologists

E³ 2021
Pitfalls and mimickers in gynaecological cancer imaging

E³ 2021-1
Endometrial and cervical cancer
M. Otero García; Vigo/ES
(milagros.otero.garcia@sergas.es)

Learning Objectives:
1. To describe the imaging findings of endometrial and cervical cancer.
2. To learn about FIGO classification and ist implications.
3. To recognise imaging pitfalls and mimickers in endometrial and cervical cancers.

E³ 2021-2
Ovarian cancer
T. M. Cunha, P. da Silva Freitas; Lisbon/PT
(tmargarida@gmail.com)

Learning Objectives:
1. To become familiar with the histological subtype of ovarian cancer.
2. To become familiar with mimickers of ovarian cancer.
3. To learn about the role of imaging in recognising "difficult to resect" disease.

14:00-15:30 **Room G1**

E³ - Advanced Courses: Prenatal, Neonatal, Paediatric Imaging

E³ 2018
Adult pathologies in children and teenagers

E³ 2018-1
Chairperson's introduction
J. Munuera; Barcelona/ES
(Josep.munuera@sjd.es)
Author Disclosures:
Josep Munuera: Speaker: Guerbet and Philips

E³ 2018-2
Neuroimaging in paediatric stroke and cerebrovascular disease
J. Munuera; Barcelona/ES
(Josep.munuera@sjd.es)

Learning Objectives:
1. To describe the modern imaging techniques used to evaluate brain vasculature.
2. To discuss the main findings and biomarkers in acute ischaemic stroke in children.
3. To review the main cerebrovascular diseases in children.
Author Disclosures:
Josep Munuera: Speaker: Guerbet and Philips

E³ 2018-3
Childhood obesity, imaging and related diseases
P. Simoni; Brussels/BE

Learning Objectives:
1. To describe the modern imaging techniques used to evaluate body composition in children, including semiautomated and automated postprocessing tool.
2. To discuss the advantages and the shortcomings of DEXA, CT, MRI to assess body composition in children.
3. To present the current challenges and perspectives in the field of imaging of body composition in children.

E³ 2018-4
COVID as it affects children
S. Stöcklein; Munich/DE
(sophia.stoecklein@med.lmu.de)

Learning Objectives:
1. To learn about potential implications of SARS-CoV-2 infection during pregnancy.
2. To learn about imaging findings in rare but severe (post)-COVID complications in children.
3. To learn about imaging findings in potential long-term sequelae of COVID in children.

14:00-15:30 **Room K2**

E³ - Young ECR Programme: Basic Sessions

Organised by the ESR

BS 20b

Thorax: all you need to know in daily clinical hospital practice

BS 20b-1
Chairperson's introduction
S. R. Desai; London/UK
(s.desai@rbht.nhs.uk)
Author Disclosures:
Sujal R. Desai: Advisory Board: Consultant for Astra-Zeneca Trastuzumab trial, NICE Specialist Ctte Member for AI evaluation; Founder: DMC Radiology Reporting Ltd

BS 20b-2
CT imaging of common infectious diseases
C. Beigelman; Lausanne/CH

Learning Objectives:
1. To become familiar with the most common infectious aetiologies.
2. To demonstrate the most important imaging findings.

BS 20b-3
Tips and tricks about pulmonary nodules
M. Silva; Parma/IT
(mariosilvamed@gmail.com)

Learning Objectives:
1. To become familiar with pitfalls and the most common aetiologies.
2. To demonstrate the most important imaging findings.

BS 20b-4
Imaging recommendations and typical appearance of most frequent fibrosing interstitial lung diseases
S. R. Desai; London/UK
(s.desai@rbht.nhs.uk)

Learning Objectives:
1. To become familiar with the recommendations of pulmonary fibrosis and most common aetiologies.
2. To demonstrate the most important imaging findings.
Author Disclosures:
Sujal R. Desai: Consultant: Aztra Zeneca; Founder: DMC Radiology Reporting Ltd

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

State of the Art Symposium

SA 20

Radiomics and imaging biomarkers: the essentials

SA 20-1
Chairperson's introduction
B. Baeßler; Würzburg/DE
(bettina.baessler@googlemail.com)
Author Disclosures:
Bettina Baessler: CEO: Lernrad GmbH; Founder: Lernrad GmbH; Speaker: Bayer Vital GmbH

SA 20-2
Images are data: an introduction to radiomics and imaging biomarkers
D. Pinto dos Santos; Cologne/DE
(daniel.pinto-dos-santos@uk-koeln.de)

Learning Objectives:
1. To summarise the basic concepts of radiomics and imaging biomarkers.
2. To reflect on the current state of radiomics and imaging biomarkers research and ist potential impact on radiology.
3. To identify common methodological pitfalls in radiomics research.
Author Disclosures:
Daniel Pinto dos Santos: Advisory Board: cook medical; Author: AMBOSS GmbH; Speaker: Bayer

SA 20-3
Radiomics: level of evidence for the clinical practice
R. Cuocolo; Naples/IT

Learning Objectives:
1. To identify the most common tools to assess radiomics research quality.
2. To examine critical issues for the clinical implementation of radiomics.
3. To analyse the viability of commercial radiomics solutions.

SA 20-4
Hybrid imaging radiomics
I. Buvat; Orsay/FR
(irene.buvat@u-psud.fr)

Learning Objectives:
1. To list the commonalities of radiomics and hybrid imaging radiomics.
2. To list the specificities of hybrid imaging radiomics.
3. To describe the challenges associated with hybrid imaging radiomics.
Author Disclosures:
Irène Buvat: Board Member: Journal of Nuclear Medicine, European Journal of Nuclear Medicine and Molecular Imaging, Molecular Imaging and Biology; Research Grant/Support: Siemens Healthineers, GE Healthcare, Dosisoft

Panel discussion: Radiomics, ready for clinical practice?

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

E³ - Advanced Courses: Imaging of Ageing

E³ 2020

Imaging ageing: what is normal?

E³ 2020-1
Chairperson's introduction
S. Haller; Geneva/CH
Author Disclosures:
Sven Haller: Advisory Board: EPAD; Consultant: SPINEART, WYSS

E³ 2020-2
Cardiac changes during healthy ageing
M. Williams; Edinburgh/UK

Learning Objectives:
1. To learn about changes in cardiac structure and function with normal ageing.

2. To understand changes in the prevalence of coronary artery disease with ageing.
3. To describe changes in the cardiac valves with ageing.
Author Disclosures:
Michelle Claire Williams: Speaker: Canon Medical Systems, Siemens Healthineers and Novartis

E³ 2020-3
Imaging the normal ageing brain
S. Haller; Geneva/CH

Learning Objectives:
1. To understand normal brain volume loss during ageing.
2. To understand normal white matter lesions associated with ageing.
3. To understand cerebral microbleeds during ageing.
Author Disclosures:
Sven Haller: Advisory Board: EPAD; Consultant: SPINEART, WYSS

E³ 2020-4
Age-related changes of the spine
I.-M. Noebauer-Huhmann; Vienna/AT
(iris.noebauer@meduniwien.ac.at)

Learning Objectives:
1. To discuss the appearance of normal spinal development in the growing skeleton.
2. To be aware of the spine's normal constituents and anatomic variations.
3. To identify the normal spine's sagittal profile and point out biomechanical considerations.
4. To describe age-related changes and their biomechanical consequences, including the influence of sarcopenia.
5. To discuss the impact of gender on bone mineral density during ageing and to reflect on typical age-related bone marrow changes of the spine.

E³ 2020-5
Normal lung ageing
S. Verleden; Wilrijk/BE
(Stijn.verleden@uza.be)

Learning Objectives:
1. To get insight into the radiologic changes in the physiologically ageing lung.
2. To understand the underlying processes leading to the observed radiologic changes.
3. To link physiologic ageing in the lung to chronic lung diseases characterised by accelerated ageing.

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

Trainees in Focus

IF 20

Innovative digital learning tools for effective education in radiology

IF 20-1
Chairperson's introduction
M. Becker; Geneva/CH

Learning Objectives:
Radiology learning, whether during residency or as a life-long process, must adapt to the constant evolution of digital tools while offering flexibility for scheduling and work-life integration. In this session, the audience will learn about innovative approaches to learning radiology, including online courses, webinars, case-based learning, virtual reality, microlearning, social media applications, and platforms integrating different learning tools.

IF 20-2
Online lectures, courses and webinars
V. Vilgrain; Clichy/FR
(valerie.vilgrain@aphp.fr)

Learning Objectives:
1. To explain the concept behind online lectures, courses, and webinars, their advantages, and their disadvantages.
2. To present a selection of available lectures, courses and webinars as provided by the ESOR.

IF 20-3
Case-based learning using online platforms
B. M. Verbist; Leiden/NL

Learning Objectives:
1. To explain and illustrate the concept behind case-based learning using online platforms.
2. To present innovative case-based learning tools using DICOM data sets and real-time classroom formats.

IF 20-4
Virtual reality applications for learning radiology
A. Trojanowska; Lublin/PL

Learning Objectives:
1. To present the concept of multi-sensory interaction as a learning facilitator.
2. To illustrate how virtual reality and gaming concepts can be integrated into radiology education.

IF 20-5
Microlearning and social media for learning radiology
S. Qureshi; Doha/QA
(s@lman.co.uk)

Learning Objectives:
1. To understand the concept of microlearning, its advantages and disadvantages.
2. To illustrate how social media can facilitate education in radiology.

IF 20-6
The ESR Connect platform, and other ESR resources
S. Barter; Bedford/UK

Learning Objectives:
1. To understand the concept of integrated learning tools into one platform.
2. To present the ESR Connect platform and its different tools for personalised learning.
3. To learn about other ESR resources such as Education on Demand and Eurorad.

Panel discussion: Are digital learning tools the future?

15:00-16:30 **Studio**

ESR/ESSO Interdisciplinary Seminar

ESR/ESSO

Interdisciplinary seminar series: from imaging to cancer surgery - Hepatobiliary tumours and colorectal cancer

ESR/ESSO-1
Chairperson's introduction
R. G. H. Beets-Tan; Amsterdam/NL
(r.beetstan@nki.nl)

Learning Objectives:
1. To learn from radiologists' and surgeons' active interaction.
2. To understand how such an interaction can guide treatment and influence treatment outcome.

