

2013 RSNA (Filtered Schedule)

Sunday, December 01, 2013

- 11:00-12:30 PM • **ICIA11** • Room: S401CD • Quantitative Medical Imaging for Clinical Research and Practice: Hands-on Workshop
- 11:00-12:30 PM • **ICII11** • Room: S501ABC • IHE Clinical Solutions for Interoperability - Imaging and Beyond
- 11:00-12:30 PM • **ICIW11** • Room: S401AB • National Library of Medicine PubMed: Find Articles You Need: Searching PubMed/MEDLINE Efficiently
- 02:00-03:30 PM • **RC101** • Room: E451B • Lung Cancer Screening: How I Do It
- 02:00-03:30 PM • **RC102** • Room: E350 • What's New from the Radiology Residency Review Committee: Milestones, New for 2013
- 02:00-03:30 PM • **RC103** • Room: N227 • Cardiovascular Risk Assessment: The Role for the Radiologist
- 02:00-03:30 PM • **RC104** • Room: E353C • Sports Injuries in the Chest and Abdominal Wall: A Core Curriculum of the Body's Core
- 02:00-03:30 PM • **RC105** • Room: S406B • Traumatic Brain Injury
- 02:00-03:30 PM • **RC106** • Room: E451A • Eye and Orbit
- 02:00-03:30 PM • **RC107** • Room: N226 • Quality and Safety 2013: Best Practices, Radiation and Contrast Media
- 02:00-03:30 PM • **RC108** • Room: E353B • Imaging of the Traumatized Spine (Traditional) (An Interactive Session)
- 02:00-03:30 PM • **RC109** • Room: E450A • Gastrointestinal: Liver (An Interactive Session)
- 02:00-03:30 PM • **RC110** • Room: E450B • Renal Ultrasound and Doppler (An Interactive Session)
- 02:00-03:30 PM • **RC111** • Room: S505AB • Multi-modal Imaging Workup for Alzheimer's Disease, Parkinson's Disease, and Related Disorders: Case-based App...
- 02:00-03:30 PM • **RC112** • Room: S105AB • Thoracic Aorta: Key Concepts (An Interactive Session)
- 02:00-03:30 PM • **RC113** • • No Course RC113. See Series VSPD12 Pediatric Radiology Series: Pediatric Musculoskeletal
- 02:00-03:30 PM • **RC114** • Room: S404CD • Venous Disease
- 02:00-03:30 PM • **RC115** • Room: S406A • Current Issues in Breast Cancer Screening
- 02:00-03:30 PM • **RC116** • Room: S102D • RSNA Educational Programs Around the World: An International Forum (Sponsored by the RSNA Committee on Interna...
- 02:00-03:30 PM • **RC117** • Room: S504CD • Combining In Vitro Diagnostics and Imaging for Integrated Decision Making
- 02:00-03:30 PM • **RC118** • Room: E353A • Interactive Game: Interactive Quiz Cases in Neuro-oncologic Imaging
- 02:00-03:30 PM • **RC120** • Room: E352 • Radiographic Evaluation of the Post-Radiotherapy Brain
- 02:00-03:30 PM • **RC121** • Room: N228 • Medical Physics 2.0: Computed Tomography
- 02:00-03:30 PM • **RC122** • Room: S504AB • Uncertainties in Imaging for Radiation Oncology: Sources and Mitigation Techniques-Image Guidance in the Treat...
- 02:00-03:30 PM • **RC123** • Room: N229 • Minicourse: Current Topics in Medical Physics-Clinically Focused Physics Education: Principles to Practice
- 02:00-03:30 PM • **RC124** • Room: S403B • Extranodal Lymphoma from Head to Toe (In Conjunction with the American Institute for Radiologic Pathology)
- 02:00-03:30 PM • **RC125** • Room: S104A • Quantitative Imaging: Current and Future Practice in Radiology and Clinical Trials
- 02:00-03:30 PM • **RC126** • Room: S103AB • Health IT Tools to Improve Quality and Safety in Radiology (An Interactive Session)
- 02:00-03:30 PM • **RC127** • Room: E351 • The Future of Radiology: What Are the Threats and How to Respond to Them
- 02:00-03:30 PM • **RC129** • Room: S404AB • Interactive Game: MR Imaging Innovations for the Oncological Practice: Case-based Instruction
- 02:00-03:30 PM • **RC130** • Room: S403A • Standardized Terminology in Radiology: Applications and New Developments
- 02:00-03:30 PM • **RC132** • Room: S502AB • What Is Driving Health Care Reform and How It Is Changing Your Radiology Practice
- 02:00-03:30 PM • **RC150** • Room: E260 • MR Imaging-guided Breast Biopsy (Hands-on Workshop)
- 02:00-03:30 PM • **RC151** • Room: E261 • Introduction to Cardiac MR: Infarcts, Cardiomyopathies and Masses (How-to Workshop)
- 02:00-03:30 PM • **RC152** • Room: E264 • Techniques for Interventional Sonography and Thermal Ablation (Hands-on Workshop)
- 02:00-03:30 PM • **RC153** • Room: S401CD • Introduction to Social Media (Hands-on Workshop)
- 02:00-03:30 PM • **RC154** • Room: S401AB • Introduction to Workflow Engines, Hands-on with an Open-source Platform
- 04:00-05:30 PM • **ICIA12** • Room: S401CD • Structured Annotation and Image Markup (AIM) Template and Toolsets: Hands-on Workshop
- 04:00-05:30 PM • **ICII12** • Room: S501ABC • Ergonomics
- 04:00-05:30 PM • **ICIW12** • Room: S401AB • The RSNA Image Share Network - How It Operates and How to Put It into Your Office

Monday, December 02, 2013

- 08:30-10:00 AM • **RC201** • Room: E353C • Practical Issues in Chest Imaging: Case-based Approach (An Interactive Session)
- 08:30-10:00 AM • **RC202** • Room: S502AB • Teaching Leadership Strategies to Residents for Future Health Care Challenges
- 08:30-10:00 AM • **RC203** • Room: E351 • Imaging for Electrophysiology
- 08:30-10:00 AM • **RC204** • • No Course RC204. See Series VSMK21 Musculoskeletal Radiology Series: Knee Imaging
- 08:30-10:00 AM • **RC205** • • No Course RC205. See Series VSNR21 Neuroradiology Series: Spine
- 08:30-10:00 AM • **RC206** • Room: E450A • Head and Neck Top Ten: Missed Diagnoses and Imaging Pearls (An Interactive Session)
- 08:30-10:00 AM • **RC207** • Room: E353A • Interactive Game: A Case-based Audience Participation Session (Genitourinary)
- 08:30-10:00 AM • **RC208** • • No Course RC208. See Series VSER21 Emergency Radiology Series: Advanced Concepts in Imaging of Trauma
- 08:30-10:00 AM • **RC209** • • No Course RC209. See Series VSGI21 Gastrointestinal Series: Emerging Issues in Abdominal CT
- 08:30-10:00 AM • **RC210** • Room: S405AB • First Trimester Ultrasound
- 08:30-10:00 AM • **RC211** • • No Course RC211. See Series VSNM21 Nuclear Medicine Series: Assessment of Cancer Treatment Response: Updates
- 08:30-10:00 AM • **RC212** • Room: S504AB • Imaging and Endografts
- 08:30-10:00 AM • **RC213** • • No Course RC213. See Series VSPD21 Pediatric Radiology Series: Fetal-Neonatal Imaging
- 08:30-10:00 AM • **RC214** • • No Course RC214. See Series VSR21 Interventional Radiology Series: Peripheral and Visceral Occlusive Disease
- 08:30-10:00 AM • **RC215** • • No Course RC215. See Series VSBR21 Breast Series: Breast MR Imaging
- 08:30-10:00 AM • **RC216** • Room: E450B • Vignette-based 'Disclosure of Medical Error in Radiology' (Sponsored by the RSNA Professionalism Committee) (A...
- 08:30-10:00 AM • **RC217** • Room: S504CD • PET-MR/Hyperpolarized MR
- 08:30-10:00 AM • **RC218** • Room: E451A • Pitfalls in Oncologic Imaging
- 08:30-10:00 AM • **RC220** • Room: S104A • Molecular and Functional Imaging/Surrogate Markers in Radiation Oncology
- 08:30-10:00 AM • **RC221** • Room: S404AB • Medical Physics 2.0: Mammography
- 08:30-10:00 AM • **RC222** • Room: S102C • Uncertainties in Imaging for Radiation Oncology: Sources and Mitigation Techniques-Margins and Margin Design
- 08:30-10:00 AM • **RC223** • Room: S403B • Minicourse: Current Topics in Medical Physics-Practice Quality Improvement: Basics and Issues for Medical Phys...
- 08:30-10:00 AM • **RC224** • Room: E353B • Mentored Case Approach to Pediatric Cardiovascular Disease 1: Vascular Disease (An Interactive Session)
- 08:30-10:00 AM • **RC225** • Room: N229 • Quantitative Imaging: Diffuse Lung Disease Assessment Using CT
- 08:30-10:00 AM • **RC226** • • No Course RC226. See Series VSIN21 Radiology Informatics Series: Mobile Computing Devices
- 08:30-10:00 AM • **RC227** • Room: N226 • Changing Role of Radiology in the U.S. Health Care System
- 08:30-10:00 AM • **RC229** • Room: S402AB • Should I Scan That Patient? A Very Interactive Session on MR Safety and Regulations (An Interactive Session)
- 08:30-10:00 AM • **RC230** • Room: S102D • Technologies for Creating Educational Content and Teaching Files
- 08:30-10:00 AM • **RC231** • Room: E258 • Master Class in Musculoskeletal Ultrasound (How-to Workshop)
- 08:30-10:00 AM • **RC232** • Room: N228 • Compensation Plans
- 08:30-10:00 AM • **RC250** • Room: S403A • Interventional Stroke Treatment: Practical Techniques and Protocols (How-to Workshop)
- 08:30-10:00 AM • **RC251** • Room: E261 • CT Dose Reduction: Diagnostic Information, Image Quality and CT Radiation Dose (How-to Workshop)
- 08:30-10:00 AM • **RC252** • Room: E264 • US-guided Interventional Breast Procedures (Hands-on Workshop)
- 08:30-10:00 AM • **RC253** • Room: S401CD • Introduction to Social Media (Hands-on Workshop)
- 08:30-10:00 AM • **RC254** • Room: S401AB • Introduction to Workflow Engines, Hands-on with an Open-source Platform
- 10:30-12:00 PM • **ICIA21** • Room: S401CD • DtiStudio/MriStudio: Integrated Software Resource for White Matter Mapping and Quantitative Image Analysis
- 10:30-12:00 PM • **ICII21** • Room: S501ABC • Practical Informatics for the Practicing Radiologist: Part One (In conjunction with the Society for Imaging In...
- 10:30-12:00 PM • **ICIW21** • Room: S401AB • Creating, Storing, and Sharing Teaching Files Using RSNA's MIRC@: A Hands On Course
- 12:30-02:00 PM • **ICIA22** • Room: S401CD • Using myRSNA@: Hands-on Workshop
- 12:30-02:00 PM • **ICII22** • Room: S501ABC • Practical Informatics for the Practicing Radiologist: Part Two (In conjunction with the Society for Imaging In...
- 12:30-02:00 PM • **ICIW22** • Room: S401AB • National Library of Medicine PubMed: There's More to PubMed/MEDLINE: The Free My NCBI Tool
- 02:30-04:00 PM • **ICIA23** • Room: S401CD • Mobile Computing for Decision Support and Learning While You Work
- 02:30-04:00 PM • **ICII23** • Room: S501ABC • 3-D Printing: Bridging the Gap between Theory and Practice
- 02:30-04:00 PM • **ICIW23** • Room: S401AB • Optimizing PowerPoint Slides
- 04:30-06:00 PM • **ICIA24** • Room: S401CD • Using IHE Profiles to Plan for Medical Imaging
- 04:30-06:00 PM • **ICII24** • Room: S501ABC • Meaningful Use for Radiology IT Vendors: What Your Customers will Demand, and Your Competition will Provide
- 04:30-06:00 PM • **ICIW24** • Room: S401AB • Using RSNA Clinical Trial Processing (CTP) Software for Clinical Trials and Research Applications

Tuesday, December 03, 2013

- 08:30-10:00 AM • **RC301** • Room: E450A • High-Resolution CT: A Pattern-based Approach (An Interactive Session)
- 08:30-10:00 AM • **RC302** • Room: S403B • Strategies for ABR Core Exam and ACGME Resident Performance Evaluations
- 08:30-10:00 AM • **RC303** • Room: N226 • Cardiac Perfusion Imaging
- 08:30-10:00 AM • **RC304** • • No Course RC304. See Series VSMK31 Musculoskeletal Radiology Series: Ultrasound
- 08:30-10:00 AM • **RC305** • • No Course RC305. See Series VSNR31 Neuroradiology Series: Brain Tumors

08:30-10:00 AM • **RC306** • Room: E451A • Temporal Bone Imaging

08:30-10:00 AM • **RC307** • • No Course RC307. See Series VSGU31 Genitourinary Series: Prostate Cancer 2013-Review of the Disease and the Ro...

08:30-10:00 AM • **RC308** • • No Course RC308. See Series VSR31 Emergency Radiology Series: Leveraging Technology for State-of-the-Art Prac...

08:30-10:00 AM • **RC309** • • No Course RC309. See Series VSGI31 Gastrointestinal Series: Pancreas - Inflammation and Neoplasm

08:30-10:00 AM • **RC310** • Room: S405AB • Second and Third Trimester Obstetrical Ultrasound

08:30-10:00 AM • **RC311** • • No Course RC311. See Series VSNM31 Nuclear Medicine Series: Non-FDG PET Radiotracers in Oncology

08:30-10:00 AM • **RC312** • Room: E350 • Acute Abdominal Vascular Diseases

08:30-10:00 AM • **RC313** • • No Course RC313. See Series VSPD31 Pediatric Radiology Series: Chest/Cardiovascular Imaging I

08:30-10:00 AM • **RC314** • • No Course RC314. See Series VSIR31 Interventional Radiology Series: Venous Disease

08:30-10:00 AM • **RC315** • • No Course RC315. See Series VSR31 Breast Series: Emerging Technologies in Breast Imaging

08:30-10:00 AM • **RC316** • Room: E450B • The Aging Radiologist: How to Cope, When to Quit (Sponsored by the RSNA Professionalism Committee) (An Interac...

08:30-10:00 AM • **RC317** • Room: S504CD • MR-Guided High Intensity Frequency Ultrasound (HIFU)

08:30-10:00 AM • **RC318** • Room: S104A • Imaging of Irradiated and Ablated Tumors

08:30-10:00 AM • **RC320** • Room: S504AB • Role of Stereotactic Ablative Radiotherapy (SABR) and Interventional Radiology in the Management of Oligometas...

08:30-10:00 AM • **RC321** • Room: S102D • Medical Physics 2.0: Nuclear Imaging

08:30-10:00 AM • **RC322** • Room: E261 • Uncertainties in Imaging for Radiation Oncology: Sources and Mitigation Techniques-Incorporation of Imaging as...

08:30-10:00 AM • **RC323** • Room: S404AB • Minicourse: Current Topics in Medical Physics-Radiation Dose Reduction in Medical Imaging

08:30-10:00 AM • **RC324** • Room: S402AB • Mentored Case Approach to Pediatric Cardiovascular Disease 2: Cardiac Disease (An Interactive Session)

08:30-10:00 AM • **RC325** • Room: E353A • Quantitative Imaging: Functional MRI (fMRI)

08:30-10:00 AM • **RC326** • Room: N229 • Quantitative Imaging: A Revolution in Evolution (In Association with the Society for Imaging Informatics in Me...

08:30-10:00 AM • **RC327** • Room: S403A • Hot Topics in Malpractice Litigation 2013: Communication of Radiologic Findings and Common Medicolegal Issues ...

08:30-10:00 AM • **RC329** • Room: E353B • HCC Diagnosis Using LI-RADS (An Interactive Session)

08:30-10:00 AM • **RC330** • • No Course RC330. See Series VSIN31 Radiology Informatics Series: Natural Language Processing: Extracting Infor...

08:30-10:00 AM • **RC332** • Room: S404CD • Change Management in Radiology

08:30-10:00 AM • **RC350** • Room: E260 • Cardiac CT Angiography (A Practical Guide) (How-to Workshop)

08:30-10:00 AM • **RC351** • Room: E353C • CT/PET in the Abdomen and Pelvis: How and When (How-to Workshop) (An Interactive Session)

08:30-10:00 AM • **RC352** • Room: E264 • Doppler US: Visceral, Extremity and Carotid Applications (Hands-on Workshop)

08:30-10:00 AM • **RC353** • Room: S401CD • Hands-on HL7 Data Manipulation (Hands-on Workshop)

08:30-10:00 AM • **RC354** • Room: S401AB • Next-Generation Educational Content Creation: Screencasting and Video Editing (Hands-On)

10:30-12:00 PM • **ICIA31** • Room: S401CD • Using myRSNA@: Hands-on Workshop

10:30-12:00 PM • **ICII31** • Room: S501ABC • The RSNA Reporting Initiative: Developing a Library of Best-Practices Radiology Report Templates

10:30-12:00 PM • **ICIW31** • Room: S401AB • Overview of RSNA's Teaching File Software (MIRC@)

12:30-02:00 PM • **ICIA32** • Room: S401CD • 3D Interactive Visualization of DICOM Images for Radiology Applications: Hands-on Workshop

12:30-02:00 PM • **ICII32** • Room: S501ABC • Meaningful Use: Experience from Private Radiology Practices

12:30-02:00 PM • **ICIW32** • Room: S401AB • Display Technology

02:30-04:00 PM • **ICIA33** • Room: S401CD • Monitoring Radiation Exposure: Standards, Tools and IHE REM

02:30-04:00 PM • **ICII33** • Room: S501ABC • Decoding the Alphabet Soup (IHE®, MIRC®, RadLex®, Reporting): Whirlwind Tour of RSNA Informatics P...