ESR/ESSO-2
Colorectal cancer: from imaging to cancer surgery
R. G. H. Beets-Tan; Amsterdam/NL
G. L. Beets; Amsterdam/NL
(g.beets@nki.nl)

ESR/ESSO-3
Hepatobiliary tumours: from imaging to cancer surgery
A. Ba-Ssalamah; Vienna/AT
S. Stättner; Vöcklabruck/AT
(stefan.staettner@gmx.at)
Author Disclosures:
Stefan Stättner: Board Member: ESSO

ESR/ESSO-4
Wrap-up: Outlook to seminar editions
R. G. H. Beets-Tan; Amsterdam/NL

16:00-17:00 **Open Forum Trainees**

Open Forum Session

OF 21T

Career development: the future subspecialty radiologist (part 2)

OF 21T-1
Chairperson's introduction
E. Vassallo; Msida/MT
(edithvassallo@gmail.com)

Learning Objectives:
Part of a series of sessions where distinguished professors of radiology together with their young residents are invited to share their experience, their vision, and give advice and guidance to the younger generation of radiologists about what it is to be a radiologist.

OF 21T-2
The future breast radiologist
M. H. Fuchsjäger; Graz/AT
(michael.fuchsjaeger@medunigraz.at)

Learning Objectives:
1. To explain innovations and clinical developments in breast radiology.
2. To discuss how these will impact the role of a breast radiologist in the next 10 years.

OF 21T-3
The future genitourinary radiologist
T. Barrett; Cambridge/UK

Learning Objectives:
1. To explain innovations and clinical developments in genitourinary radiology.
2. To discuss how these will impact the role of a genitourinary radiologist in the next 10 years.

OF 21T-4
The future interventional radiologist
M. Krokidis; Cambridge/UK
(mkrokidis@hotmail.com)

Learning Objectives:
1. To explain innovations and clinical developments in interventional radiology.
2. To discuss how these will impact the role of an interventional radiologist in the next 10 years.

Open forum discussion: What does the future hold for subspecialty radiologists?

16:00-17:00 **Room D**

Refresher Course: Musculoskeletal

RC 2110

Joint instability

RC 2110-1
Chairperson's introduction
M. Shahabpour; Brussels/BE
(maryam.shahabpour@gmail.com)

RC 2110-2
Shoulder instability
S. Waldt; Essen/DE

Learning Objectives:
1. To describe the morphological and epidemiological aspects of shoulder instability.
2. To explain new trends in the imaging of shoulder instability.

RC 2110-3
Elbow instability
R. Sutter; Zurich/CH

Learning Objectives:
1. To describe the imaging features of acute elbow dislocations.
2. To explain the imaging hallmarks of chronic elbow instability.
Author Disclosures:
Reto Sutter: Author: Breitenseher Publisher; Other: Balgrist University Hospital has an academic research collaboration with Siemens Healthineers, Balzano Informatik and Bayer

RC 2110-4
Ankle instability
R. Fawcett; Leeds/UK

Learning Objectives:
1. To explain the risk imaging findings of the unstable ankle.
2. To describe the treatment options for the unstable ankle.

Panel discussion: The use of an imaging algorithm in case of clinical suspicion of joint instability

16:00-17:00 **Room E1**

ESR meets Canada

Meets 21

Featuring the Canadian association of radiologists

Presiding
A. Brady; Cork/IE
G. Soulez; Montreal, QC/CA

Meets 21-1
Introduction. Radiology in Canada: challenges and opportunities
A. Brady; Cork/IE
(adrianbrady@me.com)
G. Soulez; Montreal, QC/CA
(gsoulez@car.ca)

Learning Objectives:
1. To focus on the Canadian healthcare landscape.
2. To touch on the federal and provincial differences in the delivery of medical imaging.
3. To emphasise challenges and opportunities that exist in radiology in Canada.
Author Disclosures:
Gilles Soulez: Advisory Board: Vitaa Medical; Board Member: Canadian Association of Radiologists; Consultant: Vitaa Medical, Cooke Medical; Grant Recepient: Siemens medical, Bard Medical, Vitaa Imaging, Cook Medical, Starpax Medical

Meets 21-2
Clinical radiology in Canada
H. Schmidt; Toronto, ON/CA
(heidi.schmidt@uhn.ca)

Learning Objectives:
1. To focus on clinical radiology and explore the global impact of medical imaging as well as the Canadian radiology workforce as it pertains to graduates both homegrown and internationally trained.

Meets 21-3
Academic radiology in Canada
M. Patlas; Hamilton, ON/CA
(patlas69@yahoo.com)

Learning Objectives:
1. To focus on Canadian academic radiology and how we educate the world.
2. To discuss research, the CAR Journal, and academic leadership opportunities.
Author Disclosures:
Michael N. Patlas: Author: Springer, Elsevier

Meets 21-4
Panel discussion: Radiologists of 2030
N. Neuheimer; Ottawa, ON/CA
J. Chong; London, ON/CA
(jaronchong@gmail.com)
M. Patlas; Hamilton, ON/CA
(patlas69@yahoo.com)
G. Soulez; Montreal, QC/CA
(gsoulez@car.ca)
H. Schmidt; Toronto, ON/CA

Learning Objectives:
1. To take a futuristic look at radiology in Canada including the patient workflow/trajectory and the clinical integration of AI.
2. To view on the forecasted supply of imaging equipment, the radiology workforce and how things will change or improve in 2030.

Author Disclosures:
Jaron Jia Rong Chong: Advisory Board: Health Canada, Scientific Advisory Committee, Digital Health Technologies; Board Member: AMS Healthcare
Michael N. Patlas: Author: Springer, Elsevier
Gilles Soulez: Advisory Board: Vitaa Medical; Board Member: Canadian Association of Radiologists; Consultant: Vitaa Medical, Cook Medical, Starpax Medical; Patent Holder: Sclerosing embolising gel licensed to Cook Medical; Research Grant/Support: Siemens Medical, Vitaa Medical, Starpax Medical, Cook Medical, Bard Medical

Meets 21-5
Wrap-up
G. Soulez; Montreal, QC/CA
(gsoulez@car.ca)
Author Disclosures:
Gilles Soulez: Advisory Board: Vitaa Medical; Board Member: Canadian Association of Radiologists; Consultant: Starpax Medical, Vitaa Medical, Cook Medical; Patent Holder: Sclerosing and embolising gel; Research Grant/Support: Siemens Medical, Cook Medical, Starpax Medical, Vitaa Imaging, Bard Medical

16:00-17:00 **Room G1**

Refresher Course: Paediatric

RC 2112
Common findings in paediatric chest x-ray (CXR)

RC 2112-1
Chairperson's introduction
S. C. Shelmerdine; London/UK

RC 2112-2
Basic patterns
S. Tschauner; Graz/AT
(sebastian.tschauner@medunigraz.at)

Learning Objectives:
1. To summarise basic patterns of pathology in paediatric chest radiographs.
2. To list characteristic signs of common pulmonary conditions in children.
3. To recognise hints of altered pulmonary vascularisation.

RC 2112-3
Typical congenital heart disease (CHD) presentation
P. Caro; Sevilla/ES

Learning Objectives:
1. To describe chest radiographs in children with congenital heart disease using a systematic approach.
2. To learn to identify normal cardiovascular structures on chest radiography.
3. To list the major radiographic findings of the most common congenital heart diseases.

RC 2112-4
Lung infections
J. Jürgens; Hamburg/DE
(j.juergens@uke.de)

Learning Objectives:
1. To remember the types of lung infections in paediatric patients.
2. To describe typical x-ray patterns for different lung infections in children.
3. To differentiate lung infection patterns from other typical paediatric x-ray patterns.

Panel discussion: The most important "successful" approach for residents to CHD and lung infections

16:00-17:00 **Room G2**

Refresher Course: Abdominal and Gastrointestinal

RC 2101
Acute abdomen: how many series for the CT protocol?

RC 2101-1
Chairperson's introduction
A. Torregrosa Andrés; Valencia/ES
(asunsuso@gmail.com)

RC 2101-2
Post-operative abdomen
M. Scharitzer; Vienna/AT
(martina.scharitzer@meduniwien.ac.at)

Learning Objectives:
1. To understand the benefits of different imaging phases on diagnosis in the post-operative abdomen.
2. To understand the value of luminal bowel preparation.

RC 2101-3
Vascular emergency
M. Obmann; Basle/CH

Learning Objectives:
1. To understand how to optimise CT contrast protocols in different vascular phases.
2. To understand the benefits and limitations of different imaging phases in emergency vascular disorders in the abdomen.

RC 2101-4
Value of dual-energy CT: to include or not to include?
S. Mulé; Paris/FR
(sebastien.mule@aphp.fr)

Learning Objectives:
1. To understand the principles of dual-energy CT for abdominal imaging.
2. To understand the benefits of dual-energy in assessing emergency abdominal conditions.
3. To know the limitations of dual-energy in acute abdominal assessment.

Panel discussion: Mistakes I've made and what I learnt from them

16:00-17:00 **Room K1**

Refresher Course: Radiographers

RC 2114

Adapting to changes in patient contact shielding practices

RC 2114-1
Chairpersons' introduction
J. Santos; Coimbra/PT
(joanasantos@estescoimbra.pt)
M. Raissaki; Iraklion/GR
(mraissaki@yahoo.gr)

Learning Objectives:
1. To discuss current approaches to applying contact patient contact shielding following the new guidelines.
2. To discuss the perceptions of radiographers' when applying the new patient contact shielding guidelines.
3. To discuss the perceptions of patients' when having patient contact shielding applied following the new guidelines.

RC 2114-2
History of patient contact shielding and the introduction of new guidelines
N. Zalokar; Maribor/SI
(nzalokar96@gmail.com)

Learning Objectives:
1. To identify the historical rationale for the use of shielding.
2. To describe current guidelines on patient contact shielding.
3. To analyse some recommendations for patient shielding in diagnostic radiology.

RC 2114-3
How are radiographers adapting to the new patient shielding guidelines
M. F. McEntee; Cork/IE
(mark.mcentee@ucc.ie)

Learning Objectives:
1. To understand the evidence base for the new patient shielding consensus statement.
2. To explore evidence from several European countries on knowledge and attitudes towards the new patient shielding consensus statement.
3. To discuss barriers and enablers to change.

RC 2114-4
The impact of new shielding guidelines on patient experience
J. Portelli; Msida/MT
(jonathan.portelli@um.edu.mt)

Learning Objectives:
1. To consider patients' points of view about shielding practices.
2. To evaluate how the new shielding guidance may impact the patient experience.
3. To describe ways to consider patients' needs while adapting new shielding guidance.

RC 2114-5
Panel discussion: What needs to be done to successfully implement new shielding guidelines across Europe
S. J. Foley; Dublin/IE
(shane.foley@ucd.ie)

16:00-17:00 **Room M**

Refresher Course: Breast

Jointly organised by the ESR and the EUSOBI Young Club (EYC)

RC 2102

BI-RADS lexicon through radiologic-pathologic correlation: a multimodality case-based discussion

RC 2102-1
Chairperson's introduction
F. Pediconi; Rome/IT
(federica.pediconi@uniroma1.it)

RC 2102-2
Mass lesions
M. A. Marino; Messina/IT
(marmarino@unime.it)

Learning Objectives:
1. To recognize the different presentation of common benign and malignant breast masses on mammography, ultrasound, and MRI.
2. To describe the main imaging features of common benign and malignant breast masses according to the BI-RADS lexicon.
3. To understand the assessment and management of different breast masses.

RC 2102-3
Microcalcifications and non-mass enhancement (NME)
E. Giannotti; Nottingham/UK

Learning Objectives:
1. To identify and name different breast microcalcifications on mammography according to BI-RADS lexicon.
2. To identify and name different NME on MRI according to BI-RADS lexicon.
3. To list the possible differential diagnoses of these entities and determine patient management.
Author Disclosures:
Elisabetta Giannotti: Advisory Board: GE MAMMOTOME SPEAKER

RC 2102-4
Architectural distortions and asymmetric densities
T. Van Nijnatten; Maastricht/NL
(thiemovn@gmail.com)

Learning Objectives:
1. To correctly identify an architectural distortion according to BI-RADS lexicon.
2. To list the most common correlations between architectural distortion and other mammographic findings.
3. To describe and explain differences between asymmetric density with other asymmetric mammographic findings.
Author Disclosures:
Thiemo Van Nijnatten: Speaker: GE Healthcare, Bayer

Panel discussion: the importance of radiologic-pathologic correlation

16:00-17:30 **Open Forum ESR at Work**

Professional Challenges Session

PC 21

Setting standards: audits, teleradiology and AI

PC 21-1
Chairperson's introduction
R. Klöckner; Mainz/DE
(roman.kloeckner@uksh.de)

PC 21-2
Establishing a national clinical audit infrastructure in radiology: the UK experience
R. Greenhalgh; London/UK
(r.greenhalgh@nhs.net)

Learning Objectives:
1. To identify the team and resources needed to perform national clinical audit.
2. To learn how to choose a subject.
3. To discuss how to perform and share the audit findings to improve clinical practice nationally.

PC 21-3
Teleradiology: new developments to improve quality using teleradiology
M. N. Özmen; Ankara/TR
(mozmen@hacettepe.edu.tr)

Learning Objectives:
1. To review the changes in radiology working and reporting practices.
2. To discuss the impact of teleradiology and telemedicine tools on the quality of practice in radiology.
3. To consider the existing guidelines and publications on teleradiology and home working.
Author Disclosures:
Mustafa Nasuh Özmen: Share Holder: Helcon AS

PC 21-4
How to ensure the correctness of AI tools
D. Pinto dos Santos; Cologne/DE
(daniel.pinto-dos-santos@uk-koeln.de)

Learning Objectives:
1. To review relevant AI performance metrics.
2. To learn about the concept of post-market surveillance.
3. To discuss the potential pitfalls in human-machine interaction.
Author Disclosures:
Daniel Pinto dos Santos: Advisory Board: cook medical; Author: AMBOSS GmbH; Speaker: Bayer

PC 21-5
AI and workflow
E. Kotter; Freiburg/DE

Learning Objectives:
1. To learn how to integrate AI systems into the workflow.
2. To demonstrate feedback mechanisms for discrepancies between radiologists and AI.
3. To know about organisational AI.
Author Disclosures:
Elmar Kotter: Advisory Board: contextflow GmbH, Vienna; Grant Recepient: BMBF, DFG; Speaker: Siemens Healthineers, AbbVie

Panel discussion: What are the benefits of audits, teleradiology and AI?

16:00-17:30 **Room A**

E³ - Advanced Courses: Interactive Teaching Sessions for Young (and not so Young) Radiologists

E³ 2121a

Emergency ultrasound: beware of pitfalls and artefacts!

E³ 2121a-1
Trauma patients
L. E. Derchi; Genoa/IT
(lorenzo.derchi1@gmail.com)

Learning Objectives:
1. To learn about the pitfalls and artefacts encountered at the US in trauma patients.
2. To distinguish between actual lesions and artefacts simulating traumatic injuries.
3. To discuss how to avoid challenging US pitfalls and artefacts in trauma patients.

E³ 2121a-2
Acute scrotum: diagnosis is not always straightforward
V. S. Dogra; Rochester, NY/US

Learning Objectives:
1. To become familiar with different scrotal and non-scrotal causes of acute scrotal pain.
2. To learn about the spectrum of findings at the US in patients with acute scrotal pain.
3. To become familiar with scrotal disease presenting with isolated abdominal symptoms.

16:00-17:30 **Room B**

Special Focus Session

SF 21

Sacroiliitis: "all that glitters is not gold"

SF 21-1
Chairperson's introduction
F. Kainberger; Vienna/AT
(franz.kainberger@meduniwien.ac.at)

SF 21-2
Assessment of spondylarthritis with the ASAS criteria
T. Diekhoff; Berlin/DE

Learning Objectives:
1. To understand the scientific and historical basis of the ASAS criteria for a positive MRI of the SI joints.
2. To apply the ASAS criteria properly in a clinical and scientific context.
3. To identify the risks and benefits of reporting ASAS positivity in MR imaging.
Author Disclosures:
Torsten Diekhoff: Consultant: Lilly; Grant Recepient: Canon MS, ASAS; Speaker: Canon Medical Systems, Novartis, MSD, BioCad, UCB and Roche

SF 21-3
Rheumatologist, my friend: what the radiologist needs to know from the clinician
J. Teh; Oxford/UK
(jamesteh1@googlemail.com)

Learning Objectives:
1. To understand the importance of early diagnosis and treatment for preventing irreversible joint damage among patients with sacroiliitis.
2. To discuss the necessity of early detection of active inflammation and of joint damage through MRI and CT.
3. To discuss the MRI report and its results: inflammation vs. structural change.
4. To discuss the importance of a clear understanding between the rheumatologist and radiologist for ensuring the efficient and effective investigation of the patient.

SF 21-4
Normal or abnormal? What to do with borderline findings at the SI-joint
C. Giraudo; Padua/IT
(chiara_giraudo@hotmail.it)

Learning Objectives:
1. To characterise the anatomy of the sacroiliac joint at imaging.
2. To identify and interpret potential changes due to early axial spondyloarthritis.
3. To list causes of bone marrow oedema due to pitfalls and anatomical variants.

SF 21-5
MRI of the sacroiliac joints: spectrum of differential diagnostic clues
F. Kainberger; Vienna/AT
(franz.kainberger@meduniwien.ac.at)

Learning Objectives:
1. To assess clues to differentiate the manifestation of various forms of spondylarthritis.
2. To discuss the differential diagnosis of inflammatory from non-rheumatic back pain.
3. To list recommendations for communicating imaging abnormalities to the clinician.

Panel discussion: How precise is the radiological diagnosis and what is its prognostic impact?

16:00-17:30 **Room E2**

E³ - Advanced Courses: Interactive Teaching Sessions for Young (and not so Young) Radiologists

E³ 2121b

Neuroradiology: an update

E³ 2121b-1
Intracranial infection and inflammation
P. M. Parizel; Perth, WA/AU

Learning Objectives:
1. To understand how to distinguish between infectious and non-infectious meningitis.
2. To become familiar with the imaging features of encephalitis and CNS vasculitis.
3. To illustrate the criteria for the differential diagnosis of ring-enhancing brain lesions.

E³ 2121b-2
Imaging cranial nerves
J. W. Casselman; Bruges/BE

Learning Objectives:
1. To illustrate the imaging appearance of the most frequent cranial nerve lesions and to be aware of associated disorders.
2. To become familiar with the lesions on the different anatomical segments of the cranial nerves and the imaging techniques used for their assessment.
Author Disclosures:
Jan Casselman: Speaker: For Philips Healthcare; Other: Receive visitors to see equipment from Philips Healthcare

16:00-17:30 **Room N**

E³ - Advanced Courses: Imaging of Ageing

E³ 2120

Imaging and intervention in the elderly

E³ 2120-1
Chairperson's introduction
M. J. Lee; Dublin/IE

E³ 2120-2
Prostatic artery embolisation: indications, techniques, and results
T. Bryant; Eastleigh/UK

Learning Objectives:
1. To analyse current evidence on prostate artery embolisation (PAE).
2. To demonstrate the technique and discuss the relevant pre- and postprocedure imaging.
3. To identify which patients benefit most from PAE and describe where it fits in the modern lower urinary tract symptom treatment pathway.
Author Disclosures:
Timothy Bryant: Research Grant/Support: Cook, Boston Scientific, Guerbet; Speaker: Boston Scientific, Guerbet, Terumo; Other: Proctor - Boston Scientific

E³ 2120-3
Role of endovascular treatment in the management of acute stroke in the elderly: current status, and future directions
J. Thornton; Dublin/IE

Learning Objectives:
1. To demonstrate the pathway in acute stroke to identify large vessel occlusion.
2. To describe the procedure of thrombectomy and outcomes for elderly patients.
Author Disclosures:
John Thornton: Advisory Board: Perfuze; Consultant: Microvention, Perfuze; Research Grant/Support: Microvention, Cerenovus; Share Holder: Perfuze; Speaker: Microvention

E³ 2120-4
Diagnosis and treatment of peripheral arterial disease (PAD): update
F. Wolf; Vienna/AT
(florian.wolf@meduniwien.ac.at)

Learning Objectives:
1. To name and identify the pros and cons of potential non-invasive imaging methods in PAD patients.
2. To list the basics and guideline-supported principles of minimally invasive interventional PAD treatment.
3. To describe and reflect the value of drug-based therapies for PAD treatment.