02:30-04:00 PM • **ICIW33** • Room: S401AB • Creating, Storing, and Sharing Teaching Files Using RSNA's MIRC@: A Hands On Course

04:30-06:00 PM • **RC401** • Room: E451A • Interactive Game: The Audience Participation Game (Chest Imaging)

04:30-06:00 PM • **RC402** • Room: E353A • Resident Interviewing: Skills that Work!

04:30-06:00 PM • **RC403** • Room: N228 • Cardiac PET/CT and PET/MR

04:30-06:00 PM • **RC404** • Room: E450A • Current Imaging of the Shoulder: Rotator Cuff and Glenohumeral Joint Instability including Normal Variants, Pi...

04:30-06:00 PM • **RC405** • Room: E451B • Interactive Game: Pediatric CNS Disorders

04:30-06:00 PM • **RC406** • Room: N227 • Skull Base and Nerves

04:30-06:00 PM • **RC407** • Room: S402AB • Bladder, the Forgotten Organ: Role of CT, MRI, and PET in Diagnosis, Staging, and Surveillance of Bladder Canc...

04:30-06:00 PM • **RC408** • Room: E450B • Stroke Imaging for the Emergency Radiologist (An Interactive Session)

04:30-06:00 PM • **RC409** • Room: E350 • Gastrointestinal: Tumor Response Assessment

04:30-06:00 PM • **RC410** • Room: E353B • Vascular Doppler (An Interactive Session)

04:30-06:00 PM • **RC411** • Room: S505AB • Improving PET Interpretation: Present Updates in GI and GYN Cancers with Case Examples (An Interactive Session)

04:30-06:00 PM • **RC412** • Room: S502AB • Advanced Vascular Imaging Techniques and Applications

04:30-06:00 PM • **RC413** • • No Course RC413. See Series VSPD32 Pediatric Radiology Series: Advanced Pediatric Abdominal Imaging

04:30-06:00 PM • **RC414** • Room: N226 • Pain and Sedation in 2013

04:30-06:00 PM • **RC415** • Room: S406B • Breast Interventional Procedures

04:30-06:00 PM • **RC416** • Room: N229 • Patient-centered Radiology: How to Communicate Effectively (Sponsored by the RSNA Public Information Committee)

04:30-06:00 PM • **RC417** • Room: S504CD • Quantitative CT and MR Perfusion Imaging

04:30-06:00 PM • **RC418** • Room: N230 • Imaging Mimics of Common Malignancies

04:30-06:00 PM • **RC421** • Room: E351 • Medical Physics 2.0: Radiography

04:30-06:00 PM • **RC422** • Room: S102D • Uncertainties in Imaging for Radiation Oncology: Sources and Mitigation Techniques-Imaging for Target Definiti...

04:30-06:00 PM • **RC423** • Room: S403B • Minicourse: Current Topics in Medical Physics-Nuclear Cardiac Imaging for Physicists

04:30-06:00 PM • **RC424** • Room: E352 • Publishing in Radiology: What You Always Wanted to Know and Never Asked

04:30-06:00 PM • **RC425** • Room: S404AB • Quantitative Imaging: Dynamic Contrast Enhanced MRI (DCE-MRI)

04:30-06:00 PM • **RC426** • Room: S404CD • Next Generation Infrastructure for Medical Imaging (In Association with the Society for Imaging Informatics in...

04:30-06:00 PM • **RC427** • Room: S104A • Aligning Incentives between the Physician Practice and the Hospital: Finding the Win:Win

04:30-06:00 PM • **RC429** • Room: E353C • MRI Safety Update (An Interactive Session)

04:30-06:00 PM • **RC430** • Room: S403A • Impact of Legislative Policy and Regulations on Imaging Informatics

04:30-06:00 PM • **RC432** • Room: S504AB • Value-Added Initiatives for a Healthcare System

04:30-06:00 PM • **RC450** • Room: E260 • Vertebral Augmentation (How-to Workshop)

04:30-06:00 PM • **RC451** • Room: E261 • Imaging in Practice: DWI in the Abdomen and Pelvis (How-to Workshop)

04:30-06:00 PM • **RC452** • Room: E264 • Real-time Interventional US (Hands-on Workshop)

04:30-06:00 PM • **RC453** • Room: S401CD • Hands-on DICOM Metadata Manipulation (Hands-on Workshop)

04:30-06:00 PM • **RC454** • Room: S401AB • Next-Generation Educational Content Creation: Screencasting and Video Editing (Hands-On)

Wednesday, December 04, 2013

08:30-10:00 AM • **RC501** • Room: N228 • Chest Imaging: How Radiologic-Pathologic Correlation Informs Interpretation

08:30-10:00 AM • **RC502** • Room: E353A • What's New from the American Board of Radiology

08:30-10:00 AM • **RC503** • • No Course RC503. See Series VSQA41 Cardiac Radiology Series: Transcatheter Aortic Valve Replacement (TAVR)

08:30-10:00 AM • **RC504** • Room: N227 • Bone and Cartilage Injury: Traumatic and Stress-related Chondral, Osteochondral and Subchondral Failure with E...

08:30-10:00 AM • **RC505** • • No Course RC505. See Series VSNR41 Neuroradiology Series: Stroke

08:30-10:00 AM • **RC506** • Room: E353C • Oral Cavity, Pharynx, Larynx

08:30-10:00 AM • **RC507** • Room: S406B • Abdominal Incidentalomas: What to Report for Adrenal, Renal and Adnexal Incidental Findings

08:30-10:00 AM • **RC509** • Room: E450B • Gastrointestinal: Abdominal Masses (An Interactive Session)

08:30-10:00 AM • **RC510** • Room: S405AB • Advances in Gynecologic Ultrasound

08:30-10:00 AM • **RC511** • Room: S505AB • High-Resolution Radionuclide Breast Imaging (An Interactive Session)

08:30-10:00 AM • **RC512** • Room: E353B • Non-Atherosclerotic Vascular Diseases (An Interactive Session)

08:30-10:00 AM • **RC513** • Room: S103AB • Child Abuse (An Interactive Session)

08:30-10:00 AM • **RC514** • • No Course RC514. See Series VSIR41 Interventional Radiology Series: Embolotherapy

08:30-10:00 AM • **RC515** • Room: E450A • BI-RADS® Update and Challenge (An Interactive Session)

08:30-10:00 AM • **RC516** • Room: S104A • Women and Cardiovascular Disease (In Conjunction with the American Association for Women Radiologists)

08:30-10:00 AM • **RC517** • Room: S504CD • Novel Applications of Dual Energy CT

08:30-10:00 AM • **RC518** • Room: E350 • Imaging of Tumor Syndromes

08:30-10:00 AM • **RC520** • Room: S504AB • New Paradigms for the Treatment of Hodgkins and non-Hodgkins Lymphomas: The Crucial Role of Imaging

08:30-10:00 AM • **RC521** • Room: E451A • Medical Physics 2.0: Fluoroscopy

08:30-10:00 AM • **RC522** • Room: N229 • Uncertainties in Imaging for Radiation Oncology: Sources and Mitigation Techniques-Site-specific IGRT Applicat...

08:30-10:00 AM • **RC523** • Room: N226 • Minicourse: Recording and Reporting Radiation Dose: National and International Perspectives and Activities

08:30-10:00 AM • **RC524** • Room: S102D • Reviewing Manuscripts for the RSNA Journals (Sponsored by the RSNA Publications Council)

08:30-10:00 AM • **RC525** • Room: S102AB • Quantitative Imaging: Quantitative Imaging in FDG-PET

08:30-10:00 AM • **RC526** • Room: E351 • Cool Technologies for Radiologists

08:30-10:00 AM • **RC527** • Room: S404CD • Critical Issues Facing the Profession of Radiology: An ACR Leadership Perspective (In Conjunction with the Ame...

08:30-10:00 AM • **RC529** • Room: N230 • Abdominal MRA Update

08:30-10:00 AM • **RC530** • Room: S404AB • Managing Radiology IT in the EHR World

08:30-10:00 AM • **RC531** • Room: E263 • Small Parts Interventional Ultrasound (Hands-on Workshop)

08:30-10:00 AM • **RC532** • Room: S403B • Managing Conflicts of Interest

08:30-10:00 AM • **RC550** • Room: E260 • Fallopiian Tube Catheterization (Hands-on Workshop)

08:30-10:00 AM • **RC551** • Room: E261 • Imaging in Practice: MRI of the GIT (How-to Workshop)

08:30-10:00 AM • **RC552** • Room: E264 • Nerve Ultrasound Based on a Regional Approach: Shoulder and Neck (Hands-on Workshop)

08:30-10:00 AM • **RC553** • Room: S401CD • Hands-on DICOM Metadata Manipulation (Hands-on Workshop)

08:30-10:00 AM • **RC554** • Room: S401AB • Using RADIANCE for Dose Monitoring and Quality Assurance: A Hands-on Course

10:30-12:00 PM • **ICIA41** • Room: S401CD • Open Access Imaging Data Resources: NIH Cancer Imaging Archive: Hands-on Workshop

10:30-12:00 PM • **ICII41** • Room: S501ABC • Next Generation IT Requirements for Improving Quality and Safety for Radiology

10:30-12:00 PM • **ICIW41** • Room: S401AB • Creating Radiology eBooks for the iPad: A Hands-on Introduction to eBooks Author

12:30-02:00 PM • **ICIA42** • Room: S401CD • Correlating Imaging with Human Genomics

12:30-02:00 PM • **ICII42** • Room: S501ABC • Meaningful Use: Experience from Radiology Practices in Hospitals and Health Systems
 12:30-02:00 PM • **ICIW42** • Room: S401AB • Optimizing PowerPoint Slides
 02:30-04:00 PM • **ICIA43** • Room: S401CD • Using myRSNA@: Hands-on Workshop
 02:30-04:00 PM • **ICII43** • Room: S501ABC • RadLex@: Overview of a New Lexicon for Radiology
 02:30-04:00 PM • **ICIW43** • Room: S401AB • National Library of Medicine PubMed: Find Articles You Need: Searching PubMed/MEDLINE Efficiently
 04:30-06:00 PM • **ICIA44** • Room: S401CD • Rapid Application Development with XIP™ - the eXtensible Imaging Platform
 04:30-06:00 PM • **ICII44** • Room: S501ABC • IHE Workflow Efficiency from Acquisition to the Report Attendees
 04:30-06:00 PM • **ICIW44** • Room: S401AB • National Library of Medicine PubMed: Free Online Databases: Images and More

Thursday, December 05, 2013

08:30-10:00 AM • **RC601** • • No Course RC601. See Series VSCH51 Chest Series: Hot Topics in Chest Imaging: Emerging Technologies and Clinic...
 08:30-10:00 AM • **RC602** • Room: S404AB • How To Evaluate Resident Milestones Effectively and Efficiently: Practical Ideas Will Help Program Directors a...
 08:30-10:00 AM • **RC603** • • No Course RC603. See Series VSCA51 Cardiac Radiology Series: Cardiac Dual Energy CT
 08:30-10:00 AM • **RC604** • • No Course RC604. See Series VSMK51 Musculoskeletal Radiology Series: Hip Imaging: Challenges and Solutions
 08:30-10:00 AM • **RC605** • Room: S405AB • Alzheimer's Disease
 08:30-10:00 AM • **RC606** • Room: S402AB • Neck Imaging
 08:30-10:00 AM • **RC607** • Room: N228 • GU Ultrasound 2013: The Expert's Update on Kidney, Gynecologic and Testicular US
 08:30-10:00 AM • **RC608** • Room: E450A • The Acute Abdomen and Pelvis (An Interactive Session)
 08:30-10:00 AM • **RC609** • Room: E353C • Gastrointestinal: CT Colonography Update (An Interactive Session)
 08:30-10:00 AM • **RC610** • Room: S103CD • Abdominal Vasculature: Ultrasound and Doppler
 08:30-10:00 AM • **RC611** • Room: S505AB • Advances in Cardiac Nuclear Imaging: SPECT/CT and PET/CT
 08:30-10:00 AM • **RC612** • • No Course RC612. See Series VSVA51 Vascular Imaging Series: CT Angiography-New Techniques and Their Application
 08:30-10:00 AM • **RC613** • Room: S102AB • Vascular Lesions in Children: Diagnostic Dilemmas and Treatment Options
 08:30-10:00 AM • **RC614** • • No Course RC614. See Series VSIR51 Interventional Radiology Series: Non-Vascular Interventions
 08:30-10:00 AM • **RC615** • Room: N227 • Breast US
 08:30-10:00 AM • **RC616** • Room: E450B • Service Excellence in Radiology (Sponsored by the RSNA Professionalism Committee) (An Interactive Session)
 08:30-10:00 AM • **RC617** • Room: S504CD • Emerging Breast Imaging Strategies
 08:30-10:00 AM • **RC618** • Room: E353A • Interactive Game: Interactive Quiz Cases in Body Oncologic Imaging
 08:30-10:00 AM • **RC621** • Room: S102C • Medical Physics 2.0: Ultrasonography
 08:30-10:00 AM • **RC622** • Room: S102D • Uncertainties in Imaging for Radiation Oncology: Sources and Mitigation Techniques-Imaging Moving Targets
 08:30-10:00 AM • **RC623** • Room: N229 • Minicourse: Recording and Reporting Radiation Dose: Interventional/Angiography/Fluoroscopy
 08:30-10:00 AM • **RC624** • Room: E350 • Whole Body MR
 08:30-10:00 AM • **RC625** • Room: N226 • Quantitative Imaging: Volumetric CT as a Biomarker for Disease
 08:30-10:00 AM • **RC626** • Room: E451A • Latest Developments in Meaningful Use: Ask the Experts
 08:30-10:00 AM • **RC627** • Room: S504AB • Health Policy Initiatives in Medical Imaging: Promoting Value and Relevancy in Evolving Healthcare Delivery an...
 08:30-10:00 AM • **RC629** • Room: E353B • Increasing Your Gynecological MRI Referral Base: Reaching Out to the Gynecologists (An Interactive Session)
 08:30-10:00 AM • **RC630** • Room: S403B • Cloud Computing for Radiologists: A Primer
 08:30-10:00 AM • **RC631** • Room: S403A • Tumor Ablation beyond the Liver: How-to and Preliminary Results
 08:30-10:00 AM • **RC632** • Room: S103AB • How to Avoid Failure: Qualities of a Successful Leader
 08:30-10:00 AM • **RC650** • Room: E260 • Image-guided Biopsy of the Spine (Hands-on Workshop)
 08:30-10:00 AM • **RC651** • Room: E261 • Emergency Body MRI: Vascular Emergencies, Abdominal Emergencies and the Pregnant Patient (How-to Workshop)
 08:30-10:00 AM • **RC652** • Room: E264 • Dynamic Musculoskeletal US of the Lower Extremity (Hands-on Workshop)
 08:30-10:00 AM • **RC653** • Room: S401CD • Hands-on HL7 Data Manipulation (Hands-on Workshop)
 08:30-10:00 AM • **RC654** • Room: S401AB • Advanced Data Analysis with Excel for Research and for Practicing Quality Improvement (Hands-on Workshop)
 10:30-12:00 PM • **ICII51** • Room: S501ABC • Breast Imaging: Interoperability Challenges and Solutions
 10:30-12:00 PM • **ICIW51** • Room: S401AB • Creating, Storing, and Sharing Teaching Files Using RSNA's MIRC@: A Hands On Course
 12:30-02:00 PM • **ICIA52** • Room: S401CD • Using myRSNA@: Hands-on Workshop
 12:30-02:00 PM • **ICIW52** • Room: S401AB • National Library of Medicine PubMed: There's More to PubMed/MEDLINE: The Free My NCBI Tool
 01:30-02:45 PM • **ICIX51** • Room: E350 • RadioGraphics' Publication Information for Potential Authors
 04:30-06:00 PM • **RC701** • Room: S406B • Pulmonary Thromboembolism: Concepts and Controversies 2013
 04:30-06:00 PM • **RC702** • Room: S404AB • Mind Your Own Business! Required Business Skills for Your First Job
 04:30-06:00 PM • **RC703** • Room: N227 • Cardiomyopathy
 04:30-06:00 PM • **RC704** • Room: E450A • Interactive Game: Musculoskeletal Pitfalls and Pearls
 04:30-06:00 PM • **RC705** • Room: E451A • Non-Traumatic Neuro Emergencies
 04:30-06:00 PM • **RC706** • Room: N228 • Salivary Glands
 04:30-06:00 PM • **RC707** • Room: S105AB • Advancements in Renal Tumor Treatment: What We Need to Know Before and After Therapy
 04:30-06:00 PM • **RC708** • Room: E350 • Emergency Musculoskeletal Radiology: The Usual (and Unusual) Suspects
 04:30-06:00 PM • **RC709** • Room: E353C • Gastrointestinal: Biliary Imaging (An Interactive Session)
 04:30-06:00 PM • **RC710** • Room: E353B • Ultrasound of Superficial Structures (An Interactive Session)
 04:30-06:00 PM • **RC711** • Room: S505AB • Head and Neck Cancer PET Interpretation with Case Examples (An Interactive Session)
 04:30-06:00 PM • **RC712** • Room: S404CD • Peripheral Artery Disease (PAD)
 04:30-06:00 PM • **RC713** • Room: S102AB • Pediatric Neuroimaging II
 04:30-06:00 PM • **RC714** • Room: E353A • Interactive Game: Interventional
 04:30-06:00 PM • **RC715** • Room: E451B • Digital Breast Tomosynthesis
 04:30-06:00 PM • **RC716** • Room: S504AB • What the Referring Physician Needs to Know (Sponsored by the RSNA Public Information Committee)
 04:30-06:00 PM • **RC717** • Room: S504CD • Ultrasound/Opto-Acoustic Molecular Imaging
 04:30-06:00 PM • **RC718** • Room: S402AB • Advances in Cross-sectional Oncologic Imaging
 04:30-06:00 PM • **RC721** • Room: N229 • Medical Physics 2.0: Information Management and Display
 04:30-06:00 PM • **RC722** • Room: S502AB • Uncertainties in Imaging for Radiation Oncology: Sources and Mitigation Techniques-Image Registration
 04:30-06:00 PM • **RC723** • Room: E351 • Minicourse: Recording and Reporting Radiation Dose: CT
 04:30-06:00 PM • **RC724** • Room: S403A • Professionalism and the Radiology Trainee
 04:30-06:00 PM • **RC725** • Room: E352 • Quantitative Imaging: Informatics
 04:30-06:00 PM • **RC726** • Room: N226 • Decision Support in Clinical Practice
 04:30-06:00 PM • **RC727** • Room: S103CD • From Research to Reimbursement: The Story of CT Colonography and What It Teaches Us about Healthcare Payment P...
 04:30-06:00 PM • **RC729** • Room: E450B • Abdominal MRI Technique Update (An Interactive Session)
 04:30-06:00 PM • **RC730** • Room: S103AB • Leveraging Imaging Informatics to Improve Radiology Education: Beyond the Teaching File (An Interactive Sessio...
 04:30-06:00 PM • **RC731** • Room: E263 • Common Spinal Injection Procedures for Diagnosis and Treatment of Back Pain (Hands-on Workshop)
 04:30-06:00 PM • **RC732** • Room: S403B • Managing the Problem Employee
 04:30-06:00 PM • **RC750** • Room: E260 • MR Imaging-guided Breast Biopsy (Hands-on Workshop)
 04:30-06:00 PM • **RC751** • Room: E261 • IR Management of Biliary Obstruction: What You Didn't Learn in Fellowship (How-to Workshop)
 04:30-06:00 PM • **RC752** • Room: E264 • Techniques for Interventional Sonography and Thermal Ablation (Hands-on Workshop)
 04:30-06:00 PM • **RC753** • Room: S401CD • Advanced Image Analysis, including Applications such as Automated Stent Planning and Multimodality Image Fusio...
 04:30-06:00 PM • **RC754** • Room: S401AB • Using RADIANCE for CT Dose Monitoring and Quality Assurance: A Hands-on Course

Friday, December 06, 2013

08:30-10:00 AM • **RC801** • Room: N230 • Waiting to Exhale: What's the Latest with Inhalation Lung Diseases?
 08:30-10:00 AM • **RC802** • Room: E353B • How to Be the Speaker Everyone Wants You to Be (An Interactive Session)
 08:30-10:00 AM • **RC803** • Room: E353A • Interactive Game: Read with the Experts (Cardiac Radiology)
 08:30-10:00 AM • **RC804** • • No Course RC804. See Series VSMK61 Musculoskeletal Radiology Series: Elbow, Hand and Wrist Imaging
 08:30-10:00 AM • **RC805** • Room: N227 • Brain Aneurysms
 08:30-10:00 AM • **RC806** • Room: S406B • Sinonasal Imaging
 08:30-10:00 AM • **RC807** • Room: N226 • Imaging and Treating Gynecologic Cancer 2013: What Really Works and What Is Most Cost Effective
 08:30-10:00 AM • **RC808** • Room: E353C • Emergency Radiology Case-based Countdown (An Interactive Session)
 08:30-10:00 AM • **RC809** • Room: S402AB • Gastrointestinal: Imaging the Obese Patient (An Interactive Session)
 08:30-10:00 AM • **RC810** • Room: E351 • Right Upper Quadrant Ultrasound
 08:30-10:00 AM • **RC811** • Room: S504CD • Advances and Updates in SPECT/CT
 08:30-10:00 AM • **RC812** • • No Course RC812. See Series VSVA61 Vascular Imaging Series: MR Angiography-Principles and Technique Optimizati...
 08:30-10:00 AM • **RC813** • Room: N229 • Chest/Cardiovascular Imaging II
 08:30-10:00 AM • **RC814** • • No Course RC814. See Series VSIR61 Interventional Radiology Series: Top 5 Complications in Interventional Onco...
 08:30-10:00 AM • **RC815** • Room: E450A • Clinical Breast MR Imaging (An Interactive Session)
 08:30-10:00 AM • **RC816** • Room: S404AB • Radiology in the Developing World: Mistakes Made, Lessons Learned, What's Next? (Sponsored by the RSNA Committ...
 08:30-10:00 AM • **RC817** • Room: S505AB • Essentials of Molecular Imaging
 08:30-10:00 AM • **RC818** • Room: S404CD • Techniques for Quantitative Cancer Imaging: Current Status
 08:30-10:00 AM • **RC821** • Room: S405AB • Medical Physics 2.0: Magnetic Resonance Imaging
 08:30-10:00 AM • **RC823** • Room: S403B • Minicourse: Recording and Reporting Radiation Dose: Nuclear Medicine
 08:30-10:00 AM • **RC825** • Room: E263 • Quantitative Imaging: Quantitative Imaging in Ultrasound
 08:30-10:00 AM • **RC826** • Room: E350 • The Use of Business Analytics for Improving Radiology Operations, Quality, and Clinical Performance (In Associ...
 08:30-10:00 AM • **RC827** • Room: S504AB • Consumerism and Radiology
 08:30-10:00 AM • **RC829** • Room: E451B • Interactive Game: Clinical Problems in Body MRI - Case-based Instruction

08:30-10:00 AM • [RC830](#) • Room: S403A • Current and Next Generation Health IT Tools to Enable Radiation Exposure Reduction - A Practical Guide
08:30-10:00 AM • [RC831](#) • Room: E450B • US for Thyroid Cancer: Diagnosis, Surveillance, and Treatment (How-to Workshop)
08:30-10:00 AM • [RC832](#) • Room: S502AB • Develop Your Radiology Financial Insight: Fundamental Principles You Should Know About Business
08:30-10:00 AM • [RC850](#) • Room: E260 • Targeted Treatment and Imaging of Liver Cancers: Basic to Advanced Techniques in Minimally-Invasive Therapies ...
08:30-10:00 AM • [RC851](#) • Room: E261 • Pediatric Neurosonography Update: Head, Spine, and Transcranial Doppler Ultrasound (How-to Workshop)
08:30-10:00 AM • [RC852](#) • Room: E264 • US-guided Interventional Breast Procedures (Hands-on Workshop)
08:30-10:00 AM • [RC853](#) • Room: S401CD • Advanced Image Analysis, including Applications such as Automated Stent Planning and Multimodality Image Fusion ...
08:30-10:00 AM • [RC854](#) • Room: S401AB • Basic Tools and Tricks for Data Collection and Organization for Practice Quality Improvement Projects and for ...
10:30-12:00 PM • [ICIW61](#) • Room: S401AB • National Library of Medicine PubMed: Find Articles You Need: Searching PubMed/MEDLINE Efficiently

Quantitative Medical Imaging for Clinical Research and Practice: Hands-on Workshop

Sunday, 11:00 AM - 12:30 PM • S401CD

[Back to Top](#)



ICIA11 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Sonia M Pujol, PhD
Katarzyna J Macura, MD, PhD *
Ron Kikinis, MD

LEARNING OBJECTIVES

1) Enhance interpretation of DICOM images through the use of 3D visualization. 2) Gain experience with interactive, quantitative assessment of complex anatomical structures. 3) Present current directions of quantitative imaging as a biomarker in clinical trials.

ABSTRACT

Quantitative imaging has the potential to bring valuable information for the accurate interpretation of clinical data. Technological breakthroughs in medical imaging hardware and the emergence of increasingly sophisticated image processing algorithms permit the display of complex anatomical structures, and the estimation of quantitative functional parameters with increasing sensitivity and specificity. For the past 9 years, the National Alliance for Medical Image Computing (NA-MIC), one of the seven National Centers for Biomedical Computing funded by the National Institutes of Health, has converted some of the major scientific advances made by the biomedical imaging community into open-source software tools. As part of the NA-MIC toolkit, the 3D Slicer open-source software has been developed as a technology delivery platform for clinical researchers. This workshop provides an introduction to quantitative medical imaging data analysis for clinical research and practice. Cases from multiple imaging modalities and from multiple organ systems will be highlighted to illustrate the depth and breath of this field, and series of hands-on sessions using 3D Slicer will provide participants with a practical experience of quantitative image analysis.

Course url: http://www.na-mic.org/Wiki/index.php/RSNA_2013

URL's

http://www.na-mic.org/Wiki/index.php/RSNA_2013

IHE Clinical Solutions for Interoperability - Imaging and Beyond

Sunday, 11:00 AM - 12:30 PM • S501ABC

[Back to Top](#)



ICII11 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator
David S Mendelson, MD *
David S Mendelson, MD *
Richard L Kennedy, MSc
Albert Edwards
Jean Chalaoui, MD

LEARNING OBJECTIVES

1) Understand the organization of IHE and the IHE profiles. 2) Understand the importance of interoperability in healthcare. 3) Learn about the various IHE profiles that address interoperability, including XDS. 4) Learn about how XDS-I and related profiles address interoperability for imaging. 5) Learn about real world implementations regarding interoperability and how IHE profiles have been employed to solve interoperability issues including: a. The RSNA Image Share b. Cleveland Clinic enterprise-wide multi-specialty imaging integration and implementation c. Canada Health Infoway: emphasis on the Province of Quebec Project d. Kaiser Permanente. 6) Understand the challenges in attaining safe, secure and transparent interoperability.

ABSTRACT

National Library of Medicine PubMed: Find Articles You Need: Searching PubMed/MEDLINE Efficiently

Sunday, 11:00 AM - 12:30 PM • S401AB

[Back to Top](#)



ICIW11 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Holly A Burt
Chezire Acimandos
Annabelle Nunez, MA
Wendy Wu, MS

LEARNING OBJECTIVES

1) Understand how PubMed constructs a query and how to develop and refine effective search strategies in radiology. 2) Use PubMed tools including Clinical Queries, Related Articles, Single Citation Matcher and Loansome Doc. 3) Build focused searches using the Medical Subject Headings (MeSH) vocabulary for radiology and limit searches to radiology-oriented journals. 4) Understand how to save and download citations.

ABSTRACT

This hands-on workshop covers key searching techniques, changes to PubMed, and how to develop effective search strategies for PubMed and MEDLINE. Topics covered include: why keywords don't always give the results you expect, how to limit to specific journals, quick searches to find evidence-based citations, how to access full-text articles, and downloading citations to reference manager programs. The National Library of Medicine (NLM) provides free web access to nearly 24 million citations for biomedical and clinical medical articles through PubMed (available online at [PubMed.gov](http://pubmed.gov)). MEDLINE is a subset of PubMed which includes links to sites providing full text articles and to other related databases and resources.

Lung Cancer Screening: How I Do It

Sunday, 02:00 PM - 03:30 PM • E451B

[Back to Top](#)



RC101 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC101A • Current Data Summary and Recommendations

Ella A Kazerooni MD (Presenter)

LEARNING OBJECTIVES

1) To understand the current guidelines for lung cancer screening with CT from major professional societies. 2) To learn what the current position is of the U.S. Preventative Services Task Force on screening for lung cancer. 3) To understand options for reimbursement, from self pay to third party payors.

ABSTRACT

Since the results of the NLST were published in 2011, demonstrating a 20% reduction in lung cancer specific mortality in high risk current and former smokers, many professional organizations have developed guidelines that recommend screening CT in that same population: 55-74 year olds with a 30 or more pack year history of smoking who are current smokers or who quit in the last 15 years. Some professional organizations have somewhat controversially extended favorable recommendations to younger and older individuals, and those at moderate risk of developing lung cancer based on other risk factors. The last words from the US Preventative Task Force on this issue were a non favorable recommendation in 2004, 'The U.S. Preventive Services Task Force (USPSTF) concludes that the evidence is insufficient to recommend for or against screening asymptomatic persons for lung cancer with either low dose computerized tomography (LDCT), chest x-ray (CXR), sputum cytology, or a combination of these tests' followed by similar lack of endorsement in a 2009 USPSTF publication of making decisions in the setting of 'insufficient evidence.' The latter addressed the question in 4 domains: potential preventable burden, potential harm of the intervention, costs (both monetary and opportunity), and current practice. While an increasing but small number of third party payors cover

screening CT today, and most self pay programs are seeing little uptake of individuals, Medicare has not issued a statement. Like some other organizations, the cost effectiveness analysis may be very important in their decision. Circumstances that could lead Medicare to cover screening CT for lung cancer if there is a favorable USPSTF recommendation or if federal legislation is passed, similar to what was done with MQSA and breast cancer screening with mammography.

RC101B • Starting a Screening Program

Reginald F Munden MD, DMD (Presenter) *

LEARNING OBJECTIVES

1) Understand important issues to be addressed in planning a lung cancer screening program. 2) Appreciate the need to have a multidisciplinary approach to lung cancer screening. 3) Determine the resources to undertake lung cancer screening program.

ABSTRACT

Launching a lung cancer screening program is not simply a matter of opening the doors and offering low-dose CT to anyone who wishes to be screened. There are many decisions that need to be resolved prior to launching a screening program such as the criteria for screening ♦ NLST, NCCN or one based on previous screening trials. A system of registration, recording and follow-up of patients will need to be established. Other considerations include whether the radiologist is responsible for follow up of patients or whether a physician of record is required. Is self-referral allowed? What about structured reporting? It is extremely important to develop a protocol to manage positive findings for patients that the physicians who will ultimately treat the patient agree upon. This session will discuss many of the fundamental issues related to establishing a lung cancer screening program.

RC101C • Management Strategies for Screen-Detected Nodules

Thomas E Hartman MD (Presenter) *

LEARNING OBJECTIVES

1) Identify imaging findings and tools that can aid in the management of screen detected pulmonary nodules.

ABSTRACT

In order to optimize CT screening for lung cancer, appropriate management of screen detected pulmonary nodules is essential. Various criteria from initial size, attenuation and margin to growth rate on subsequent exams can be used to help stratify risk and determine appropriate management. Evolving computer aided diagnostic applications may improve our ability to manage screen detected nodules.

RC101D • Biopsy of Screen-Detected Nodules

David F Yankelevitz MD (Presenter) *

LEARNING OBJECTIVES

1) To understand indications for biopsy of screen-detected nodules. 2) To develop an approach to optimize small specimen evaluation. 3) To improve communication between the radiologist and the cytologist to optimize diagnosis.

RC101E • Other Findings: What Do I Do?

Caroline Chiles MD (Presenter)

LEARNING OBJECTIVES

1) Suggest management guidelines for incidental findings discovered at the time of lung cancer screening, with special emphasis on COPD, coronary artery disease, and other cancers.

ABSTRACT

What's New from the Radiology Residency Review Committee: Milestones, New for 2013

Sunday, 02:00 PM - 03:30 PM • E350



[Back to Top](#)

RC102 • AMA PRA Category 1 Credit™:1.5

Lynne E Meyer, PhD, MPH
Lawrence P Davis, MD

LEARNING OBJECTIVES

1) The attendee will learn about new program requirements. 2) The attendee will learn how the NAS will be used for program accreditation. 3) The attendee will be made aware of various issues pertaining to resident education with which the RRC is grappling and the outcomes of several pressing issues, such as the milestones initiative, and the prerequisite training requirements for entering ACGME-accredited core residency and fellowship programs.

ABSTRACT

Cardiovascular Risk Assessment: The Role for the Radiologist

Sunday, 02:00 PM - 03:30 PM • N227



[Back to Top](#)

RC103 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC103A • The Role of Carotid US

Joseph F Polak MD, MPH (Presenter)

LEARNING OBJECTIVES

1) Present the American Heart Association guidelines for the assessment of cardiovascular risk in individuals without clinical cardiovascular disease. 2) Define the carotid artery biomarkers:plaque and carotid artery intima media wall thickness (IMT). 3) Highlight the key elements of cardiovascular risk stratification and how imaging biomarkers can contribute. 4) Summarize the key evidence that carotid ultrasound imaging biomarkers help predict future myocardial infarctions and other cardiovascular events. 5) Describe a published carotid imaging protocol used to assess degree of cardiovascular risk in Cardiology office practices with emphasis on carotid artery intima-media thickness (IMT). 6) Weigh the advantages against the limitations of carotid ultrasound imaging biomarkers.