E³ 2120-5
Vertebroplasty: current status, controversies, and future directions
G. C. Anselmetti; Turin/IT
(gc.anselmetti@fastwebnet.it)

Learning Objectives:
1. To examine clinical outcome of vertebroplasty reported in the literature.
2. To identify where and when vertebroplasty could be useful for the patients.
3. To describe how new devices for vertebral augmentations could improve future directions.

Sunday, March 5

08:00-09:00 **Room E1**

Refresher Course: Abdominal and Gastrointestinal

RC 2201

Primary sclerosing cholangitis (PSC), IgG4 cholangitis or cholangiocarcinoma: what to look for

RC 2201-1
Chairperson's introduction
N. Kartalis; Stockholm/SE
Author Disclosures:
Nikolaos Kartalis: Other: Institutional consultation fees: Bayer, Ascelia Pharma

RC 2201-2
PSC and IgG4 cholangitis
A. Ba-Ssalamah; Vienna/AT

Learning Objectives:
1. To be able to list the features of primary sclerosing cholangitis (PSC) on MRI and MRCP.
2. To describe the imaging features of IgG4-SC on MRI and MRCP.
3. To demonstrate how to differentiate between PSC and IgG4-SC and to describe the added value of he of hepatobiliary contrast agent in the diagnostic workup of both entities.

RC 2201-3
Cholangiocarcinoma
J. M. Lee; Seoul/KR

Learning Objectives:
1. To become familiar with the spectrum of imaging features of cholangiocarcinoma.
2. To learn about the new WHO classification of intrahepatic cholangiocarcinoma.
3. To describe challenging issues in preoperative staging workup.
Author Disclosures:
Jeong-min Lee: Research Grant/Support: Bayer, Gerbet, Starmed, RF Medical, Clarify. Medical IP, Philips, Samsung Medison, Siemens, GE Healthcare, CMS, Dongkuk Pharma; Speaker: Bayer, Gerbet, Starmed, Clarify. Philips, Samsung Medison, Siemens, GE Healthcare

RC 2201-4
How to distinguish inflammation from a tumour in PSC
M. A. Bali; Brussels/BE
(mbali@ulb.ac.be)

Learning Objectives:
1. To understand the importance of surveillance strategies in PSC patients.
2. To become familiar with the imaging criteria for CCA diagnosis in PSC patients.
3. To learn about the guidelines for reporting standards in PSC using MR/MRCP.

Panel discussion: Mistakes I've made and what I learnt from them

08:00-09:00 **Room E2**

Refresher Course: Breast

RC 2202

Personalised breast screening: the future is now

RC 2202-1
Chairperson's introduction
T. H. Helbich; Vienna/AT
Author Disclosures:
Thomas H. Helbich: Equipment Support Recipient: siemens, bruker; Research Grant/Support: hologic, novomed, guerbet, bracco, siemens

RC 2202-2
Integrating single-nucleotide polymorphisms (SNP) in screening: MyPeBS study
F. J. Gilbert; Cambridge/UK
(fjg28@cam.ac.uk)

Learning Objectives:
1. To learn about the MyPeBS study, including study rationale, study design and recruitment to date.
2. To understand the components to calculate risk to determine which imaging modality and frequency.
3. To recognise how single nucleotide polymorphisms contribute to the final personalised risk score when combined with information from questionnaires and breast density from mammograms.
Author Disclosures:
Fiona J. Gilbert: Consultant: Google; Research Grant/Support: GE Healthcare, Bracco, Hologic, Lunit

RC 2202-3
Breast density, background parenchymal enhancement (BPE), and relation with breast cancer: the DENSE Trial
R. M. Mann; Nijmegen/NL
(r.mann@rad.umcn.nl)

Learning Objectives:
1. To understand the advantages of functional imaging for breast screening.
2. To be able to select women that would benefit most from MRI screening.
3. To discuss the pitfalls associated with personalised screening.
Author Disclosures:
Ritse Maarten Mann: Board Member: EUSOBI; Research Grant/Support: Siemens / Bayer / Koning / BD / Screenpoint / PA Imaging

RC 2202-4
High-risk screening
V. Martinez de Vega; Madrid/ES
(Vicente.martinez@quironsalud.es)

Learning Objectives:
1. To identify who should be considered a high-risk patient for developing breast cancer.
2. To analyse the different screening strategies used for the early detection of breast cancer in high-risk patients.
3. To consider the necessary modifications to adapt the available screening strategies to different scenarios.

Panel discussion: personalised screening cost-effectiveness and future implementation

08:00-09:00 **Room G1**

E³ - ECR Master Class (Emergency Imaging)

E³ 2226

Emergency radiology: the use of artificial intelligence

E³ 2226-1
Chairperson's introduction
P.-A. Poletti; Geneva/CH
(pierre-alexandre.poletti@hcuge.ch)

E³ 2226-2
AI in brain emergencies
A. Platon; Geneva/CH
(alexandra.platon@hcuge.ch)

Learning Objectives:
1. To understand how AI may be helpful in brain emergencies.
2. To learn the results of comparison between AI and conventional assessment of brain emergencies.
3. To be aware of the recent software facilities in AI and further expectations.

E³ 2226-3
AI in thoracoabdominal emergencies
D. Pinto dos Santos; Cologne/DE
(daniel.pinto-dos-santos@uk-koeln.de)

Learning Objectives:
1. To understand the importance of AI in thoracoabdominal injuries in terms of decreasing evaluation time.
2. To learn which thoracoabdominal emergencies are more easily detected with AI.
Author Disclosures:
Daniel Pinto dos Santos: Advisory Board: cook medical; Author: AMBOSS GmbH; Speaker: Bayer

E³ 2226-4
AI in traumatic skeletal injuries
A. Feydy; Paris/FR
(antoine.feydy@cch.aphp.fr)

Learning Objectives:
1. To understand if AI is successful in detecting bone or soft tissue injuries.
2. To learn the role of AI in scoring or classification of bone fractures such as Salter-Harris.
3. To revise the overview of the current state of artificial intelligence and machine learning applications in different aspects of trauma imaging.
Author Disclosures:
Antoine Feydy: Consultant: GLEAMER past consultant

Panel discussion: Speed and accuracy in emergency imaging: what is the value of artificial intelligence?

08:00-09:00 **Room G2**

Refresher Course: Oncologic Imaging

RC 2216
To RADS or not to RADS?

RC 2216-1
Chairperson's introduction
M. E. Mayerhöfer; Vienna/AT
Author Disclosures:
Marius E. Mayerhöfer: Speaker: Siemens, GE, BMS

RC 2216-2
ONCO-RADS: screening cancer
G. Petralia; Milan/IT
(giuseppe.petralia@ieo.it)

Learning Objectives:
1. To know the principles of ONCO-RADS.
2. To understand if and how to use ONCO-RADS in clinical practice.
3. To learn how to implement ONCO-RADS in your department.

RC 2216-3
MET- and MY-RADS
A. R. Padhani; London/UK
(anwar.padhani@talk21.com)

Learning Objectives:
1. To know the principles of MET-RADS and MY-RADS.
2. To understand if and how to use MET-RADS and MY-RADS in clinical practice.
3. To learn how to implement MET-RADS and MY-RADS in your department.
Author Disclosures:
Anwar R. Padhani: Advisory Board: Siemens Healtineers; Share Holder: Lucida Medical; Speaker: Siemens Healtineers

RC 2216-4
Node-RADS: the challenging assessment of lymph nodes
F. H. J. Elsholtz; Berlin/DE
(fabian.elsholtz@charite.de)

Learning Objectives:
1. To know the principles of Node-RADS.
2. To understand if and how to use Node-RADS in clinical practice.
3. To learn how to implement Node-RADS in your department.
Author Disclosures:
Fabian Elsholtz: Author: I am a member of the Node-RADS author group

Panel discussion: What is the added value of -RADS in clinical practice?

08:00-09:00 **Room K1**

Refresher Course: Radiographers

RC 2214
Translating research into clinical practice

RC 2214-1
Chairpersons' introduction
B. T. Andersson; Lund/SE
(Bodil-T.Andersson@med.lu.se)
D. Akata; Ankara/TR
(dakata@hacettepe.edu.tr)

Learning Objectives:
1. To describe a range of research publications which have not been widely implemented into clinical practice.
2. To understand how to implement research findings successfully: experiences from NICE.
3. To discuss methods for increasing the implementation of research findings into radiographic practice: the role of professional bodies.

RC 2214-2
Are evidence-based findings translated into radiography practice?
F. Zarb; Msida/MT
(francis.zarb@um.edu.mt)

Learning Objectives:
1. To define evidence-based research.
2. To compare different modes of dissemination of evidence-based research findings.
3. To reflect on the challenges encountered in implementing evidence-based research findings into practice.

RC 2214-3
Multidisciplinary research to underpin future practice
S. D. Mørup; Odense/DK

Learning Objectives:
1. To describe the possible practice areas for radiography-led research.
2. To understand the importance of multidisciplinary cooperation to optimise radiography practice.
3. To comprehend the importance of the combination of interdisciplinary and international collaboration to underpin future radiographic practice.

RC 2214-4
The role of professional associations in translating research into practice
P. Vorlet; Lausanne/CH
(patrick.vorlet@chuv.ch)

Learning Objectives:
1. To describe the meaning of translating research into practice.
2. To define the roles of professional associations in translating research into practice.
3. To differentiate between direct and indirect actions in the translation of research.