ABSTRACT

Background: Carotid ultrasound imaging as practiced in Radiology typically focuses on the detection of hemodynamically significant carotid artery stenoses in order to triage patients for carotid artery surgery. The role of carotid ultrasound imaging is, however, much broader in current clinical practices, especially those based in Cardiology. Methods: Review of the literature shows that the focus of carotid ultrasound imaging has shifted from detecting stenotic lesions in need of surgical intervention to documenting the presence of early atherosclerotic lesions. Carotid ultrasound can identify and quantify two biomarkers of use in primary prevention: early carotid artery plaques and diffuse wall intima-media thickening (IMT). Results: Early forms of carotid artery disease are associated with increased risk of all forms of first time cardiovascular events. Both IMT and plaque show evidence of risk prediction. The American Heart Association recommends carotid ultrasound evaluation of IMT and plaque in asymptomatic individuals more highly than resting or exercise electrocardiograms. Implementation of carotid IMT and carotid plaque imaging with ultrasound is still limited by a lack of standardization. This is apparent in the guidelines published by the American Society of Echocardiography. The quantitative evaluation of IMT needs to be contrasted against subjective or quantitative measurements of plaque (IMT) height. Ultimately, the value of the carotid artery biomarkers needs to be contrasted against standard risk stratification and improvement in classification of individuals as low, intermediate, or high risk. The data show promise in this regards. Conclusion: Carotid ultrasound biomarkers can be measured non-invasively without exposure to radiation. Carotid ultrasound is readily accepted by patients. The technical expertise required to perform these measurements is much more stringent that would appear at first glance.

RC103B • The Role of Cardiac CT

John J Carr MD, MS (Presenter)

LEARNING OBJECTIVES

1) Discuss the utility of CT to detect and characterize coronary artery disease and subclinical disease. 2) Discuss CT findings predictive of cardiovascular risk factors.

ABSTRACT

Cardiac CT, without and with intravenous contrast, has for the first time provided a non-invasive measurements of coronary plaque in healthy people. We now have strong evidence that subclinical coronary artery disease by CT strongly predicts future clinical events but perhaps more importantly is consistent with pathologic studies indicating that coronary artery disease begins in childhood and progresses over decades before resulting in clinical disease. This presentation will review the evidence that calcified plaque by CT is the single strongest predictor of 5 year risk of acute myocardial infarction and cardiovascular death. Likewise, CT angiography has provided new insights into features of coronary plaque (positive remodeling, low attenuation and spotty calcifications) that places individuals at high risk for clinical events. Beyond dramatic reductions in radiation exposure, new computational techniques are allowing CT to provide precise estimates of coronary blood flow, a physiologic measure important for patient management. Lastly, we will discuss how physicians should use every chest CT to help patients and their healthcare teams better understand their cardiovascular risk and guide clinical care.

RC103C • The Role of Cardiac MRI

David A Bluemke MD, PhD (Presenter) *

LEARNING OBJECTIVES

1) Discuss use of MRI to assess the cardiovascular disease to detect and characterize early, subclinical disease. 2) Present information on left ventricular mass, volumes and myocardial scar as risk factors, as derived from large population-based studies.

ABSTRACT

Cardiovascular MRI has key characteristics of precision in disease detection combined with lack of radiation exposure. As a result, MRI has found tremendous use not only in evaluating sick patients, but also in screening for disease in individuals who may be healthy but who are at risk for cardiovascular disease. This presentation will review results from large population based trials that have used MRI to detect early, subclinical cardiovascular disease. Left ventricular mass in particular has proven to be an extremely powerful biomarker to identify individuals at risk for heart failure. Common risk factors, such as diabetes and smoking, have tremendous adverse effect on myocardial remodeling that have now been quantified. Myocardial scar detection with MRI is used routinely in the clinic, and its role in identifying early disease in asymptomatic individuals will also be discussed.

Sports Injuries in the Chest and Abdominal Wall: A Core Curriculum of the Body's Core

Sunday, 02:00 PM - 03:30 PM • E353C



[Back to Top](#)

RC104 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

David A Rubin, MD *
Jonathan C Baker, MD *
William E Palmer, MD

LEARNING OBJECTIVES

1) Understand the relative strengths and weaknesses of radiographs, ultrasound, CT and MR in the evaluation of suspected injuries to the anterior chest wall structures, and use this information to logically direct an imaging evaluation. 2) Understand the anatomy of the anterior chest wall musculature and its relevance to the imaging patterns of injuries, together with how that information assists treatment planning. 3) Recognize and characterize the common and less common injuries in the abdominal and pelvic wall musculature and supporting pelvic ligaments.

ABSTRACT

The imaging of sports injuries to the extremities, joints, groin, spine, and head receive much attention. Nevertheless athletic injuries to the trunk also occur with some frequency. The thoracic, abdominal, and pelvic walls form the body's central core. The thoracic wall includes the ossified and cartilaginous parts of the ribs together with the clavicles and sternum, which provide a protective cage for the vital chest organs, as well as a site of origin for the chest wall muscles. In turn, these powerful muscles are responsible for the large movements of the upper extremities and for stabilizing the upper body during twisting motions. Similarly, the abdominal and pelvic wall muscles and supporting ligaments anchor the trunk and lower extremities to the spine and pelvis, while stabilizing the body during locomotion and limb movements. Each of these bone and soft tissue structures are susceptible to direct blunt force trauma in contact and collision sports and to indirect stretching injuries during running, cutting, throwing, kicking, and related activities.

There is growing understanding of the role of the thoracoabdominal musculoskeletal structures in sports, with training regimens now incorporating 'core strengthening' as an important pillar. The recognition, staging, therapy, and rehabilitation of these injuries are likewise becoming more sophisticated. This refresher course will review the role imaging plays for these injuries, emphasizing the added value of advanced imaging modalities for diagnosis, treatment planning, and prognostication.

Traumatic Brain Injury

Sunday, 02:00 PM - 03:30 PM • S406B



[Back to Top](#)

RC105 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC105A • CT and MR Imaging in Head Trauma

Paul M Parizel MD, PhD (Presenter) *

LEARNING OBJECTIVES

1) To develop a standardized pattern analysis approach for interpreting imaging studies in patients admitted with head trauma. 2) To become familiar with the different types of traumatic brain injuries and their imaging patterns. 3) To learn about the imaging characteristics of various types of intracranial haemorrhage by CT and MR. 4) To be able to recognise imaging findings that can serve as (surrogate) imaging biomarkers for patient prognosis and outcome.

ABSTRACT

CT and MRI examinations constitute an essential part of the diagnostic work-up of patients with head trauma. In the acute setting, imaging findings determine patient management and greatly influence the clinical course. CT remains the first choice technique to determine the presence and extent of injuries, and to guide surgical planning. Multi-detector CT allows simultaneous assessment of head and cervical spine, obviating the need for plain X-rays. A standardized pattern analysis approach will be presented, to obtain a complete inventory of the traumatic brain lesions. From a clinical point of view, it is important to understand the difference between primary and secondary lesions. Primary injuries occur as a direct result of the impact with damage to brain tissue. Examples include fractures, different types of traumatic haemorrhage (epidural, subdural, intracerebral, subarachnoid), cerebral contusion, diffuse axonal injury (DAI). CT-angiography is useful to document traumatic blood vessel injury. Secondary injuries are caused by systemic factors such as increased intracranial pressure, edema, brain herniation, decreased cerebral blood flow, excitotoxic damage. These lesions can be documented with multiparametric MRI including diffusion, perfusion, and susceptibility-weighted imaging. Whenever there is a discrepancy between the patient's clinical status and imaging findings, MRI is indicated. Diffusion tensor imaging with fractional anisotropy mapping may show microstructural abnormalities in patients with mild TBI, even when traditional MRI sequences appear normal. Neuroimaging also plays a role in the chronic stage, identifying sequelae, determining prognosis, and guiding rehabilitation. In conclusion, recent technological advances in CT and MRI have greatly improved our understanding of the pathophysiology of craniocerebral trauma and allow us to detect abnormalities, even in patients with mild head trauma, when routine imaging studies appear normal.

RC105B • Concussion: From Head Bumps to Dementia Pugilistica

Michael N Brant-Zawadzki MD (Presenter)

LEARNING OBJECTIVES

1) The audience will understand the challenges in understanding the concept of minimally traumatic brain injury.

RC105C • DTI of Mild Traumatic Brain Injury

Pratik Mukherjee MD, PhD (Presenter) *

LEARNING OBJECTIVES

1) To understand the potential of magnetoencephalography (MEG) for better diagnosis in mild traumatic brain injury (TBI). 2) To review the current best practices for imaging of sports concussions and the findings of recent imaging research studies of athletes. 3) To provide an overview of blast injury and other special characteristics of TBI in military populations, with the most recent results from imaging studies.

Eye and Orbit

Sunday, 02:00 PM - 03:30 PM • E451A



[Back to Top](#)

RC106 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC106A • Eye and Optic Nerve

Mary E Cunnane MD (Presenter) *

LEARNING OBJECTIVES

1) Recognize commonly seen abnormalities of the globe, including effects of trauma, infection, and congenital malformation. 2) Should be familiar with the appearance of intraocular tumors, particularly retinoblastoma, and diseases that mimic retinoblastoma. 3) Should be able to identify the most common causes of optic neuropathy, and identify radiographic features which point to a specific diagnosis in patients with optic neuropathy.

RC106B • Orbital Tumors

H. C Davidson MD, MS (Presenter) *

LEARNING OBJECTIVES

1) Be familiar with the anatomical and spatial composition of the orbit and related organs. 2) Develop differential diagnoses of orbital lesions based on spatial, pathological, demographic, and imaging features. 3) Discuss the cross-sectional imaging strategy for evaluation of the orbit, and describe the CT and MR appearance of common and uncommon orbital lesions.

RC106C • Orbital Inflammation

Ashley H Aiken MD (Presenter) *

LEARNING OBJECTIVES

1) To recognize the CT and MR imaging features of orbital infection and inflammatory diseases. 2) To recognize orbital inflammatory disease based upon imaging appearance and clinical scenario in order to offer a limited differential diagnosis and guide biopsy in select cases. 3) To understand important complications associated with orbital infection and inflammation.

ABSTRACT

Quality and Safety 2013: Best Practices, Radiation and Contrast Media

Sunday, 02:00 PM - 03:30 PM • N226

[Back to Top](#)

RC107 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Coordinator

Giles W Boland, MD

Walter Huda, PhD *

Richard H Cohan, MD *

LEARNING OBJECTIVES

1) Understand the background and current status of best practice clinical and workflow management and its imperative for improving patient outcomes. 2) To review indications for premedication prior to contrast material administration. To summarize the current understanding of iodinated contrast media nephrotoxicity. To describe common errors made in treating contrast reactions. 3) To understand the requirement to match radiation dose according to the individual patient, clinical question and modality used. To outline meaningful radiation metrics including organ dosages and the overall radiation absorbed to estimate patient risk.

ABSTRACT

BEST PRACTICES: Increasingly medicine is being defined and evaluated based on patient outcomes rather than procedural events. While best practices are evolving and sometimes incomplete, many do exist, yet there is marked departmental variation from one organization to another. This session will outline why and how best practice implementation, particularly as it relates to IV contrast use and radiation dose, is essential to achieve better patient outcomes. This will require evaluation of current practices and comparison to nationally driven guidelines, with subsequent compliance to guidelines where they exist. **CONTRAST SAFETY:** Some patients have contrast reactions despite premedication. Patients who have repeated reactions in this setting tend to have reactions of similar severity.

Studies performed with control groups suggest that there is minimal to no increased risk of contrast-induced renal failure in patients who receive iodinated contrast material; however, the control groups likely included patients at increased risk of acute kidney injury. Some errors treating contrast reactions relate to failure to administer epinephrine or using the wrong dose / wrong route. The act of administering this drug can also be problematic.

RADIATION DOSE: In all radiological examinations that utilize x-rays, there are always three important issues that must be taken into consideration. The first relates to the appropriate amount of radiation to be used, which must always explicitly take into account the imaging task at hand as well as the physical characteristics of the patient undergoing the CT examination. The second issue is how to transform the radiation incident on the patient into the organ doses received which are essential to understanding (any) patient risks. The final consideration is to understand the radiological significance of the radiation absorbed by the patient, and to estimate (any) radiological risks, as well as the corresponding uncertainties.

Imaging of the Traumatized Spine (Traditional) (An Interactive Session)

Sunday, 02:00 PM - 03:30 PM • E353B

[Back to Top](#)

RC108 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC108A • Pediatric Cervical Spine Trauma: When is Cross-Sectional Imaging Needed?

Susan D John MD (Presenter)

LEARNING OBJECTIVES

1) Plan safe and effective imaging protocols using cross-sectional imaging for cervical spine injuries in infants and children. 2) Understand mechanisms and patterns of pediatric cervical spine injuries. 3) Recognize common anatomical variations and subtle injuries that benefit from evaluation by CT and MRI.

RC108B • Craniocervical Trauma: When to do CT Angiography

Clint W Sliker MD (Presenter)

LEARNING OBJECTIVES

1) Discuss the value and role of CT angiography when used to evaluate patients with a history of blunt trauma with special attention directed towards screening for craniocervical arterial injuries. 2) Briefly discuss the value and role of CT angiography when used to evaluate patients with a history of acute craniocervical penetrating trauma.

ABSTRACT

RC108C • MRI in Acute Spine Trauma: What and When?

Mauricio Castillo MD (Presenter)

LEARNING OBJECTIVES

1) To understand benefits and limitations of MRI and CT evaluation of spinal trauma. 2) To review current MR and CT imaging protocols in cervical trauma. 3) To review the most common MRI findings in cervical spine trauma and how they affect treatment. 4) To become aware of potential complications from imaging. 5) To review the utility of MR and CT in soft tissue injuries including: ligaments, discs, cord, and blood vessels.

ABSTRACT

This presentation addresses the benefits/drawbacks of MRI vs. CT in the setting of acute cervical spine trauma. MRI has a higher sensitivity and specificity in detecting soft tissue and ligament injuries than CT and radiographs. MRI can also substitute dynamic fluoroscopy to assess instability. Although controversial, MRI is also considered by many the 'gold' standard in obtunded patients and children. Because of concern of radiation exposure in children, CT is recommended only in special situations and the evaluation of these patients begins with radiographs and is followed by MRI. The use of MRI in evaluating the

integrity of the transverse ligaments in patients with Jefferson injuries identifies those for whom surgery is required and in Hangman fractures those with compressive and/or intrinsic cord lesions. When moving these patients to an MR unit it should be remembered that there is an increased risk of secondary brain injury, increased intracranial pressure, and aspiration. Nearly 50% of patients with significant cervical trauma will have herniated discs visible only by MRI. Many patients also show epidural and/or subdural spinal hematomas and MR depicts each type making the surgeon aware of the need for more extensive and difficult surgery when the blood clot is in the subdural space. Evacuation of the hematoma is imperative to prevent cord damage. The term ;SCIWORA; refers to a damaged cord in absence of bone and ligamentous injuries. It occurs in young children and elders with degenerative disease. MRI shows cord hemorrhage and edema and also helps confirm the clinical diagnosis of central cord syndrome. Transections of the cord are clearly assessed with the level of the upper stump determining level of function. Lastly, MRI is critical in assessing acute and subacute vertebral artery dissections. MRI permits direct evaluation of the 3 findings that determine patients neurological outcome: maximum cord compression, cord hemorrhage, and cord swelling.

Gastrointestinal: Liver (An Interactive Session)

Sunday, 02:00 PM - 03:30 PM • E450A

[MR](#) [CT](#) [GI](#)

[Back to Top](#)

RC109 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC109A • Focal Liver Masses in Non-Cirrhotic Patients

Frank H Miller MD (Presenter)

LEARNING OBJECTIVES

1) Identify and characterize the most common focal liver masses in non-cirrhotic patients and avoid biopsies. 2) Understand the advantages and limitations of CT and MR in characterization of liver lesions.

ABSTRACT

Focal hepatic masses are frequently detected in the non-cirrhotic patients. These lesions are being detected as patients are being imaged more and are often detected incidentally. It is incumbent upon radiologists to try to detect and characterize these lesions. This talk will demonstrate the typical CT and MR appearance of liver lesions in the non-cirrhotic liver including cysts, hemangiomas, focal nodular hyperplasia, adenomas, metastases, cholangiocarcinoma and abscesses. The pathologic characteristics including central scar in focal nodular hyperplasia, the presence of fat in adenomas and hepatomas, and characteristic enhancement pattern of lesions will be discussed. Difficulties and limitations in the diagnosis of these lesions will be discussed. The importance of optimal protocols and newer techniques will be emphasized.

RC109B • Focal Liver Masses in Cirrhotic Patients

Yves M Menu MD (Presenter)

LEARNING OBJECTIVES

1) Comprehend why imaging is the key for detection and characterization of liver tumours in a cirrhotic patient. 2) Understand the advantages and limits of US, CT and MRI. 3) Apply the appropriate protocols for CT and MRI. 4) Be able to give a comprehensive report answering the clinical questions, with the perspective of the different options for treatment and/or follow-up.

ABSTRACT

Focal Liver Masses (FLM) in a cirrhotic patient are challenging for detection and characterization for two reasons: - improvement of potential treatments increases the percentage of patients who are candidate for a specific treatment. However, the cost of these treatments, from systemic chemotherapy to liver transplantation, implies that any medical decision should rely on solid arguments, most of them being provided by imaging - in a cirrhotic liver, a wide spectrum of masses can be observed, from completely benign lesions like focal fatty infiltration or Regenerative Nodules (RN) to highly aggressive Hepatocellular Carcinoma (HCC). More over, there is a continuum between benign and malignant lesions with intermediate lesions like Dysplastic Nodules (DN). Characterization is therefore challenging due to overlapping of imaging features Ultrasound (US) plays an important role in detection of HCC, and helps also assessing vein patency, ascites and development of collaterals. However, characterization of FLM with plain US is rather limited. CT is an efficient method for detection and characterization of liver masses, and more over allows a global staging in case of malignant disease. However, there is increasing evidence that MRI is superior to CT both for detection and for characterization of liver masses, at least if the appropriate protocol is used. The role, advantages and limits of every method differ according to the clinical situation (detection, characterization, staging, follow-up). The precise features of nodules (RN, DN and HCC) should be identified and reported by the Radiologist, with the perspective of the appropriate treatment or follow-up. The radiologist should be able to give an adapted report, including all key information for patient management, and taking into account international standards (EASL, AASLD), which greatly help in making a medical decision.

RC109C • Contrast Media in Liver MRI: From Morphology to Function

Giuseppe Brancatelli MD (Presenter) *

LEARNING OBJECTIVES

1) To discuss the MR protocols typically used with extracellular and liver specific contrast agents. 2) To understand how liver-specific contrast agents can assist in the characterization of focal lesions in the cirrhotic and non-cirrhotic liver. 3) To review the most common pitfalls linked to the use of liver specific contrast agents. 4) To get familiar with the role of liver specific contrast agents in the diagnosis of biliary diseases.

ABSTRACT

Renal Ultrasound and Doppler (An Interactive Session)

Sunday, 02:00 PM - 03:30 PM • E450B

[US](#) [VA](#) [GU](#)

[Back to Top](#)

RC110 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC110A • Masses and Parenchymal Diseases

John J Cronan MD (Presenter)

LEARNING OBJECTIVES

1) Optimize the information available from ultrasound related to chronic renal disease. 2) Assess the finding related to acute renal injury. 3) Define ultrasounds rôle in assessment of renal masses.

ABSTRACT

Ultrasound is the primary imaging technique to evaluate the kidneys when acute kidney injury occurs (AKI). We will look at techniques to optimize the evaluation of the kidneys and help clinical decision processes. Identification of chronic /irreversible renal signs is critical in patient management. Renal mass assessment remains simple, cyst vs. non-cyst.

RC110B • Renal Doppler

John S Pellerito MD (Presenter)

LEARNING OBJECTIVES

1) Learn techniques and protocols for Doppler evaluation of the renal arteries. 2) Optimize abdominal Doppler studies. 3) Recognize the role of Doppler in evaluation of renal stents.

ABSTRACT

Evaluation of the renal arteries and kidneys is an integral component of the workup of renal insufficiency and hypertension. Doppler ultrasound examination is proven valuable in the detection of renal artery stenosis and occlusion. Doppler ultrasound has multiple advantages over CT or MR angiography: noninvasive, no radiation and does not require administration of contrast material. This program will discuss the techniques and protocols needed for successful renal artery evaluation with Doppler ultrasound. Tips to optimize the examination will be provided. There will also be a discussion of the evaluation of renal artery stents.

RC110C • Renal Transplants

Deborah J Rubens MD (Presenter)

LEARNING OBJECTIVES

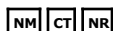
1) Review the normal parenchymal and vascular anatomy of renal transplants including their normal Doppler parameters. 2) Identify the most common causes of renal transplant complications and criteria for their diagnosis. 3) Outline some of the pitfalls in transplant ultrasound imaging and when to use CT, MR and/or angiography in addition to ultrasound.

ABSTRACT

This lecture will review the anatomy and pathophysiology of renal transplants. The role of ultrasound imaging in assessment of acute as well as chronic renal transplant dysfunction will be elucidated. The performance of Doppler ultrasound will be highlighted regarding vascular stenosis and occlusion, parenchymal perfusion, and planning and assessing organ biopsy. Doppler techniques to avoid false negative and false positive studies will be emphasized. Controversial parameters will be stressed, in particular the use of absolute velocities versus ratios in the diagnosis of renal artery stenosis. Surgical emergencies will be highlighted, and the role of correlative imaging with CT, MR and/or angiography will be addressed.

Multi-modal Imaging Workup for Alzheimer's Disease, Parkinson's Disease, and Related Disorders: Case-based Approach

Sunday, 02:00 PM - 03:30 PM • S505AB



[Back to Top](#)

RC111 • AMA PRA Category 1 Credit™: 1.5 • ARRT Category A+ Credit: 1.5

RC111A • FDG PET-CT Findings in Differential Diagnosis of Dementia

Alexander Drzezga MD (Presenter) *

LEARNING OBJECTIVES

1) Principle of FDG-PET imaging of cerebral glucose mechanism. 2) Physiological and pathophysiological background. 3) Methodological aspects of FDG-PET imaging in the brain. 4) Differential diagnosis of non-neurodegenerative disorders leading to cognitive impairment. 5) Differential diagnosis between different forms of neurodegenerative disorders. 6) Combination of FDG-PET with other neuroimaging procedures (multimodal imaging).

RC111B • Amyloid PET Findings in Alzheimer's Disease and Related Disorders

Nicholaas I Bohnen MD (Presenter)

LEARNING OBJECTIVES

1) To discuss methodological aspects of fibrillary beta-amyloid PET imaging. 2) To learn about practical interpretation of fibrillary beta-amyloid PET imaging. 3) To understand the long duration of prodromal phase of amyloidopathy and its importance of correlating it with clinical symptoms when reporting on amyloid PET studies. 4) To review the presence of amyloidopathy in non-Alzheimer dementias. 5) To discuss appropriate use criteria for amyloid PET in clinical practice.

ABSTRACT

RC111C • Dopamine Transporter SPECT Findings in Parkinson's Disease and Related Disorders

Satoshi Minoshima MD, PhD (Presenter) *

LEARNING OBJECTIVES

1) To describe mechanisms of dopamine transporter SPECT imaging. 2) To explain dopamine transporter SPECT procedure. 3) To discuss dopamine transporter SPECT findings in various movement disorders.

RC111D • MRI Findings Commonly Seen in Dementia Patients

Yoshimi Anzai MD (Presenter)

Thoracic Aorta: Key Concepts (An Interactive Session)

Sunday, 02:00 PM - 03:30 PM • S105AB



[Back to Top](#)

RC112 • AMA PRA Category 1 Credit™: 1.5 • ARRT Category A+ Credit: 1.5

RC112A • Transcatheter Aortic Valve Replacement (TAVR)

Paul Schoenhagen MD (Presenter)

LEARNING OBJECTIVES

1) Discuss Pathophysiology and Prevalence of Symptomatic Severe Aortic Stenosis. 2) Discuss Transcatheter Treatment Options (TAVR). 3) Discuss Critical Role of Imaging in the Context of TAVR.

RC112B • The Spectrum of Type A Dissections

Anne S Chin MD (Presenter)

LEARNING OBJECTIVES

1) Review the pathology, epidemiology, and natural history of acute type A aortic dissection. 2) Describe the imaging strategies and diagnostic information sought in patients with acute aortic syndromes. 3) Review the recent classification of acute aortic dissection. 4) Illustrate imaging findings of the spectrum of acute type A aortic dissection, with a focus on recognizing subtle CT angiographic findings related to the lesser known 'Class 3' aortic intimal tear or 'limited dissection.'

ABSTRACT

The traditional Stanford classification distinguishes between dissections involving the ascending aorta (Type A) from those that do not involve the ascending aorta (Type B). Type A aortic dissection is rare, but remains the most lethal of aortic disorders requiring prompt surgical intervention. The common pathologic denominator in patients with acute dissection is an abnormal aortic media ('cystic medial necrosis') which can be found in genetic/inherited diseases (e.g. Marfan's) but also in patients with severe hypertension. The CT imaging strategy of suspected acute aortic syndrome should always include (i) non-enhanced images to assess for intramural hematoma (IMH); when the index of suspicion for aortic dissection is high, also consider (ii) EKG-gating for motion-free evaluation of the aortic root/ascending aorta, and (iii) including common femoral arteries in the CTA scan range to assess lesion extent and identify a percutaneous access route. The spectrum of aortic dissection has recently been classified as the following: Class 1 classic dissection with true and false lumen separated by an intimal flap; Class 2 IMH; Class 3 discrete or limited dissection; Class 4 penetrating atherosclerotic ulcer (PAU); and Class 5 iatrogenic/traumatic. A clarification and modified conceptual classification of aortic dissection will be provided, along with illustrative examples of these aortic lesions. Particular focus will be given to the lesser known Class 3 'limited dissection' which is described as a subtle and eccentric bulge of the aortic wall. While it has been reported to elude current imaging techniques, emphasis will be made on recognizing subtle CTA imaging findings characteristic of this uncommon but important dissection variant.

RC112C • Surgical Procedures and Complications

Terri J Vrtiska MD (Presenter)

LEARNING OBJECTIVES

1) Describe common indications for surgical intervention in aortic disease including aneurysm, vasculitis, infection, trauma and connective tissue disorders. 2) Identify key CTA features of the normal postoperative aorta. 3) Present the characteristic CTA findings for complications of postoperative aortic repair including disease progression, thrombosis, stenosis, infection, pseudoaneurysm, aorto-enteric fistula and aortic rupture.

ABSTRACT

No Course RC113. See Series VSPD12 Pediatric Radiology Series: Pediatric Musculoskeletal

Sunday, 02:00 PM - 03:30 PM

RC113

[Back to Top](#)

Venous Disease

Sunday, 02:00 PM - 03:30 PM • S404CD

[Back to Top](#)**IR****RC114 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5****Anne C Roberts , MD ***
Gerant M Rivera-Sanfeliz , MD**LEARNING OBJECTIVES**

1) Decide on the appropriate patients to undergo venous ablation. 2) Know various tools used for venous ablation. 3) Understand some of the issues of large vein occlusions and possible treatments. 4) Gain familiarity with the presentation pelvic congestion and varicocele. 5) Have a familiarity with the treatment of pelvic congestion and varicoceles.

ABSTRACT

Lower leg varicosities are a very common problem. Over the last 10 years there has been increasing interest in the percutaneous treatment of varicosities. The patient population with varicosities, the presentation of varicosities, and the treatment of varicosities will be presented. Other venous anomalies can worsen the symptoms of varicosities and may need to be treated. These include May-Thurner syndrome, pelvic congestion, and the male variant of pelvic congestion syndrome (varicoceles). The patient population, symptoms and presentations, and the treatment of these other venous abnormalities will also be discussed.

Current Issues in Breast Cancer Screening

Sunday, 02:00 PM - 03:30 PM • S406A

[Back to Top](#)**BR****RC115 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5****RC115A • Current Controversies****Daniel B Kopans MD (Presenter) *****LEARNING OBJECTIVES**

1) The recent US Preventive Services Task Force guidelines will be reviewed. 2) Learn why the Task Force guidelines are not supported by the scientific evidence. 3) The age of 50 has no biological or screening importance. 4) The decrease in deaths associated with screening is 30% or higher, and not the 15% used by the Task Force. 5) Screening cannot yet be tailored to risk for breast cancer beyond those who are genetically predisposed. 6) The majority of breast cancers occur in women who are at average and not at elevated risk. 7) Biennial screening will lead to deaths that could be averted by annual screening. 8) Annual screening should begin at the age of 40 for all women.

RC115B • Future Directions**D. David Dershaw MD (Presenter)****LEARNING OBJECTIVES**

1)To understand the new breast imaging technologies that are under clinical trial. 2)To learn the advantages and disadvantages of new digital technologies, including tomosynthesis and contrast mammography. 3)To understand the appropriateness and problems of isotope based breast imaging. 4)To learn how these technologies may be used for screening.

ABSTRACT

New technologies entering the breast imaging armamentarium include advanced digital applications of tomosynthesis, contrast enhanced mammography and contrast enhanced tomosynthesis. Breast imaging with isotopes is also possible with positron emission tomography. Other technologies are less developed. The advantages, disadvantages and the data supporting or arguing against the use of these techniques will be discussed.

RC115C • Breast Density Based Screening**Stephen A Feig MD (Presenter) *****LEARNING OBJECTIVES**

1) To review the criteria and methods for assessment of breast density. 2) To analyze the effect of breast density on breast cancer risk as well as on sensitivity and specificity of mammography. 3) To discuss strategies for use of supplementary screening modalities such as MRI and ultrasound according to patient age, breast density, and risk status.

ABSTRACT

Randomized trials and service screening studies have found that screening mammography can reduce breast cancer death rates by as much as 30% - 50%. Supplementary screening with breast MRI or ultrasound has been shown to substantially increase detection rates beyond those from mammography alone. This suggests that women with dense breasts, where mammography is less sensitive, may benefit from such multimodality screening. Objective measurement of breast density and estimation of risk status may help to provide screening recommendations for an individual woman. Benefits such as higher survival rates, risks such as false positive biopsy rates, costs, reimbursement status for and practicality of supplementary screening will be discussed. Current status of breast density notification legislation and results from states having such legislation will be reviewed. Based on experience in Connecticut and California, practical advice to help the radiologist respond to such legislation will be given.

RSNA Educational Programs Around the World: An International Forum (Sponsored by the RSNA Committee on International Radiology Education)

Sunday, 02:00 PM - 03:30 PM • S102D

[Back to Top](#)**LM GN ED****RC116 • AMA PRA Category 1 Credit™:1.5****Coordinator****Teresita L Angtuaco , MD**
Melissa L Rosado De Christenson , MD *
Marco A Alvarez , MD
Laura W Bancroft , MD
Omolola M Atalabi , MBBS
Norran H Said , MD,FRCR
Chamaree Chuapetcharasopon , MD
Savvas Andronikou , MBBS**LEARNING OBJECTIVES**

1) To familiarize the learner with the existing RSNA educational programs in other countries. 2) To discuss the past activities of RSNA in other countries in improving knowledge of radiology and application of latest technical radiology innovations. 3) To receive feedback from representatives of four selected countries (Nigeria, South Africa, Egypt and Thailand) on the impact of the RSNA educational programs both on a personal and national level.

ABSTRACT

This refresher course presents a summary of the existing RSNA educational programs around the world: International Visiting Professor (IVP) program, Derek Harwood Nash (DHN) fellowship, Introduction to Research for International Young Academics (IRIYA) and Educational Material and Journal awards (EMJA) program. These programs address radiology education in many levels: junior radiologist (IRIYA) the more senior radiologist (DHN), the institution (EMJA) and the national radiology organizations (IVP). RSNA committee members familiar with the programs will discuss the history and unique features of each that make them ideal for international outreach initiatives. Four international representatives from Nigeria, South Africa, Egypt and Thailand will provide feedback on how the various programs have impacted radiology education and practice in their country as a whole and the personal careers of those who participated in the DHN or IRIYA programs. A panel discussion will then be conducted at the end of the session to explore other educational opportunities and future directions that will maximize the resources provided by the RSNA.

Combining In Vitro Diagnostics and Imaging for Integrated Decision Making

Sunday, 02:00 PM - 03:30 PM • S504CD

**RC117** • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5**Moderator****Sanjiv S Gambhir**, MD, PhD ***RC117A • Combining In Vitro and In Vivo Diagnostics for Monitoring Response to Anti-cancer Therapies****Sanjiv S Gambhir** MD, PhD (Presenter) *

LEARNING OBJECTIVES

1) Understand biomarker discovery for response to therapy applications. 2) Understand how animal models are used for validating biomarkers. 3) Learn relative advantages of In Vitro vs. In Vivo diagnostics. 4) Understand a specific application in EGFR targeted Lung Cancer Therapy.

RC117B • In-Vivo, Near-Vivo, and On-Vitro Diagnostics: The Overlap**Richard Levenson** MD (Presenter) *

LEARNING OBJECTIVES

1) Appreciate the challenges confronting rigorous correlation between pathology and radiology findings and the potential benefit to both disciplines if better, high-resolution correspondences are established, perhaps via machine-learning-based image segmentation tools. 2) Understand the potential that in-vivo microscopy holds for integrating pathology and radiology diagnostic procedures. 3) Learn about virtual autopsy procedures (combined post-mortem CT and tissue sampling) and their role in improving quality control. 4) And possibly hear about new technology that should allow comparison of PET tracer gross anatomic location with cellular-scale imaging (work in progress).

RC117C • Combining In Vivo and In Vitro Diagnostics for Lung Cancer Detection**Viswam S Nair** MD (Presenter)

LEARNING OBJECTIVES

1) To understand how blood biomarker integration may improve clinical diagnosis for solitary pulmonary nodules. 2) To understand how circulating tumor cells may be helpful in diagnosing malignant nodules of the lung.