Panel discussion: Barriers and enablers of evidence-based practice

08:00-09:00 **Room M**

Joint Session of the ESR and EIBALL

ESR/EIBALL
Lesion segmentation for imaging biomarker quantification

ESR/EIBALL-1
Chairperson's introduction
A. van der Lugt; Rotterdam/NL
Author Disclosures:
Aad Van Der Lugt: Grant Recepient: Siemens Healthineers, GE Healthcare, Philips Healthcare; Research Grant/Support: Siemens Healthineers, GE Healthcare, Philips Healthcare; Speaker: Siemens Healthineers, GE Healthcare

ESR/EIBALL-2
Achieving consensus on standardisation of lesion segmentation
N. M. deSouza; Sutton/UK

Learning Objectives:
1. To become familiar with the current consensus on lesion segmentation.
2. To appreciate the differences in standardisation for different imaging modalities.
3. To become familiar with the domain where consensus has not been reached.

ESR/EIBALL-3
Establishing methods and reference standards for manual and automated lesion segmentation
P. Lohmann; Jülich/DE
(p.lohmann@fz-juelich.de)

Learning Objectives:
1. To appreciate the importance of accurate lesion segmentation.
2. To understand the importance of reference segmentations as the gold standard.
3. To understand how accuracy should be assessed and measured.
Author Disclosures:
Philipp Lohmann: Speaker: Blue Earth Diagnostics

ESR/EIBALL-4
Organ-specific guidelines for segmentation: the role of the specialist
J. Amorim; Porto/PT
(joaopinheiroamorim@gmail.com)

Learning Objectives:
1. To become familiar with the current accuracy of lesion segmentation in several body regions.
2. To appreciate the role of imaging parameters in the accuracy of lesion segmentation.
3. To understand the importance of training readers.
Author Disclosures:
Joao Amorim: Speaker: Nothing to Disclose

Panel discussion: How to improve the accuracy of manual and automated lesion segmentations?

08:00-09:00 **Room N**

Refresher Course: Paediatric

RC 2212
Paediatric interventional radiology

RC 2212-1
Chairperson's introduction
S. Franchi-Abella; Le Kremlin-Bicêtre/FR
(stephanie.franchi@aphp.fr)

RC 2212-2
Non-surgical management of intussusception
M. V. Verhagen; Groningen/NL
(m.verhagen@umcg.nl)

Learning Objectives:
1. To learn how to redress an intussusception using hydrostatic or pneumatic techniques and consider the differences and the benefits of either method.
2. To understand when the intussusception has been successfully redressed.
3. To appreciate the added use of ultrasound during intussusception redressing.

RC 2212-3
How to perform liver and kidney biopsy
M. Riccabona; Graz/AT

Learning Objectives:
1. To revisit basic techniques of solid organ biopsy in childhood, focussing on paediatric liver and kidney biopsies.
2. To learn about (contra-)indication and handling, analgo-sedation, observation and follow-up.
3. To appreciate typical findings and appearances in common clinical settings, illustrated by representative images of these procedures.

Author Disclosures:
Michael Riccabona: Author: many articles and boks

RC 2212-4
How to insert drains: percutaneous nephrostomy, abscess drainage and more
S. Hoare; Dublin/IE

Learning Objectives:
1. To identify the most common conditions for percutaneous nephrostomy (PCN) placement and percutaneous drainage (PD) in the paediatric population.
2. To appreciate the pre-procedural management and equipment selection.
3. To understand and describe the basic percutaneous drainage techniques, focusing on the Seldinger technique and paediatric PCN placement.

Panel discussion: How to learn paediatric interventional radiology?

09:30-10:30 **Room G2**

Refresher Course: Neuro

RC 2311
Dual-energy and dual-source CT in neuroradiology

RC 2311-1
Chairperson's introduction
F. Ståhl; Solna/SE

RC 2311-2
Dual-energy CT for the brain
D. Dodig; Barcelona/ES

Learning Objectives:
1. To describe the applications of material decomposition algorithms and virtual monoenergetic reconstructions in DE-CT brain imaging.
2. To define the role of DE-CT of the brain in the diagnosis and treatment of stroke.
3. To be able to use DE-CT for hyperdense material separation (blood, bone, calcium, iodine contrast material) in the evaluation of intracranial calcified and/or hemorrhagic lesions.

RC 2311-3
Dual-energy CT for head and neck
I. Burck; Frankfurt a. Main/DE
(Iris.Burck@kgu.de)

Learning Objectives:
1. To understand iodine concentration assessment in cervical lymph nodes as a biomarker for differentiation of benign from malignant lesions.
2. To be able to interpret virtual non-calcium images for artefact-free detection of bone marrow oedema.
3. To describe the clinical implementations and relevance of spectral quantitative information incorporated into radiomic and machine learning models.

RC 2311-4
Dual-energy CT for the spine
L. Jacobi-Postma; Maastricht/NL
(lindajacobi@gmail.com)

Learning Objectives:
1. To provide an overview of the background and use of DECT in spine.
2. To list the monochromatic imaging and spectral imaging applications and postprocessing of DECT of the spine.
3. To describe the main clinical indications as well as radiological findings of DECT in the spine and to reflect on advantages and disadvantages.

Panel discussion: Future applications of dual-energy CT

09:30-10:30 **Room K1**

E³ - Young ECR Programme: Basic Sessions

Organised by the EFRS

BS 23

Optimisation of radiographic practice: state-of-the-art

BS 23-1
Chairperson's introduction
L. Dolenc; Ljubljana/SI
(laura.dolenc@zf.uni-lj.si)

BS 23-2
Indication-based radiographic optimisation: is it feasible for everyone?
S. J. Foley; Dublin/IE
(shane.foley@ucd.ie)

Learning Objectives:
1. To explain the concept of indication-based dose optimisation.
2. To discuss the advantages and disadvantages of indication-based dose optimisation.
3. To discuss the steps needed to deliver truly patient-centred dose optimisation.

BS 23-3
Demystification of exposure indices
L. J. O. C. Lança; Lisbon/PT
(luis.lanca@estesl.ipl.pt)

Learning Objectives:
1. To explain digital radiography's limitations in quantifying exposure adequacy.
2. To discuss the quantitative exposure metrics currently available within digital radiography.
3. To consider the changes needed to provide clinically helpful exposure indices.

BS 23-4
Tailoring communication strategies for individual patients: what is the best practice?
C. Malamateniou; London/UK
(christina.malamateniou@city.ac.uk)

Learning Objectives:
1. To outline the complexities of patient communication within radiography.
2. To discuss the challenges to achieving effective communication with patients.
3. To consider how to optimise communication at an individual patient level.
Author Disclosures:
Christina Malamateniou: Advisory Board: Chair of AI Advisory Board of Society and College of radiographers; Author: Academic consultancy with Pearl Tech AG on patient positioning; Board Member: EusoMII; Research Grant/Support: Siemens Healthineers and Qure.ai

09:30-10:30 **Room N**

Refresher Course: Vascular

RC 2315

Diagnosis and management of gastrointestinal bleeding

RC 2315-1
Chairperson's introduction
T. Rodt; Lüneburg/DE
(Thomas.Rodt@klinikum-lueneburg.de)

Learning Objectives:
1. To discuss the role of different invasive and non-invasive imaging modalities in GI bleeding.
2. To describe indications and techniques for endovascular management of upper and lower GI bleeding.

RC 2315-2
Non-invasive diagnosis of GI bleeding
S. Duvnjak; Odense/DK
(duvnjak.stevo@gmail.com)

Learning Objectives:
1. To understand the indications for non-invasive diagnostic imaging of GI bleeding.
2. To understand which imaging technique should be applied to different clinical scenarios.
3. To understand the essential protocol for angio-CT in the context of GI bleeding.
4. To recognise the imaging signs of GI bleeding and how to report them.

RC 2315-3
Digital subtraction angiography (DSA) for the diagnosis of GI bleeding: when and how
V. Bérczi; Budapest/HU
(berczi@hotmail.com)

Learning Objectives:
1. To list all important technical details of DSA used to detect GI bleeding.
2. To describe tricks and tips for special cases.
3. To reflect on case-based examples.

RC 2315-4
Management of GI bleeding: the role of interventional radiology
A. H. Mahnken; Marburg/DE

Learning Objectives:
1. To name the relevant materials and infrastructure needed for the IR management of GI bleeding.
2. To describe how treatment strategy is driven by the type of GI bleeding.
3. To summarise and compare IR treatments' results depending on the type of GI bleeding.
4. To analyse the role of IR in the management of GI bleeding in comparison with endoscopy and surgery.

Panel discussion: The radiologists in the multidisciplinary management of GI bleeding: are we sufficiently involved in the decision process?

09:30-11:00 **Room D**

EIBIR Session

EIBIR 23

AI applications in radiation protection: the experience of the SINFONIA project

EIBIR 23-1
Chairperson's introduction
J. Damilakis; Iraklion/GR

EIBIR 23-2
Machine learning in CT dose estimation
J. Damilakis; Iraklion/GR

Learning Objectives:
1. To learn about the SINFONIA project research work on AI in CT dosimetry.
2. To understand the challenges and solutions of AI in CT dosimetry.
3. To explain how AI-based CT dosimetry can support patient radiation protection in clinical practice.

EIBIR 23-3
Person and object tracking for real-time dosimetry of nuclear medicine personnel
D. Santiago Rondón; Mol/BE
(daniel.santiago.rondon@sckcen.be)

Learning Objectives:
1. To learn how machine learning and computer vision can be used to perform real-time dose assessments of medical personnel in nuclear medicine.
2. To become familiar with the steps for developing robust machine learning algorithms for tracking of objects and people.

3. To understand how computational approach can solve some of the current issues of dosimetry and radiation protection, but also to reflect on the limitations of machine learning technology.
Author Disclosures:
Daniel Santiago Rondon: Research Grant/Support: This research was financed by Engie

EIBIR 23-4
AI-assisted learning in medical radiation protection
J. Jacobs; Leuven/BE
(jurgen.jacobs@qaelum.com)

Learning Objectives:
1. To present the SINFONIA project research on a new level of informing and educating clinical personnel/students.
2. To explain how situations and generated insights (based on real-life clinical data) lead to knowledge blocks that inform the user at different levels and provide the appropriate training material.
3. To show how module-based software can proactively assist the clinical end user in different practical case scenarios.
Author Disclosures:
Jurgen Jacobs: CEO: Qaelum

Panel discussion: How can AI support radiation protection in clinical practice?