ABSTRACT

Current data from CT screening studies suggest that they improve survival for high risk patients with a lung nodule. Yet, this comes at considerable cost, both to the patient as a result of unnecessary procedures and for the medical system delivering care. Non-invasive circulating biomarkers that augment current clinical diagnostic algorithms provide one solution to these issues. The specific case of circulating tumor cells will be discussed.

Interactive Game: Interactive Quiz Cases in Neuro-oncologic Imaging**Sunday, 02:00 PM - 03:30 PM • E353A**[Back to Top](#)**RC118** • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

LEARNING OBJECTIVES

This interactive session will use RSNA Diagnosis Live. Please bring your charged mobile wireless device (phone, tablet or laptop) to participate.

RC118A • Spine**James C Anderson** MD (Presenter)

LEARNING OBJECTIVES

1) Review imaging of tumors of the spine. 2) Identify aspects of spinal tumors that affect staging, treatment and management 3) Highlight roles of various imaging modalities.

ABSTRACT

Review imaging of tumors of the spine Review aspects of spinal tumors that affect staging, treatment and management Review roles of various imaging modalities

RC118B • Head and Neck/ENT**Suresh K Mukherji** MD (Presenter)

LEARNING OBJECTIVES

1) Review common head and neck tumors. 2) Identify pertinent imaging findings that show how imaging affects staging. 3) Highlight specific imaging findings that will affect staging, treatment and management.

ABSTRACT

Review common tumors of the head and neck Review imaging findings in head and neck malignancies that specifically change staging Review the value of imaging in directly affecting management and treatment

RC118C • Brain**Megan K Strother** MD (Presenter)

LEARNING OBJECTIVES

1) Identify basic anatomic, pathologic, and physiologic principles as they apply to neuro-oncologic imaging of the brain.

ABSTRACT

Five interactive neuro-oncologic cases will be presented in an interactive format. Participants will review basic knowledge and skills that are relevant to the clinical practice of neuroradiology, while evaluating the results of the latest research in neuro-oncologic imaging.

Radiographic Evaluation of the Post-Radiotherapy Brain**Sunday, 02:00 PM - 03:30 PM • E352**[Back to Top](#)**RC120** • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5**Moderator****John Breneman**, MD**Luke E Pater**, MD**Mary F Gaskill-Shipley**, MD

LEARNING OBJECTIVES

1) Discuss the expected radiographic findings following radiation therapy including radiosurgery. 2) Discuss the occurrence of radiation necrosis following radiosurgery including risk factors and imaging findings. 3) Discuss the role of Avastin in the management of gliomas and radiation necrosis. 4) Discuss the phenomena of pseudoprogression including imaging analysis and clinical management.

Medical Physics 2.0: Computed Tomography**Sunday, 02:00 PM - 03:30 PM • N228**[Back to Top](#)

RC121 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Co-Director
Ehsan Samei, PhD *
Co-Director
Douglas E Pfeiffer, MS *

LEARNING OBJECTIVES

1) To understand the current recommendations for computed tomography testing and quality control. 2) To understand impact of accreditation and regulation on CT quality assurance. 3) To understand current dosimetry and dose-reporting considerations.

ABSTRACT

Many organizations have contributed to the methodology for testing computed tomography scanners. These have included state regulatory agencies, the Food and Drug Administration, the American Association of Physicists in Medicine, and the American College of Radiology, among many other groups and individuals. These contributions have included many good ideas, but also much confusion as to what is required. Further, the complexity of modern CT scanners has rendered some tests obsolete or difficult to implement. This presentation focuses mainly on the testing delineated by the 2012 American College of Radiology Computed Tomography Quality Control Manual and that required under the Intersocietal Accreditation Commission. Recommended and required tests will be identified but not described in detail.

RC121A • Computed Tomography Perspective

Mahadevappa Mahesh MS, PhD (Presenter) *

LEARNING OBJECTIVES

1) To reflect on MDCT technology enabling volumetric data acquisition. 2) To evaluate new innovations enabling dose reductions in CT.

ABSTRACT

This talk will provide brief overview on the innovations that has led to the development of CT technology (single slice (SDCT) to multiple slices (MDCT)). Past decade saw the rapid evolution in the capability to obtain multiple slices per gantry rotation (4-320 slices). Having achieved the capability to acquire volumetric data (covering entire cardiac anatomy in half of gantry rotation), the race is currently towards acquiring CT images at very low radiation dose. Volume CT, dual energy CT, Iterative reconstruction, quantitation are some of the new challenges that will be discussed in this talk. 1. CT Technology 1a. MDCT detector configuration 1b. Volume CT ♦ Wide detector and dual source CT 2. New Challenges 2a. Iterative reconstruction 2b. Dual energy 2c. Dose check

RC121B • Computed Tomography 1.0

Douglas E Pfeiffer MS (Presenter) *

LEARNING OBJECTIVES

1) To understand the current recommendations for computed tomography testing and quality control. 2) To understand impact of accreditation and regulation on CT quality assurance. 3) To understand current dosimetry and dose-reporting considerations.

ABSTRACT

Many organizations have contributed to the methodology for testing computed tomography scanners. These have included state regulatory agencies, the Food and Drug Administration, the American Association of Physicists in Medicine, and the American College of Radiology, among many other groups and individuals. These contributions have included many good ideas, but also much confusion as to what is required. Further, the complexity of modern CT scanners has rendered some tests obsolete or difficult to implement. This presentation focuses mainly on the testing delineated by the 2012 American College of Radiology Computed Tomography Quality Control Manual and that required under the Intersocietal Accreditation Commission. Recommended and required tests will be identified but not described in detail.

RC121C • Computed Tomography 2.0

Ehsan Samei PhD (Presenter) *

LEARNING OBJECTIVES

1) To become familiar with the major new developments of physics support for clinical CT operations. 2) To understand the need and the definitions of the new CT performance metrics for dose and quality. 3) To understand the testing implications of new CT technologies. 4) To understand the need for operational optimization of CT systems.

ABSTRACT

Uncertainties in Imaging for Radiation Oncology: Sources and Mitigation Techniques-Image Guidance in the Treatment Room

Sunday, 02:00 PM - 03:30 PM • S504AB

PH **RO**

[Back to Top](#)

RC122 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Co-Director, Moderator
Laurence E Court, PhD

LEARNING OBJECTIVES

1) Terminology to describe uncertainties. 2) Methodologies for evaluating uncertainties in IGRT. 3) Uncertainties in IGRT technologies, including mitigation strategies (generic, not site-specific).

RC122A • Terminology to Describe Uncertainties and Methodologies for Evaluating Uncertainties in IGRT

Laurence E Court PhD (Presenter)

LEARNING OBJECTIVES

1) Understand the different sources of uncertainty in radiation therapy. 2) Be able to identify the different terminology used to categorize uncertainties in radiation therapy. 3) Have the rationale to judge published work, and determine whether the reported uncertainties are appropriate and applicable to the local institution.

ABSTRACT

IGRT is now standard-of-care for many treatment sites. The appropriate use of IGRT has the potential to reduce uncertainties in the radiation therapy treatment, and can potentially allow for reducing treatment margins. The first step in reducing margins is to understand the different sources of uncertainty. Institutions may establish their own uncertainties, and may also utilize published data. In order to do this, it is important that the physicist understands the different potential sources of uncertainty in radiation therapy, and also understands different approaches to categorizing uncertainties, systematic and random. There is currently no consensus on how these uncertainties are measured or reported, and this can lead to confusion when interpreting published data. This presentation will describe the different sources of uncertainty, and introduce the learner to different approaches used in the literature to quantify these uncertainties.

RC122B • Uncertainties in IGRT Technologies, Including General Mitigation Strategies

Timothy Craig PhD (Presenter) *

LEARNING OBJECTIVES

1) Appreciate the breadth of IGRT technologies used in the radiation therapy treatment room. 2) Understand the different sources of uncertainty for different IGRT approaches. 3) Understand approaches to mitigating the limitations of different IGRT technologies.

ABSTRACT

There is a large variety of technologies available for image-guided radiation therapy (IGRT), including 2D projection x-ray imaging (kilovoltage (kV) and megavoltage (MV)), computed tomography (conventional, MV, and cone-beam), ultrasound, and radiofrequency emitting markers. There are also different methodologies for using these technologies, or combinations of these technologies. Each technology has its own uncertainties and limitations which should be well described and understood. Similarly, each technology has different approaches available for mitigating these uncertainties that need to be appreciated. In this presentation we will describe and compare the different technologies and IGRT approaches, and give an overview of the uncertainties involved in the use of each.

Minicourse: Current Topics in Medical Physics-Clinically Focused Physics Education: Principles to Practice

**RC123** • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5**Moderator**
Perry Sprawls, PhD *LEARNING OBJECTIVES
ABSTRACT
URL's
<http://www.sprawls.org/clinphys>**RC123A • Clinically Focused Physics Education: Principles to Practice-Part A****Perry Sprawls** PhD (Presenter) *LEARNING OBJECTIVES
1) Describe the general characteristics of mental knowledge structures of physics and technology that are required for effective clinical applications. 2) Describe conditions and activities that contribute to the formation of effective knowledge structures. 3) Identify the different levels of learning that can occur and relate them to specific actions that can be performed and potential outcomes. 4) Analyze learning activities for effectiveness and efficiency in producing desired outcomes with available human effort and resources. 5) Identify the opportunities to use digital technology to enhance human performance for both learners and learning facilitators. 6) Identify resources that can be used to optimize the effective-efficiency relationship of learning activities. 7) Provide effective learning activities.**RC123B • Clinically Focused Physics Education: Principles to Practice-Part B****Debra L Monticciolo** MD (Presenter)LEARNING OBJECTIVES
1) To review the need for updated physics education in the clinical setting. 2) To review the use of computer-based learning in the clinical setting for physics education of radiology residents.

ABSTRACT

Extranodal Lymphoma from Head to Toe (In Conjunction with the American Institute for Radiologic Pathology)**Sunday, 02:00 PM - 03:30 PM • S403B****RC124** • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5**Moderator**
Mark D Murphey, MD
Jeffrey R Galvin, MD
Rachel B Lewis, MD
Aletta Ann Frazier, MD
Ellen M Chung, MD
Leonard M Glassman, MD
Kelly K Koeller, MDLEARNING OBJECTIVES
1) Describe the typical clinical and pathologic features of extranodal lymphoma. 2) Define the characteristic imaging patterns of extranodal lymphoma. 3) Identify the pathologic and imaging manifestations of lymphoma in immunocompromised patients and their variation from lymphoma occurring in immunocompetent individuals. 4) Understand the pathologic basis for the imaging patterns of extranodal lymphoma.
ABSTRACT**Quantitative Imaging: Current and Future Practice in Radiology and Clinical Trials****Sunday, 02:00 PM - 03:30 PM • S104A****RC125** • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5**Director**
Michael F McNitt-Gray, PhD ***RC125A • RSNA Perspective and Initiatives****Daniel C Sullivan** MD (Presenter)LEARNING OBJECTIVES
1) Describe the benefits of implementing more quantitative image interpretation in clinical radiology practice. 2) Understand the activities that RSNA supports to help move the profession of radiology from a primarily qualitative interpretation paradigm to a more quantitative-based interpretation model. 3) Describe the challenges of extracting uniform, standardized quantitative measures from clinical imaging scans.ABSTRACT
The RSNA Strategic Plan strives to advance the radiological sciences and foster the development of new technologies in part by promoting the quantification of imaging results. The added value of quantification in both research and clinical environments is likely to increase as health care initiatives place increased pressure on radiologists to provide decision support for evidence-based care. There remain substantial barriers to the widespread use of quantitative measures in clinical radiology including inherently large number of variables that impede validation of specific metrics, diversity of proprietary industry platforms, and lack of acceptance by radiologists. A critical barrier to the implementation of QI in radiology is the lack of standardization among vendor platforms. Collaboration in the pre-competitive space is challenging yet crucial to address standardization, and integrating quantitative measurement into workflow will be necessary for wide adoption. The obstacles to overcome with practicing radiologists are a distrust of the reliability of QI and the fear of losing value of radiologists' expertise through automation and commoditization. The Quantitative Imaging Biomarkers Alliance (QIBA) was officially launched in 2007 as a means to unite researchers, healthcare professionals, and industry stakeholders in the advancement of quantitative imaging. QIBA's mission is to: Improve the value and practicality of quantitative biomarkers by reducing variability across devices, patients and time. QIBA's six active technical committees (DCE-MRI, fMRI, FDG-PET, volumetric CT, COPD-Asthma, US shear-wave speed) develop QIBA Profiles (i.e., documents) of standardized specifications for image acquisition, collection, and post-processing.**RC125B • NCI's Quantitative Imaging Network (QIN): Progress and Impact on Clinical Trials****Paula M Jacobs** PhD (Presenter)LEARNING OBJECTIVES
1) Describe various methods for prediction and measurement of therapy response. 2) Understand which imaging modalities and software tools are best suited for this clinical goal. 3) Understand the complexity of quantitative imaging methodology and how to compare the performance of different. 4) Understand how NCI Research Networks function to create a consensus on imaging methodology and public resources to meet these aims. 5) Learn about NCI funding opportunities for this research area.**RC125C • American College of Radiology Imaging Network/Eastern Cooperative Oncology Group (ACRIN/ECOG) Perspective****Mitchell D Schnall** MD, PhD (Presenter)LEARNING OBJECTIVES
1) Identify the importance of quantitative imaging principles in the setting of clinical trials. 2) Identify conditions required for successful application of quantitative imaging principles. 3) Analyze quantitative imaging techniques and apply this knowledge to protocol development in the setting of clinical trials.



RC126 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator
Kevin W McEnery, MD *

RC126A • Measuring Quality in Radiology, a Practical Framework

Ramin Khorasani MD (Presenter) *

LEARNING OBJECTIVES

1) Describe some of the reasons and the urgency for measuring quality in radiology. 2) Describe a simple and practical framework for establishing radiology quality metrics in your practice. 3) Use a case example to illustrate how quality metrics can be implemented in your practice.

ABSTRACT

Making continuous improvements is a hallmark of successful organizations. Such improvements can impact every aspect of your radiology practice including quality, safety, efficiency (including financial performance), and quality of work-life. By focusing on few important and relevant metrics to your performance gaps and quality improvement initiatives, one can communicate current state and clearly identify the goals on key improvement initiatives. In this session, we will demonstrate how using a practical framework, such as Institute of Medicine's attributes (IOM) for high quality of care or the National Quality Forum (NQF) framework for creating quality metrics, a radiology practice can create and adopt quality metrics to help drive performance improvement. We will use case examples to demonstrate how measuring quality can help improve performance within the radiology department and the healthcare enterprise. The panel discussion will focus on how you can take practical steps in measuring quality and how to use quality metrics for performance improvement.

RC126B • Using Quality Metrics to Drive Change and Improve Quality within a Radiology Department

Paul G Nagy PhD (Presenter)

LEARNING OBJECTIVES

1) Discuss the National Quality Forum model for evaluating quality metrics based upon Importance, Repeatability, Feasibility, and Usability. 2) Identify informatics mechanisms to assist in the capture, collection, analysis, and communication of quality metrics within Radiology. 3) Talk about actionable information and how to use quality metrics to drive change and enable effective management oversight.

RC126C • Using Quality Metrics to Drive Change and Improve Quality Across the Enterprise

Kevin W McEnery MD (Presenter) *

LEARNING OBJECTIVES

1) Understand potential to leverage the Electronic Medical Record to drive changes within radiology departments. 2) Learn about the benefits of extending radiology workflow into the enterprise to enhance workflow processes within radiology departments. 3) Appreciate capabilities of coordinating patient schedule activities to improve radiology performance and clinical interactions with clinicians in the Emergency Center and In-patient setting.

ABSTRACT

The Future of Radiology: What Are the Threats and How to Respond to Them



RC127 • AMA PRA Category 1 Credit™:1.5

Vijay M Rao, MD
David C Levin, MD *
Jonathan W Berlin, MD *

LEARNING OBJECTIVES

1) Understand the threats facing individual radiology practices. 2) Understand the more global threats to the radiology community at large. 3) Become aware of steps radiologists can take to protect their practices. 4) Consider actions the radiology community and its major organizations can take to deal with some of the external threats.

ABSTRACT

There are numerous threats facing the radiology community and individual radiology practices. These range from declining reimbursements to reduced procedure volumes to predatory corporations to the perception that imaging is being overused to aggressive hospital administrations to overstated concerns about radiation, and others. We will discuss these threats. But this is not a time to give in to pessimism. There are many steps radiologists and the organizations representing them can take to assure the future of the specialty. These steps will be presented in detail.

Interactive Game: MR Imaging Innovations for the Oncological Practice: Case-based Instruction



RC129 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

LEARNING OBJECTIVES

This interactive session will use RSNA Diagnosis Live. Please bring your charged mobile wireless device (phone, tablet or laptop) to participate.

RC129A • Whole Body Diffusion-weighted Imaging - Tips, Tricks, and Pitfalls

Dow-Mu Koh MD, FRCR (Presenter)

LEARNING OBJECTIVES

1. Understand the development of whole body diffusion-weighted MRI and its relevance for disease detection, especially in the oncologic practice. 2. Learn how to perform and optimize whole body diffusion-weighted MRI for disease assessment. 3. Recognize common artifacts in whole body diffusion-weighted MRI and how to address these. 4. Review interpretative pitfalls in using whole body diffusion-weighted MRI for disease evaluation.