09:30-11:00 **Room E1**

E³ - Advanced Courses: Interactive Teaching Sessions for Young (and not so Young) Radiologists

E³ 2321
Imaging evaluation of sarcopenia: the best imaging techniques

E³ 2321-1
Multiparametric MRI and CT
L. M. Sconfienza; Milan/IT

Learning Objectives:
1. To become familiar with the definition of sarcopenia.
2. To learn about the use of CT and MRI to assess sarcopenia.
Author Disclosures:
Luca Maria Sconfienza: Other: Financial relationships with Esaote SPA, Bracco Imaging Italia, Abiogen, Pfizer, Novartis, Janssen-Cilag, Samsung Medison, GE Medical, MSD, Merck Serono, R.A.W. Srl, all unrelated to current presentation

E³ 2321-2
Multiparametric US
V. Vasilevska-Nikodinovska; Skopje/MK
(v_vasilevska@yahoo.com)

Learning Objectives:
1. To become familiar with the characteristics of the new modes used to evaluate sarcopenia with the multiparametric US.
2. To learn about the applications of multiparametric US for assessing sarcopenia.

09:30-11:00 **Room G1**

Special Focus Session

SF 23
Head and neck cancer classification systems and structured reporting

SF 23-1
Chairperson's introduction
M. Ravanelli; Brescia/IT

SF 23-2
NI-RADS
M. A. Nilsson; Lund/SE
(Margareta.A.Nilsson@skane.se)

Learning Objectives:
1. To name and identify expected post-therapeutic changes on CT, PET and MRI.
2. To understand the basis of NI-RADS criteria.
3. To reflect on how to use NI-RADS criteria to grade post-therapeutic changes.

SF 23-3
NODE-RADS
F. H. J. Elsholtz; Berlin/DE
(fabian.elsholtz@charite.de)

Learning Objectives:
1. To understand the intention of NODE-RADS.
2. To know the head and neck-specific aspects of NODE-RADS.
3. To be able to write a report using NODE-RADS in a head and neck cancer staging examination.
Author Disclosures:
Fabian Elsholtz: Author: I am a member of the Node-RADS author group

SF 23-4
TI-RADS
M. Ravanelli; Brescia/IT

Learning Objectives:
1. To understand the rationale for TIRADS within the context of thyroid nodules and cancer.
2. To know the main TIRADs criteria and how to apply TIRADS.
3. To discuss aspects which may improve future versions of TIRADS.

SF 23-5
Structured head and neck CT reporting
S. Stöcklein; Munich/DE
(sophia.stoecklein@med.lmu.de)

Learning Objectives:
1. To know important aspects of TNM staging of head and neck cancer.
2. To know how to assess and document these aspects in a structured report.
3. To reflect on the opportunities and limitations of structured reporting of head and neck cancer.

Panel discussion: Are these RAD systems helpful? Is this the way to go or should we consider another one?

09:30-11:00 **Room M**

E³ - Advanced Courses: Imaging of Ageing

E³ 2320
Screening for disease

E³ 2320-1
Chairperson's introduction
A. Snoeckx; Antwerp/BE
(Annemiek.Snoeckx@uza.be)
Author Disclosures:
Annemie Snoeckx: Advisory Board: Agfa

E³ 2320-2
Screening for the 'Big-3 Diseases' using low-dose chest CT
R. Vliegenthart; Groningen/NL
(r.vliegenthart@umcg.nl)

Learning Objectives:
1. To explain the rationale for the 'Big-3' screening.
2. To describe the CT biomarkers for the 'Big-3' diseases.
3. To summarise the evidence for the relationship of CT biomarkers to outcomes.
Author Disclosures:
Rozemarijn Vliegenthart: Research Grant/Support: Institutional research grants, Siemens Healthineers; Speaker: Bayer, Siemens Healthineers

E³ 2320-3
Integrated imaging approach to osteoporosis
G. Guglielmi; Foggia/IT
(giuseppe.guglielmi@unifg.it)

Learning Objectives:
1. To name and identify osteoporosis.
2. To list findings of osteoporosis on imaging.
3. To describe how osteoporosis relates to imaging detectable abnormalities.

E³ 2320-4
Ovarian cancer screening? Not ready for primetime
A. G. Rockall; London/UK
(a.rockall@imperial.ac.uk)

Learning Objectives:
1. To be aware of the unmet need for early detection of ovarian cancer.
2. To know about the findings of large screening studies in ovarian cancer, including UKCTOCS.
3. To learn about the prospects for early detection of ovarian cancer.

E³ 2320-5
Screening for abdominal aortic aneurysm and carotid artery stenosis
L. Saba; Cagliari/IT

Learning Objectives:
1. To review current evidence and guidelines for screening abdominal aortic aneurysm and carotid artery stenosis.
2. To identify imaging strategies and potential limits in screening for abdominal aortic aneurysm and carotid artery stenosis.
3. To discuss the impact of artificial intelligence and big data on optimising screening strategies for abdominal aortic aneurysm and carotid artery stenosis in the next five years.

11:30-12:30 **Room D**

Refresher Course: Chest

RC 2404

Coping with challenges in lung cancer imaging

RC 2404-1
Chairperson's introduction
A. Kerpel-Fronius; Budapest/HU

RC 2404-2
Pearls and pitfalls in lung cancer staging
L. Beer; Vienna/AT
(Lucian.beer@meduniwien.ac.at)

Learning Objectives:
1. To learn about current lung cancer TNM staging.
2. To recognise the pitfalls in ambivalent cases.
3. To assess pathology that is difficult to address with current staging.
Author Disclosures:
Lucian Beer: Research Grant/Support: Bayer, MDS, Novartis

RC 2404-3
Assessing treatment response after systemic treatment: is this treatment response?
M.-P. Revel; Paris/FR
(marie-pierre.revel@aphp.fr)

Learning Objectives:
1. To learn how to evaluate a tumour's response to systemic treatments.
2. To learn about how adverse reactions to chemotherapy can be diagnosed on imaging.
3. To understand reactions and imaging findings during immunotherapy.
Author Disclosures:
Marie-Pierre Revel: Equipment Support Recipient: Mevis, Aidence, Coreline, Gleamer; Research Grant/Support: French ministry of Health, French Cancer Institute; Speaker: Bracco, MSD, GE Healthcare, Boehringer Ingelheim

RC 2404-4
Pitfalls in treatment response evaluation after surgery and radiotherapy
P. Beddy; Dublin/IE
(peterbeddy@gmail.com)

Learning Objectives:
1. To know which complications can occur in the early post-treatment period.
2. To understand which imaging findings to expect in the short and long term after radiotherapy.
3. To recognise the recurrence of tumour post-treatment and differentiate from chronic findings.

Panel discussion: How to avoid misclassifications in lung cancer imaging

11:30-12:30 **Room E1**

Refresher Course: Abdominal and Gastrointestinal

RC 2401

Two patients, not one: acute abdominal imaging in pregnancy

RC 2401-1
Chairperson's introduction
C. Ewertsen; Copenhagen/DK

RC 2401-2
Gallbladder, pancreas and bile duct disorders
M. M. França; Porto/PT
(mariamanuela.franca@gmail.com)

Learning Objectives:
1. To know the imaging features of the most typical disorders affecting the hepatopancreatobiliary system in pregnancy.
2. To understand the relevant limitations of imaging techniques.
3. To understand how to optimise imaging in hepatopancreatobiliary disease in pregnancy.

RC 2401-3
Appendix and bowel disorders
V. Shah; Leicester/UK

Learning Objectives:
1. To know the imaging features of the most typical disorders affecting the appendix and bowel in pregnancy.
2. To understand the imaging pitfalls when imaging the appendix and bowel during pregnancy.
3. To understand how to optimise imaging in the appendix and bowel disease in pregnancy.

RC 2401-4
Renal and ureteric disorders
G. Masselli; Rome/IT
(gabriele.masselli@uniroma1.it)

Learning Objectives:
1. To know the imaging features of the most typical disorders affecting the kidneys and ureters in pregnancy.
2. To understand the effect of pregnancy on different imaging techniques.
3. To understand how to optimise imaging in kidney and ureteric disease in pregnancy.

RC 2401-5
Quantifying the risks of cross-sectional imaging in an emergency
J. Kraft; Leeds/UK

Learning Objectives:
1. To understand the risks of radiation to the fetus during pregnancy.
2. To understand scenarios where emergency CT imaging is of greatest benefit in pregnancy.
3. To know the key information to include in discussions with clinicians and patients.

Panel discussion: How to develop an optimal care pathway?

11:30-12:30 **Room G1**

Refresher Course: Musculoskeletal

RC 2410

Imaging of myotendinous junction and muscle

RC 2410-1
Chairperson's introduction
A. Kassarjian; Madrid/ES

RC 2410-2
Anatomy of the osteo and myotendinous junction
A. Lopez Maseda; Barakaldo/ES
(andoni.lopezmaseda@osakidetza.eus)

Learning Objectives:
1. To describe the normal anatomy and MRI appearances of osteo and myotendinous junction.
2. To explain the importance of these structures depending on age of the patient.

RC 2410-3
Imaging myotendinous and muscle ruptures
M. G. Mack; Munich/DE
(m.mack@radiologie-muenchen.de)

Learning Objectives:
1. To describe the normal anatomy and MRI appearances of the medial and lateral ligament complexes.
2. To explain the imaging appearances of injuries to these structures.

RC 2410-4
Imaging muscle oedema and differential diagnosis
S. Mechó Meca; Barcelona/ES
(mechomeca@gmail.com)

Learning Objectives:
1. To understand how to recognise muscle oedema patterns.
2. To lean about differentials of muscle oedema

Panel discussion: The role of imaging in management-related decisions of myotendinous and muscle injuries

11:30-12:30 **Room G2**

E³ - The Beauty of Basic Knowledge: Screening

E³ 25E

Prostate cancer screening

E³ 25E-1
Chairperson's introduction
N. Mottet; St. Etienne/FR

Learning Objectives:
At the end of this session, the participants will understand the pros and cons of prostate cancer screening. They will be aware of the prostate cancer risk factors and understand the limitations of imaging for detection.

E³ 25E-2
What are the main prostate cancer risk factors?
O. Cussenot; Paris/FR

Learning Objectives:
1. To learn about the genetics and biology of prostate cancer.
2. To learn about nutritional risk factors.
3. To learn how patients at risk should be followed.