ABSTRACT

Whole body Diffusion-weighted MRI (WB-DWI) can be applied for disease detection, tumor staging and the assessment of treatment response. With recent MR hardware and technological innovations, the technique can be performed on most current MR system within 30-40 minutes, without the need for intravenous contrast administration. The technique is most robust when performed at 1.5T, as the technique is more sensitive to artefacts that may arise from magnetic field inhomogeneity at 3.0T. Whole body diffusion-weighted MRI is usually acquired with T1-weighted morphological images for disease evaluation. The high contrast of disease against the signal suppressed background produces "at-a-glance" high-b-value images, which aid disease detection and assessment. However, meticulous technique is required to maximize image signal-to-noise and to minimize artifacts. The WB-DWI high b-value images should be interpreted together with the morphological images and apparent diffusion coefficient (ADC) maps. Knowledge of potential interpretive pitfalls is important to avoid mistakes and establish this relatively new modality within the radiologic practice.

RC129B • Whole Body Diffusion MRI - Making Sense of the Bone Marrow

Anwar R Padhani MD (Presenter) *

LEARNING OBJECTIVES

1) To illustrate how whole body; MRI with diffusion can address the limitation of conventional imaging of the bone marrow for bone lesion detection, staging and disease follow-up. 2) To show that appearances of the bone marrow diffusion imaging is related to the cellular content of the bone marrow in health and disease. 3) To demonstrate that lesion conspicuity varies by histological type, tumor grade and that lytic bone deposits are better seen than sclerotic lesions. 4) To discuss false positive and negative cases and how to avoid misinterpretations. 5) To inform on the number of patterns that can be seen in progression and with success which are dependent on degree of marrow infiltration, mechanism of action of treatments and underlying response of bone tissue.

ABSTRACT

Accurate assessments of skeletal disease burden and response evaluations of patients with bone metastases are notoriously difficult. Current methods of assessing tumor response at skeletal sites do not always enable the positive assessment of therapeutic benefit to be made but instead provide an evaluation of progression, which then guides therapy decisions in the clinic. Whole body DW imaging (WB-DWI) has emerged as a promising bone marrow assessment tool for detection and therapy monitoring of bone metastases. On WB-DWI, lytic skeletal metastases appear as focal or diffuse areas of high-signal intensity on high b-values on a background of lower signal intensity of the normal bone marrow. Metastasis detection with DWI should be done with anatomical MRI; a recent meta-analysis demonstrated high sensitivity of WB-DWI to detect metastases at the expense of specificity. Causes for false-positive findings on WB-DWI include bone marrow edema caused by fractures, osteoarthritis, infection, bone infarcts, vertebral hemangiomas, isolated bone marrow islands and bone marrow hyperplasia. False-negative findings occur when there are low levels of bone marrow infiltration or when background bone marrow hyperplasia obscures metastases. Detection of skeletal metastases may be impaired in areas of body movement and the visibility of skull vault and base infiltrations are impaired because of the adjacent high signal of the brain. False-negative findings also include treated malignant disease and sclerotic deposits. Both high b-value image signal intensity and ADC value changes are needed for therapeutic assessments. A range of imaging findings can be seen depending on the type of therapy and duration of treatment. Diffusion MRI therapy response criteria need to be developed and tested in prospective studies in order to address current, unmet clinical and pharmaceutical needs for reliable measures of tumor response in metastatic bone disease.

RC129C • MR/PET - Is It Ultimate Cancer Imaging Technique?

Pablo R Ros MD, PhD (Presenter) *

LEARNING OBJECTIVES

1) To discuss technical and work flow challenges of MR/PET in Oncologic applications. 2) To demonstrate MR/PET key clinical performance results in Oncologic imaging. 3) To explore the potential of MR/PET for treatment monitoring and predictions of response to therapy.

ABSTRACT

N/A

Standardized Terminology in Radiology: Applications and New Developments

Sunday, 02:00 PM - 03:30 PM • S403A

[Back to Top](#)



RC130 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator

Daniel L Rubin , MD,MS *

LEARNING OBJECTIVES

1) To recognize the need for standardized terminology for radiology imaging examinations. 2) To introduce the RadLex Playbook, which provides standard names for radiology orderables and procedure steps. 3) To demonstrate the value of RadLex Playbook in applications to improve radiology practice and regulatory compliance.

ABSTRACT

Every hospital performs virtually the same types of imaging procedures, but they all name them differently. The lack of a standardized naming scheme for radiology procedures thwarts the ability of radiologists and hospitals to share data or to consistently measure and track imaging procedures in a standard way. The need for standard imaging procedure names recently has been heightened by the emergence of a national dose registry that will establish benchmarks on dose exposure and by interest by FDA and other organizations to track and improve quality measures related to imaging. Thus, the RSNA RadLex project recently created the Playbook, a system for creating standard names for radiology procedures and procedure steps. The RadLex Playbook provides a comprehensive set of standard names in addition to a grammar that enables institutions to map their existing list of terms to Playbook terms. Existing hospital information technology infrastructure can thus adopt Playbook immediately and begin deriving the benefits from this standard terminology. In this presentation we will introduce the Playbook, describe experience adopting it at several institutions, and present use cases on how it will enable radiologists and hospitals to meet emerging regulatory requirements and participate in national quality initiatives. Hospitals, payers, registries, researchers, radiologists, and even patients will be able to refer to their imaging studies using a common language and communicate radiology information unambiguously.

RC130A • Terminology Standardization in CT: Progress and Challenges

Thalia T Mills PhD (Presenter)

LEARNING OBJECTIVES

1) Identify challenges associated with non-standard CT terminologies. 2) Compare currently available standard CT lexicons. 3) Explain the role of consensus standards in FDA's regulation of radiological devices.

ABSTRACT

The inconsistency in names used for CT acquisition and reconstruction parameters across different scanner models can be confusing to operators, possibly leading to unnecessary radiation exposure or poor image quality. The AAPM Working Group on Standardization of CT Nomenclature and Protocols (WGCTNP) is working toward a set of consensus recommended CT parameter terms and definitions. Ongoing work includes: identifying relevant terms from existing standard lexicons; mapping generic terms to vendor-specific terminology (lexicon published on the AAPM 'CT Scan Protocols' website); and identifying preferred names based on use in the literature and clinical practice.

RC130B • RadLex® Playbook: Standardized Terminology for Naming and Coding Imaging Procedures

Daniel L Rubin MD,MS (Presenter) *

LEARNING OBJECTIVES

1) To recognize the need for standardized terminology for radiology imaging examinations. 2) To introduce the RadLex Playbook, which provides standard names for radiology orderables and procedure steps. 3) To demonstrate the value of RadLex Playbook in applications to improve radiology practice and regulatory compliance.

ABSTRACT

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RC130C • Standard Terminology for Radiology Reporting

Charles E Kahn MD, MS (Presenter) *

LEARNING OBJECTIVES

1) Define the roles of standardized vocabularies in radiology reporting. 2) Describe how terms from standardized vocabularies are being incorporated to RSNA's radiology reporting templates. 3) Understand how standardized vocabularies allow reporting templates and radiology reports to be interoperable across a variety of languages, information systems, and applications.

ABSTRACT

Standardized terminologies can help radiologists communicate the results of imaging procedures more effectively. A well-defined terminology can eliminate ambiguity, and can guide radiologists to use appropriate descriptive terms. Standardized vocabularies can overcome language barriers and the limitations of proprietary systems. This presentation will explore the roles of standardized terminologies in the reporting templates being developed by the RSNA Reporting Initiative. Structured reporting gives radiologists the opportunity to incorporate controlled vocabularies, such as RadLex, into their reports to enhance the reports' clinical usefulness, facilitate data extraction, and improve quality.

What Is Driving Health Care Reform and How It Is Changing Your Radiology Practice

Sunday, 02:00 PM - 03:30 PM • S502AB

[Back to Top](#)

RC132A • A Brief History of Health Care Reform**Bernard F King** MD (Presenter)

LEARNING OBJECTIVES

1) Understand the historical drivers of healthcare reform. 2) Understand the important milestones in healthcare Reform over the last 100 years. 3) Understand the major goals of the Affordable Care Act (ACA).

ABSTRACT

This refresher course will review three major aspects of Healthcare Reform: 1) Historical drivers and milestones of healthcare Reform over the last 100 years, 2) The major implications of the Affordable Care Act (ACA) on Radiology and 3) Contemporary examples of how this is being carried out in the state of Massachusetts. The historical drivers and milestones in healthcare reform over the last 100 years is important to understand current changes and vehicles involved in payment schemes that exist today. The major implications of the Affordable Care Act on radiology are key in understanding how current and future healthcare reforms will reshape medicine and radiology. Finally, current practices occurring in Massachusetts are the most revealing and telling picture of how all these healthcare reforms will affect the practice of medicine and radiology in the United States for many years to come.

RC132B • Impact of Health Care Reform on Radiology: Intended and Unintended**Lawrence R Muroff** MD (Presenter)

LEARNING OBJECTIVES

1) Discuss the key elements of health reform as they impact radiology. 2) Develop strategies to deal with the intended and unintended consequences of health care reform. 3) Describe some of the alternative payment mechanisms that will be competing with fee-for-service, and discuss how radiologists will fit into these new compensation dynamics.

ABSTRACT

MR Imaging-guided Breast Biopsy (Hands-on Workshop)**Sunday, 02:00 PM - 03:30 PM • E260**[Back to Top](#)**RC150 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5****Peter R Eby**, MD**Alice S Rim**, MD**Annamaria Wilhelm**, MD ***Janice S Sung**, MD**Mary C Mahoney**, MD ***Michelle D McDonough**, MD**Simone Schradling**, MD**Laura B Shepardson**, MD**Christiane K Kuhl**, MD ***Gary J Whitman**, MD ***Michael P McNamara**, MD ***Elizabeth R Deperi**, MD**W. Phil Evans**, MD ***Roberta A Jong**, MD ***Francesca D Beaman**, MD**Elsie Levin**, MD ***Carol H Lee**, MD**Wendy B Demartini**, MD ***Hiroyuki Abe**, MD**Margarita L Zuley**, MD**Stamatia V Destounis**, MD**Jennifer R Cranny**, MD**Michael N Linver**, MD ***Robert L Gutierrez**, MD

LEARNING OBJECTIVES

1) Establish criteria for MR-guided breast biopsy patient selection. 2) Cultivate a working understanding of MR-guided biopsy and needle localization instrumentation and implementation. 3) Understand basic MR-guided biopsy and needle localization parameters and requirements for appropriate coil, needle and approach selection. 4) Consider patient management before, during and after MR-guided breast biopsy. 5) Explore benefits and limitations of availability of MR-guided biopsy/needle localization in your practice. 6) Practice the MR-guided biopsy procedure on phantoms with multiple needle and coil combinations.

ABSTRACT

This course is intended to provide both basic didactic instruction and hands-on experience in the application of MR-guided breast biopsy and needle localization. Because of the established role of breast MRI in the evaluation of breast cancer through screening and staging, there is a proven need for MR-guided biopsy and needle localization of the abnormalities that can only be identified at MRI. This course will be devoted to the understanding and identification of: 1) appropriate patient selection 2) optimal positioning for biopsy 3) target selection and confirmation 4) various biopsy technologies and techniques 5) potential problems and pitfalls and 6) practice audits. Participants will spend 30 minutes in didactic instruction followed by 60 minutes practicing MR-guided biopsy with phantoms placed in various combinations of full size state-of-the-art breast MRI coils, biopsy localization equipment and needles.

Introduction to Cardiac MR: Infarcts, Cardiomyopathies and Masses (How-to Workshop)**Sunday, 02:00 PM - 03:30 PM • E261**[Back to Top](#)**RC151 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5****Kristopher W Cummings**, MD ***Michael K Atalay**, MD, PhD**Antonio Luna**, MD

LEARNING OBJECTIVES

1) Differentiate myocardial ischemia from myocardial infarction on dynamic stress perfusion myocardial MR. 2) Distinguish areas of infarcted myocardium unlikely to benefit from revascularization from those that would. 3) List three patterns of delayed contrast enhancement seen on cardiac MR which are not seen in infarct-related cardiomyopathy. 4) Provide a narrowed differential diagnosis in the case of non-ischemic cardiomyopathy using the predominate pattern of delayed contrast hyperenhancement on MR. 5) Analyze the key features in differentiation between tumoral and non tumoral cardiac masses, and MRI signs favoring malignancy. 6) Integrate the MRI information in the differential diagnosis of cardiac masses according to their location.

ABSTRACT

The use of magnetic resonance imaging for the evaluation of cardiac pathology continues to increase. Therefore, it is important for radiologists to be familiar with the basic techniques of cardiac MR and common pathologies encountered in such a referral population. Given the widespread prevalence of atherosclerotic coronary disease, cardiac MR is commonly used in the evaluation of myocardial infarction and viability prior to potential coronary revascularization. However, the role of cardiac MR has expanded in recent years to include assessment of ischemia by virtue of dynamic contrast injection without and during the administration of pharmacologic stress agents. Cardiac MR is extremely useful in the evaluation of non-ischemic cardiomyopathy which is often a challenging clinical diagnosis. Using delayed contrast enhanced sequences, non-ischemic causes can be differentiated from infarct-related disease and the etiological differential diagnosis can be narrowed. Finally, cardiac MR is frequently used in the evaluation of cardiac masses detected on other cross-sectional imaging or echocardiography. Utilizing a combination of MR signal characteristics, mass location and contrast enhancement, differentiation of tumoral from non-tumoral masses can be made and, in the case of neoplasms, characteristics suggestive of malignancy can be identified.

Techniques for Interventional Sonography and Thermal Ablation (Hands-on Workshop)**Sunday, 02:00 PM - 03:30 PM • E264**[Back to Top](#)

[US](#) | [IR](#)

RC152 • *AMA PRA Category 1 Credit*™:1.5 • ARRT Category A+ Credit:1.5

Stephen C O'Connor, MD
William E Shiels, DO *
Aida F Cossi, MD
Michael V Krasnokutsky, MD
Mark L Lukens, MD
Kenneth S Lee, MD *
Manish N Patel, DO
Hollins P Clark, MD,MS
Mark J Hogan, MD
Carmen Gallego, MD
Neil V Patel, MD
Robert D Lyon, MD
Patrick Warren, MD
Maresh M Thapa, MD
Kristin M Dittmar, MD

LEARNING OBJECTIVES

1) Identify basic skills, techniques, and pitfalls of freehand invasive sonography. 2) Discuss and perform basic skills involved in thermal tumor ablation in a live learning model. 3) Perform specific US-guided procedures to include core biopsy, abscess drainage, vascular access, cyst aspiration, soft tissue foreign body removal, and radiofrequency tumor ablation. 4) Incorporate these component skill sets into further life-long learning for expansion of competency and preparation for more advanced interventional sonographic learning opportunities.

ABSTRACT

Introduction to Social Media (Hands-on Workshop)

Sunday, 02:00 PM - 03:30 PM • S401CD

[Back to Top](#)

[IN](#)

RC153 • *AMA PRA Category 1 Credit*™:1.5

Safwan Halabi, MD
Garry Choy, MD, MS
C. Matthew Hawkins, MD

LEARNING OBJECTIVES

1) Understand the different methods of communication offered by Facebook and Twitter. 2) Be able to establish active accounts/profiles on basic, mainstream social media platforms.

ABSTRACT

Introduction to Workflow Engines, Hands-on with an Open-source Platform

Sunday, 02:00 PM - 03:30 PM • S401AB

[Back to Top](#)

[IN](#)

RC154 • *AMA PRA Category 1 Credit*™:1.5 • ARRT Category A+ Credit:1.5

Bradley J Erickson, MD, PhD *
Steve G Langer, PhD
Daniel J Blezek, PhD

LEARNING OBJECTIVES

1) Become familiar with workflow engine technology and how it relates to databases and imaging systems. 2) Attempt to build a workflow for an imaging task using a graphical workflow builder and workflow engine.

ABSTRACT

IN this hands-on session, attendees will be given the chance to observe and then operate a workflow engine that has been adapted to medical imaging tasks. The session will begin with a description of what a workflow engine is, and how it compares with other technologies used in imaging departments. We will then describe adaptations we made to a standard workflow engine, to make it more amenable to medical imaging departments. Finally, we will have each attendee attempt to create a simple workflow, deploy it, and then run it. At the end of the session, attendees should be familiar with the strengths and weaknesses of workflow engines, and how they complement existing systems in an imaging department.

Structured Annotation and Image Markup (AIM) Template and Toolsets: Hands-on Workshop

Sunday, 04:00 PM - 05:30 PM • S401CD

[Back to Top](#)

[IN](#)

ICIA12 • *AMA PRA Category 1 Credit*™:1.5 • ARRT Category A+ Credit:1.5

Pattanasak Mongkolwat, PhD
Justin Kirby
Vladimir Kleper

LEARNING OBJECTIVES

1) To introduce the participant to collecting image annotations as coded terminologies in a structured manner using NCIP Annotation and Image Markup (AIM) Version 4.0. 2) To provide an overview of and where to obtain the AIM tools used to create image annotations. 3) To provide an end-to-end demonstration on how to use the tools including AIM Template Builder, AIM Template Service, and AIM on Clearcanvas.