E³ 25E-3
Pros and cons
N. Mottet; St. Etienne/FR

E³ 25E-4
Is there a role for MRI in prostate cancer screening?
H. C. Thoeny; Fribourg/CH
(harriet.thoeny@h-fr.ch)

Learning Objectives:
1. To learn about the drawbacks of PSA screening.
2. To learn about the impact of MRI in prostate cancer screening.
3. To be aware of the challenges of MRI for prostate cancer screening.
Author Disclosures:
Harriet Thoeny: Advisory Board: Guerbet SA

Panel discussion: Prostate cancer screening: is it reasonable?

11:30-12:30 **Room K1**

E³ - Young ECR Programme: Basic Sessions

Organised by the EFRS

BS 24a

Maximising the benefits of technology for patients

BS 24a-1
Chairperson's introduction
M. Zanardo; Milan/IT
(moreno.zanardo@unimi.it)

BS 24a-2
Virtual grid technology: benefits, limitations, and implementation
K. Knapp; Exeter/UK

Learning Objectives:
1. To understand the technological principles behind virtual grids.
2. To discuss the benefits and limitations of using virtual grids.
3. To understand the challenges in implementing virtual grids into daily clinical practice.
Author Disclosures:
Karen Knapp: Advisory Board: NICE; Author: Carvers' Medical Imaging; Employee: InHealth; Equipment Support Recipient: Siemens; Grant Recepient: Animal free research, Royal Osteoporosis Society, Stryker; Research Grant/Support: As above

BS 24a-3
Applying modern infection control practices in radiology departments
A. Devetti; Udine/IT

Learning Objectives:
1. To define the term modern infection control practices.
2. To explain the latest 'best' practices in infection control within radiology.
3. To discuss how to ensure that all departments remain up-to-date with the latest developments in infection control.

BS 24a-4
Injector pump technology: future potential for contrast delivery
M. Weber Kusk; Esbjerg/DK
(Martin.Weber.Kusk@rsyd.dk)

Learning Objectives:
1. To outline the current challenges in terms of effective contrast delivery.
2. To explain the injector pump technology that is currently available.
3. To discuss how contrast will be injected in the future and what this can bring to clinical practice.

11:30-12:30 **Room K2**

E³ - Young ECR Programme: Basic Sessions

Organised by the ESOR

BS 24b

Radiologic anatomy: breast

BS 24b-1
Chairperson's introduction
T. H. Helbich; Vienna/AT
Author Disclosures:
Thomas H. Helbich: Research Grant/Support: siemens bracco bard guerbet novomed bruker

BS 24b-2
Congenital and developmental abnormalities of the breast
S. J. Vinnicombe; Gloucestershire/UK
(sarah.vinnicombe@nhs.net)

Learning Objectives:
1. To appreciate the normal pattern of breast development.
2. To learn about congenital and developmental abnormalities.
3. To appreciate the importance of the nipple-areola complex and ist influence on imaging.

Discussion

BS 24b-3
About ducts and lobules and how they influence breast imaging
A. Athanasiou; Athens/GR
(aathanasiou@mitera.gr)

Learning Objectives:
1. To learn about normal ductal and lobar anatomy of breast tissue.
2. To appreciate how the individual ductal-lobar distribution may influence breast density and imaging.
3. To understand the ductal-lobular relevance in benign and malignant breast disease.
Author Disclosures:
Alexandra Athanasiou: Advisory Board: vara; Consultant: bayer, bd; Speaker: iCad

Discussion

BS 24b-4
What radiologists have to teach breast surgeons about breast anatomy
I. Thomassin-Naggara; Paris/FR
(isabelle.thomassin@tnn.aphp.fr)

Learning Objectives:
1. To learn how breast anatomy and its variants influence surgical management.
2. To acknowledge lymph node anatomy and how its variants influence surgical management.
3. To describe the imaging appearance of breast and lymph node anatomy and their variants.
Author Disclosures:
Isabelle Thomassin-Naggara: Advisory Board: Bayer, Bracco, Guerbet, Bard; Speaker: GE, Siemens, Hologic, Canon, Guerbet, Fujifilm, ICAD incepto, GSK

Discussion

BS 24b-5
Functional and metabolic breast anatomy by MRI and PET
K. Pinker-Domenig; New York, NY/US
(pinkerdk@mskcc.org)

Learning Objectives:
1. To understand functional and metabolic imaging information derived from PET or MRI.
2. To learn about background parenchymal enhancement/uptake and DWI or MRS metrics.
3. To acknowledge how metabolic and functional imaging information can influence a diagnosis.

Discussion

11:30-12:30 **Room N**

Refresher Course: Neuro

RC 2411

Update on vascular interventional neuroradiology

RC 2411-1
Chairperson's introduction
B. Ramgren; Lund/SE
(birgitta.ramgren@med.lu.se)

RC 2411-2
Stroke
M. L. Biscoito; Lisbon/PT
(lbiscoito@netcabo.pt)

Learning Objectives:
1. To discuss current evidence and indications for patient selection for endovascular stroke treatment.
2. To be aware of the technical aspects of mechanical thrombectomy.
3. To describe current approaches in more complex clinical settings such as extra- and intracranial stenting in the acute phase.

RC 2411-3
Other intracranial interventions
M. A. de Miquel; Barcelona/ES
(mademiquel@bellvitgehospital.cat)

Learning Objectives:
1. To define the key diagnostic information about haemorrhagic intracranial pathologies, especially in the emergency room.
2. To understand the main therapeutic plans in different settings.
3. To describe the important follow-up data that needs to be considered.

RC 2411-4
Head, neck, and spine
P. Undrén; Lund/SE

Learning Objectives:
1. To describe common pathologies of the head and neck as well as the spine that are eligible for endovascular treatment.
2. To understand the technical aspects of endovascular treatment in these areas.
3. To list the complications of endovascular treatment of the head, neck and spine.

Panel discussion: The future of interventional neuroradiology

11:30-14:00 **Room E2**

E³ - Young ECR programme: Case-Based Diagnosis Training

CB

Case-Based Diagnosis Training

CB-1
Chairpersons' introduction
S. Robinson; Vienna/AT
(s.robinson@dzu.at)
K. M. Friedrich; Vienna/AT

CB-2
Liver
L. Martí-Bonmatí; Valencia/ES
(marti_lui@gva.es)
Author Disclosures:
Luis Marti-Bonmati: Advisory Board: Member of the non-profit Scientific Advisory Boards of Quibim SL and the Girona Biomedical Research Institute

CB-3
Neuro
D. Prayer; Vienna/AT

CB-4
Paediatrics
S. C. Shelmerdine; London/UK

CB-5
Maxillofacial
S. Robinson; Vienna/AT
(s.robinson@dzu.at)

CB-6
Genitourinary
M. Toepker; Vienna/AT
(mt@dz10.at)

CB-7
Interlude: Mnemonics
B. Ozgen Mocan; Chicago, IL/US
(burcem@gmail.com)

CB-8
Head and neck
U. Schwarz-Nemec; Vienna/AT

CB-9
Chest
H. Prosch; Vienna/AT
(helmut.prosch@meduniwien.ac.at)
Author Disclosures:
Helmut Prosch: Advisory Board: Boehringer Ingelheim; Grant Recepient: Boehringer Ingelheim, Astra Zeneca, Siemens; Speaker: Boehringer Ingelheim, Astra Zeneca, Roche, Novartis , Janssen, Sanofi, MSD, BMS

CB-10
Spine
K. M. Friedrich; Vienna/AT

CB-11
Gastrointestinal
W. Schima; Vienna/AT
(wolfgang.schima@khgh.at)

CB-12
Breast
P. Clauser; Vienna/AT
(clauser.p@hotmail.it)
Author Disclosures:
Paola Clauser: Speaker: Siemens Healthineers

13:00-14:00 **Room G1**

Refresher Course: Paediatric

RC 2512
Contrast-enhanced ultrasound in children

RC 2512-1
Chairperson's introduction
R. Gnannt; Zurich/CH
(ralph.gnannt@usz.ch)

RC 2512-2
Intracavital applications
D. Kljucevsek; Ljubljana/SI

Learning Objectives:
1. To learn the technique of sono-VCU.
2. To understand pathology patterns of sono-VCU.
3. To understand the limitations of Sono-VCU.
Author Disclosures:
Damjana Kljucevšek: Other: Participation in An observational study of SonoVue®/Lumason®-Enhanced Urosonography in Paediatric Subjects with Known or Suspected Vesicoureteral Reflux. Protocol No. BR1-1445, EU PASS 30600, Bracco Imaging

RC 2512-3
Intravascular applications
H.-J. Mentzel; Jena/DE

Learning Objectives:
1. To learn about the basics of intravenous application of ultrasound contrast media, dosage, safety profile and acceptance of CEUS.
2. To understand possible indications for intravenous applications (trauma, tumour, infection).
3. To appreciate the advantage of using contrast-enhanced sonography intravenously in children and adolescents in comparison to CT and MRI.
Author Disclosures:
Hans-Joachim Mentzel: Advisory Board: Vortragshonorare, Beratertätigkeit, Kongressunterstützung, Forschungskooperation. Bayer, Bracco, Novartis, Siemens; Author: Vorstandsmitglied GPR

Panel discussion: Contrast-enhanced ultrasound - will it erase voiding cystourethrography and cross-sectional imaging?

13:00-14:00 **Room N**

Refresher Course: Vascular

RC 2515
Vessel wall imaging and vulnerable plaque characterisation

RC 2515-1
Chairperson's introduction
P. Maurovich-Horvat; Budapest/HU
(maurovich.horvat@gmail.com)

Learning Objectives:
1. To provide an overview of techniques available to analyse the vessel wall.
2. To describe imaging modalities enabling detection and characterisation of vulnerable plaques.
3. To understand how vessel wall imaging has an impact on clinical decision-making.

RC 2515-2
Vessel wall imaging: novel techniques
S. Ö. Oktar; Ankara/TR
(sunaoktar@yahoo.com)

Learning Objectives:
1. To define sonographic methods to assess vessel walls and blood flow.
2. To outline recent developments in vascular ultrasound applications, highlighting their technical features and the clinical implications.

RC 2515-3
Vulnerable plaque imaging by ultrasound
M. Radzina; Riga/LV
(mradzina@gmail.com)

Learning Objectives:
1. To describe vulnerable plaque pathophysiology and the role of ultrasound imaging.
2. To show the application of multiparametric ultrasound methods (2D, 3D US, Doppler, Elastography, CEUS) for vessel wall, stenosis and plaque characterisation.
3. To highlight the advantages and limitations of ultrasound imaging in comparison with other imaging modalities for vessel wall assessment.

RC 2515-4
Vulnerable plaque imaging by MRI
A. Panajotu; Budapest/HU
(panajotu.alexisz@med.semmelweis-univ.hu)

Learning Objectives:
1. To list the most important atherosclerotic plaque vulnerability features identifiable by MRI.
2. To understand the shortcomings of grading carotid artery disease based solely on the degree of lumen stenosis.
3. To understand the possibilities and challenges of coronary artery and carotid plaque characterisation by MRI.

Panel discussion: The impact of these techniques on clinical decision-making

13:00-14:10 **Room M**

Refresher Course: Musculoskeletal

RC 2510
Imaging upper extremity

RC 2510-1
Chairperson's introduction
A. S. Vieira; Porto/PT
(alberto.vieira@cuf.pt)

RC 2510-2
Finger and hand imaging
J.-L. Drapé; Paris/FR
(jean-luc.drape@aphp.fr)

Learning Objectives:
1. To describe the normal anatomy and MRI appearances of the hand and fingers.
2. To explain the imaging appearances of finger injuries.

RC 2510-3
Wrist imaging
E. Llopis; Valencia/ES
(evallopis@gmail.com)

Learning Objectives:
1. To describe the normal anatomy and MRI appearances of the medial and lateral ligament complexes.
2. To explain the imaging appearances of injuries to these structures.
Author Disclosures:
Eva Llopis San Juan: Grant Recepient: canon, philips

RC 2510-4
Elbow imaging
M. C. De Jonge; Utrecht/NL
(milkodejonge@gmail.com)

Learning Objectives:
1. To describe the normal anatomy and MRI appearances of an ACL repair and graft reconstruction.
2. To explain the imaging appearances of normal maturation and pathological conditions involving ligament repair.
3. To list the most valuable imaging findings that correlate with clinical complications.

Panel discussion: The role of imaging in management-related decisions of upper extremity joints

13:00-14:30 **Room D**

EuroSafe Imaging Session

EU 25
Radiation protection and artificial intelligence (AI): expectations and needs from the community

EU 25-1
Chairpersons' introduction: setting the scene
G. Frija; Paris/FR
(guyfrija@gmail.com)
B. Brkljačić; Zagreb/HR
(boris@brkljacic.com)

EU 25-2
AI and medical physicists
J. Damilakis; Iraklion/GR

Learning Objectives:
1. To present the main applications of AI in medical physics.
2. To understand the opportunities and limitations of AI in medical physics.
3. To discuss how medical physicists can keep up with the development of AI.

EU 25-3
Expectations and needs of regulators
H. De las Heras Gala; Zorneding/DE

Learning Objectives:
1. To learn about the consensus of European regulators regarding challenges posed by AI (EURAMED rocc-n-roll).
2. To appreciate the need for European collaboration among clinical professionals, manufacturers and regulators.
3. To understand why some applications of AI require special attention from the regulatory point of view.

EU 25-4
Expectations and needs of radiologists
E. Kotter; Freiburg/DE

Learning Objectives:
1. To understand the advantages and challenges of dose management systems (DMS).
2. To learn how AI support DMS.
3. To discuss automatic image quality evaluation and ist potential role in dose management.
Author Disclosures:
Elmar Kotter: Advisory Board: contextflow GmbH, Vienna; Grant Recepient: BMBF, DFG; Speaker: Siemens Healthineers, AbbVie

EU 25-5
Expectations and needs of radiographers
J. McNulty; Dublin/IE
(jonathan.mcnulty@ucd.ie)

Learning Objectives:
1. To explore radiographers' views on AI's growing applications in clinical practice.
2. To analyse how AI applications linked to radiation protection will enhance the radiographer's role.
3. To reflect on the work undertaken by institutions and professional organisations to ensure radiographers form part of AI development, implementation, and evaluation linked to their roles.
Author Disclosures:
Jonathan McNulty: Other: Editor in Chief, Radiography Journal (Elsevier / SCoR)

EU 25-6
Expectations and needs of patients
E. Briers; Hasselt/BE
(erikbriers@telenet.be)

Learning Objectives:
1. To learn that patients' primary needs are an optimal diagnosis and eventually an optimal treatment using ionising radiation and that patients expect this from the treatment team, not needing to ask for it.
2. To appreciate that patients are (as you know) very different and that they may need an individualised approach to radiation safety and to keep in mind that for some, the radiation dose is no issue for others a big deal.
3. To understand that AI can bring new possibilities to diagnostics and treatment with ionising radiation, that it can lead to the use of lower doses while maintaining the diagnostic quality and the treatment efficacy and enhance the trust of critical patients.

Panel discussion

13:00-14:30 **Room E1**

E³ - Advanced Courses: Interactive Teaching Sessions for Young (and not so Young) Radiologists

E³ 2521
Advances in imaging for prostate cancer

E³ 2521-1
PI-RADS update: what is next?
A. R. Padhani; London/UK
(anwar.padhani@talk21.com)

Learning Objectives:
1. To become familiar with the strengths and limitations of the PI-RADS v2.1 system.
2. To recognise imaging pitfalls and mimickers in prostate cancer.
3. To illustrate the modification of the PI-RADS system aimed to improve diagnostic performance.
Author Disclosures:
Anwar R. Padhani: Advisory Board: Siemens Healthineers; Equipment Support Recipient: Siemens Healthineers; Share Holder: Lucida Medical; Speaker: Siemens Healthineers

E³ 2521-2
AI in prostate imaging
T. Penzkofer; Berlin/DE

Learning Objectives:
1. To become familiar with the applications of AI in the diagnosis and staging of prostate cancer.
2. To learn about the use of AI information to guide biopsy.
3. To discuss the potential impact of AI methods on clinical decision-making and patient outcome.
Author Disclosures:
Tobias Penzkofer: Grant Recepient: Berlin Institute of Health (Advanced Clinician Scientist Grant, Platform Grant), German Ministry for Education and Research, German Research Foundation, EU Horizon 2020, EU DIGITAL; Research Grant/Support: AGO, Aprea AB, ARCAGY-GINECO, Astellas Pharma Global Inc. (APGD), Astra Zeneca, Clovis Oncology, Inc., Dohme Corp, Holaira, Incyte Corporation, Karyopharm, Lion Biotechnologies, Inc., MedImmune, Merck Sharp, Mint Medical, Millennium Pharmaceuticals, Inc., Morphotec Inc., NovoCure Ltd., PharmaMar S.A. and PharmaMar USA, Inc., Roche, Siemens Healthineers und TESARO Inc.; Other: Charité (Employer), Elsevier (book translation)

13:00-14:30 **Room G2**

Special Focus Session

SF 25
Spinal cord and spinal canal lesions

SF 25-1
Chairperson's introduction
M. M. Thurnher; Vienna/AT
(majda.thurnher@meduniwien.ac.at)
Author Disclosures:
Majda M. Thurnher: Advisory Board: Guerbet; Speaker: Guerbet Symposium

SF 25-2
Short and long segment intramedullary lesions
M. M. Thurnher; Vienna/AT
Author Disclosures:
Majda M. Thurnher: Speaker: Guerbet

SF 25-3
Spinal cord tumours
P. C. Maly Sundgren; Lund/SE

Learning Objectives:
1. Identify the most common spinal cord tumours.
2. Describe common differences between different spinal cord tumours.
3. Describe and reflect on imaging characteristics.

SF 25-4
Nerve root and intradural lesions
J. Van Goethem; Antwerp/BE
(johan.vangoethem@uantwerpen.be)

Learning Objectives:
1. To learn the most common tumours in the extramedullary intradural compartment.
2. To identify imaging characteristics helping in making a differential diagnosis for the nerve root and intradural lesions.
3. To learn the most important features of common extramedullary intradural tumours.
Author Disclosures:
Johan Van Goethem: Advisory Board: SmartSoft HealthCare; Consultant: icometrix

SF 25-5
Extradural lesions
A. Kastler; Grenoble/FR

Learning Objectives:
1. To know the anatomical compartments of the extradural spaces.
2. To name 5 lesions involving extradural spaces.
3 To know which lesions should or should not benefit from a biopsy.

Panel discussion: Unclear cases, what next?

13:00-14:30 **Room K2**

E³ - European Diploma Prep Session

E³ 2523
Chest

E³ 2523-1
Chairperson's introduction
A. Barker; Cambridge/UK

E³ 2523-2
A. Fundamentals of chest imaging
O. Hamer; Regensburg/DE
(okka.hamer@klinik.uni-regensburg.de)

Learning Objectives:
1. To learn the anatomy, including normal "lines and stripes", of the lung parenchyma, mediastinum, and pleura, and to confidently identify these on radiographs.
2. To gain an in-depth understanding of the signs of chest radiography pathology.
3. To learn about differential diagnoses and pitfalls in chest radiography.
Author Disclosures:
Okka W Hamer: Speaker: Boehringer-Ingelheim, Roche, Novartis, Bracco

E³ 2523-3
B. Inflammation of the lung
D. Manos; Halifax, NS/CA
(daria_manos@hotmail.com)

Learning Objectives:
1. To understand the imaging features and differential diagnoses of diffuse fibrotic lung disease.
2. To learn about the common causes of acute and chronic diffuse airspace disease.
3. To become familiar with thoracic diseases in immunocompetent and immunocompromised patients.
Author Disclosures:
Daria Manos: Advisory Board: AstraZeneca; Speaker: Boehringer Ingelheim

E³ 2523-4
C. Lung and pleural malignancy
P. Beddy; Dublin/IE
(peterbeddy@gmail.com)

Learning Objectives:
1. To become familiar with the differentiation of solitary and multiple pulmonary nodules and benign and malignant neoplasms.
2. To become familiar with the imaging features of pleural malignancy.
3. To understand the role of different imaging modalities, including hybrid imaging, in diagnosing and staging neoplasms of the chest.