ABSTRACT

One of the major challenges associated with **big data** as it relates to imaging informatics is the lack of structured metadata for collecting image annotation information. The Annotation and Imaging Markup (AIM) version 4.0 information model captures pixel descriptions of an image interpreted by a human or machine with graphical drawings and related calculation results placed on the image into a single common information source. This course will demonstrate how the AIM project tools generate annotations and markup using coded terminologies in a way that automatically maintains the association to the images. The result is an interconnected suite of tools which allows researchers to easily generate minable structured metadata for research.

In this course, participants will receive an overview on generating image annotations and markup as coded terminologies in a structured manner utilizing freely available open source tools developed through the National Cancer Informatics Program (NCIP). First, we will introduce the AIM Template Builder for creating structured data entry templates. Next, we will discuss the AIM Template Service which allows for centralized storage and sharing of these AIM templates. Finally, we will cover the AIM on Clearcanvas workstation which is used to import and display the AIM templates alongside the image data and allows for structured annotation and markup creation. These tools allow study designers and imaging interpreters to focus on clinical problems and the types of information needed for collection without also comprehensively understanding the AIM model.

Ergonomics

Sunday, 04:00 PM - 05:30 PM • S501ABC

[Back to Top](#)

[IN](#)

ICII12 • *AMA PRA Category 1 Credit*™:1.5 • ARRT Category A+ Credit:1.5

William J Weadock, MD *
Eliot L Siegel, MD *

LEARNING OBJECTIVES

1) The attendee will learn how the radiology reading room environment can physically affect the radiologist. 2) Learn about repetitive stress injuries and how they may affect radiologists and technologists. 3) Learn about how PACS workstations (including mice, keyboards, screens, etc. room lighting, sounds and temperature; and room furniture may be optimized to help prevent repetitive stress injuries. 4) Learn how radiologic technologists can also be affected by repetitive stress injuries.

ABSTRACT

This presentation will review the features of a reading a study at a PACS, and the interactions of the radiologist with the various devices. This includes desktops/tables height, chairs, keyboard location, monitor position, mouse position (and cleanliness), microphone positioning, room temperature, sound volume, ambient light, and body positioning. Each of these components will be discussed, showing how to prevent future problems with repetitive stress disorders. The goal is to raise awareness of ergonomics for the radiologist.

The RSNA Image Share Network - How It Operates and How to Put It into Your Office

Sunday, 04:00 PM - 05:30 PM • S401AB

IN

[Back to Top](#)

ICIW12 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

David S Mendelson, MD *
Steve G Langer, PhD

LEARNING OBJECTIVES

1) Understand the different means of sharing images and reports. 2) Describe the functional model of the RSNA Image Share system. 3) Identify the elements of the IHE XDS-I employed in the solution. 4) Learn about the technical architecture of the RSNA Image Share and plans for future development. 5) Learn how a site can participate in the RSNA Image Share, obtain an Edge Server and enroll patients.

Practical Issues in Chest Imaging: Case-based Approach (An Interactive Session)

Monday, 08:30 AM - 10:00 AM • E353C

OI CT CH

[Back to Top](#)

RC201 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC201A • Pulmonary Infection

Lacey Washington MD (Presenter)

LEARNING OBJECTIVES

1) Recognize a broad range of potential radiographic findings of acute infection. 2) Recognize clinically relevant features in infection imaging. 3) Recognize findings that are not characteristic of community-acquired pneumonia and that suggest an alternate diagnosis.

RC201B • Lung Cancer: Hiding in Plain Sight

Eric J Stern MD (Presenter)

LEARNING OBJECTIVES

1) Understand characteristics of missed lung cancers on CXR. 2) Understand how we visually search. 3) Be aware of common observer errors. 4) Know CXR hiding spots. 5) Be aware of some ancillary diagnostic tools.

ABSTRACT

Have you ever missed a lung cancer on CXR? Missed lung cancer is one of most frequent causes for malpractice lawsuits in radiology in USA This lecture:

Focus on detecting smaller cancers -Opportunities for earlier detection

-Potentially better survival?

-Characteristics of missed lung cancers

-Visual searching pitfalls Common Observer errors: -Scanning error

(failing to look at the abnormality)

-Recognition error

(looking at the abnormality but not identifying it)

-Attention error

(distractions)

-Decision making:

identifying abnormality but deciding to ignore it -Satisfaction of search Contributing factors: -Lesion Characteristics

-Density, margins, etc

-Other distractors Eg. Superimposed diseases, artifacts, etc.

-History

-Technical considerations

Recognize common hiding spots Other Diagnostic Tools

RC201C • Management of Sub-Solid Lung Nodules: How I Do It...

Myrna C Godoy MD, PhD (Presenter)

LEARNING OBJECTIVES

1) To comprehend the new IASLC/ATS/ERS classification of lung adenocarcinomas and its correlation with subsolid nodules. 2) To review the current approach to diagnosis and management of subsolid pulmonary nodules.

ABSTRACT

The term subsolid nodule includes pure ground-glass nodules (GGNs) and part-solid nodules (PSNs), which are mixed ground-glass/solid lesions. Strong correlation has been demonstrated between the histologic findings of lung adenocarcinoma with lepidic growth pattern and the CT appearance of persistent subsolid nodules. Radiologists should be familiar with the new classification of lung adenocarcinoma that has been recently proposed by the International Association for the Study of Lung Cancer, American Thoracic Society and European Respiratory Society. Serial CT imaging has demonstrated stepwise progression of these nodules in a subset of patients, characterized by increase in size and density of GGNs and development of a solid component. Given the slow growth rate of GGNs, standardized guidelines with long-term (= 3 years) CT follow-up have been proposed using low-dose CT technique.

RC201D • Post-Operative Chest Imaging

Jo-Anne O Shepard MD (Presenter) *

LEARNING OBJECTIVES

1) To demonstrate the radiologic appearance of expected and unexpected complications of thoracic surgical appearances through a case-based approach. 2) An understanding of the surgical procedures and expected findings will facilitate the recognition of complications. 3) Prompt identification of post-operative complications in a timely and accurate way will improve post-operative morbidity.

Teaching Leadership Strategies to Residents for Future Health Care Challenges

Monday, 08:30 AM - 10:00 AM • S502AB

LM HP ED

[Back to Top](#)

RC202 • AMA PRA Category 1 Credit™:1.5

Vijay M Rao, MD
Richard E Sharpe, MD, MBA
Carol M Rumack, MD

LEARNING OBJECTIVES

1) Describe specific ways that residents can participate in important radiology leadership and advocacy opportunities in order to enhance the future of radiology. 2) Appreciate the potential power of leveraging technology to provide leadership and further the specialty of radiology. 3) Understand relevant leadership skills that radiology residents must learn in order to address emerging challenges in the current and future practice of radiology. 4) Develop an appreciation for the role of organized radiology as a means to shape the future of our specialty. 5) Articulate the challenges facing radiology as a specialty in the era of new healthcare delivery models and healthcare reform.

ABSTRACT

Leadership skills will be essential to the successful careers of all radiology residents and fellows. Ten key points aimed at improving your success in academic medicine will help you in planning your career and gaining effective mentoring as you start your career.

Imaging for Electrophysiology

Monday, 08:30 AM - 10:00 AM • E351

MR CT CA

[Back to Top](#)

RC203 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC203A • CT

Benoit Desjardins MD, PhD (Presenter)

LEARNING OBJECTIVES

1) Identify the aspects of clinical cardiac electrophysiology which can benefit from imaging. 2) Compare the use of different imaging modalities in cardiac electrophysiology. 3) Understand the technical difficulties and solutions to image patients with arrhythmia and/or implanted devices. 4) Practice the current techniques for imaging in cardiac electrophysiology. 5) Assess the potential of the latest technological innovations and advances in imaging to enhance clinical practice and problem solving in cardiac electrophysiology.

ABSTRACT

This lecture is part of a vertical combined refresher course and scientific abstract session. The lectures will alternate with the relevant scientific abstracts, and will be tailored to provide the necessary background and overview relevant to the different accompanying scientific abstracts. The content of these refresher course lectures will therefore vary according to the content of the accompanying scientific abstracts. The lecture will include some of the following topics: - Overview of the aspects of clinical cardiac electrophysiology which can benefit from imaging. - Comparison of the different imaging modalities in cardiac electrophysiology, including CT, MRI, echocardiography, rotational angiography and electroanatomical mapping. - Technical difficulties and solutions to image patients with arrhythmia - Technical difficulties and solutions to image patients with implanted devices. - Latest cutting edge imaging techniques for cardiac electrophysiology. - Use of 3D imaging to guide cardiac ablation therapy - Real time image-guided cardiac electrophysiology

RC203B • MRI

Scott D Flamm MD (Presenter) *

LEARNING OBJECTIVES

1) Recognize the advantages and limitations of MRI versus CT for the pre- and post-ablation imaging in cardiac electrophysiology. 2) Identify the clinical scenarios where clinical cardiac electrophysiology may benefit from MR imaging. 3) Understand the technical difficulties and potential solutions to image patients with arrhythmias. 4) Recognize the limitations and necessary precautions and planning needed when considering imaging patients with implanted devices.

ABSTRACT

See Abstract above.

RC203C • Clinical Perspective

Bradley Knight MD (Presenter) *

LEARNING OBJECTIVES

1) To understand the value of intracardiac echocardiography in the EP laboratory. 2) Define the role of MR and CT prior to ablation procedures for atrial fibrillation. 3) Appreciate the indications for TEE guided EP procedures including LAA occlusion.

No Course RC204. See Series VSMK21 Musculoskeletal Radiology Series: Knee Imaging

Monday, 08:30 AM - 10:00 AM

[Back to Top](#)

RC204

No Course RC205. See Series VSNR21 Neuroradiology Series: Spine

Monday, 08:30 AM - 10:00 AM

[Back to Top](#)

RC205

Head and Neck Top Ten: Missed Diagnoses and Imaging Pearls (An Interactive Session)

Monday, 08:30 AM - 10:00 AM • E450A

NR HN

[Back to Top](#)

RC206 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Deborah R Shatzkes, MD
Richard H Wiggins, MD

LEARNING OBJECTIVES

1) To identify imaging findings in some of the most commonly missed diagnoses in the Head and Neck, including those within the neck, temporal bone, paranasal sinuses, skull base and orbits. 2) To review the most salient radiologic and clinical features of these diagnoses, as well as the most important differential considerations. 3) To suggest scan review techniques that will help the radiologist consistently make these diagnoses.

ABSTRACT

The Head and Neck can be a challenging area for the radiologist, in that some findings are easily missed, and others are frequently misinterpreted. Some of the more common 'misses' in HeadN radiology occur because findings are subtle and will not be obvious to the examiner unless they are the subject of a specific and systematic search. A classic example is fenestral otosclerosis. This relatively common diagnosis (found in up to 10% of autopsy specimens!) will invariably be missed unless the radiologist specifically interrogates its most common site of presentation, the fissula ante fenestram, along the anterior margin of the oval window. There, only a small lucent focus may be discovered, yet this will reflect the etiology of the patient's hearing loss, while the remainder of the scan is entirely normal. The temporal bone is the site of another commonly missed diagnosis, labyrinthitis. In this scenario, the patient presents with sensorineural hearing loss, and the radiologist is able to rule out the most common listed study indication, 'acoustic neuroma.' Yet, labyrinthitis is a statistically more common cause of hearing loss, though the findings of abnormal signal in the membranous labyrinth may be extremely subtle. When 'tunnel vision' is applied in the setting of hearing loss, and scan interrogation is limited to the IAC and CPA, the findings of labyrinthitis will invariably be missed. Familiarity with some of the diseases specific to the HandN will help reduce the likelihood of misinterpretation of findings. An example that has recently gained attention in the literature is HPV-related squamous cell carcinoma of the oropharynx. These cancers frequently metastasize to upper jugular lymph nodes, and these nodes are frequently cystic. As such, there has been a near epidemic of cystic metastatic lymph nodes mistakenly called second branchial cleft cysts. Beware this diagnosis in the adult patient!

Interactive Game: A Case-based Audience Participation Session (Genitourinary)

Monday, 08:30 AM - 10:00 AM • E353A

GU

[Back to Top](#)

RC207 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Coordinator
Paul J Chang, MD *
Evis Sala, MD, PhD
Mitchell E Tublin, MD

LEARNING OBJECTIVES

1) The participant will be introduced to a series of Genitourinary case studies via an interactive team game approach designed to encourage active consumption of educational content. 2) The participant will be able to use their mobile wireless device (tablet, phone, laptop) to electronically respond to various Genitourinary case challenges; participants will be able to monitor their individual and team performance in real time. 3) The attendee will receive a personalized self-assessment report via email that will review the case material presented during the session, along with individual and team performance. This interactive session will use RSNA Diagnosis Live. Please bring your charged mobile wireless device (phone, tablet or laptop) to participate

ABSTRACT

The extremely popular audience participation educational experience is back! GU Diagnosis Live is an expert-moderated session featuring a series of interactive Genitourinary case studies that will challenge radiologists' diagnostic skills and knowledge. Building on last year's successful Diagnosis Live premiere, GU Diagnosis Live is a lively, fast-paced game format: participants will be automatically assigned to teams who will then use their personal mobile devices to test their knowledge of GU radiology in a fast-paced session that will be both educational and entertaining. After the session, attendees will receive a personalized self-assessment report via email that will review the case material presented during the session, along with individual and team performance.

No Course RC208. See Series VSER21 Emergency Radiology Series: Advanced Concepts in Imaging of Trauma

Monday, 08:30 AM - 10:00 AM

[Back to Top](#)

RC208

No Course RC209. See Series VSIG121 Gastrointestinal Series: Emerging Issues in Abdominal CT

Monday, 08:30 AM - 10:00 AM

[Back to Top](#)

RC209

First Trimester Ultrasound

Monday, 08:30 AM - 10:00 AM • S405AB

[Back to Top](#)

[US](#) [OB](#) [GU](#)

RC210 • AMA PRA Category 1 Credit™: 1.5 • ARRT Category A+ Credit: 1.5

RC210A • Diagnosis of Nonviable Pregnancy

Peter M Doubilet MD, PhD (Presenter)

LEARNING OBJECTIVES

1) Know the sonographic criteria for definite miscarriage and probable miscarriage in the early first trimester. 2) Understand that any saclike intrauterine structure (rounded edges, no yolk sac or embryo) in a woman with a positive pregnancy test is highly likely to be a gestational sac. 3) Understand that nonvisualization of an intrauterine gestational sac in a woman with hCG above the 'discriminatory' level (2000 mIU/ml) does not exclude the possibility of a viable pregnancy.

ABSTRACT

I. Sonographic Criteria for Diagnosing Pregnancy Failure (Miscarriage) in an Intrauterine Pregnancy of Uncertain Viability [Note: an intrauterine fluid collection with rounded edges in a woman with positive hCG is almost certainly a gestational sac; it is definitely a gestational sac if it contains a yolk sac or embryo.] 1. Criteria for definite miscarriage (i) CRL = 2 weeks after a scan that showed a gestational sac without yolk sac; (iv) Absence of embryo with heartbeat ≥ 11 days after a scan that showed a gestational sac with yolk sac 2. Criteria suspicious for miscarriage (i) CRL = 6 weeks after LMP; (vi) Empty amnion (amnion seen adjacent to yolk sac, with no visible embryo); (vii) Enlarged yolk sac (> 7 mm); (viii) Small gestational sac size in relation to the embryo II. Guidelines Related to the Possibility of a Viable Intrauterine Pregnancy in a Pregnancy of Unknown Location (positive pregnancy test and no intrauterine or ectopic pregnancy seen on ultrasound) 1. A single hCG, regardless of its level, does not reliably distinguish between ectopic and intrauterine pregnancy (viable or nonviable) 2. If a single hCG is ≥ 3000 mIU/ml, a viable intrauterine pregnancy is possible but unlikely. However, the most likely diagnosis is nonviable IUP, so it is generally appropriate to get at least one followup hCG before treating for ectopic pregnancy.

RC210B • Diagnosis and Treatment of Ectopic Pregnancy

Hope E Peters MD (Presenter)

LEARNING OBJECTIVES

1) Recognize the spectrum of findings at transvaginal ultrasound in ectopic pregnancy. 2) Report TVUS findings in suspected ectopic pregnancy when a non-specific intrauterine fluid collection is present. 3) Differentiate usual vs. unusual ectopic pregnancies and understand their different treatment algorithms. 4) Understand the limitations of ultrasound related to maternal and technical factors. 5) Assist clinicians with appropriate follow up/management recommendations in excluding and diagnosing ectopic pregnancy.

ABSTRACT

Transvaginal ultrasound is the primary imaging modality to evaluate suspected ectopic pregnancy, performed in patients with a positive pregnancy test and pain or bleeding. The diagnosis is most commonly made when ultrasound demonstrates no intrauterine gestational sac and an extraovarian adnexal mass is found. Ectopic pregnancies occur in the ampulla of the fallopian tube $> 90\%$ of the time and therapy is well established including systemic methotrexate and/or salpingectomy. When attempting to exclude or diagnose ectopic pregnancy, TVUS may demonstrate a non-specific intrauterine fluid collection. The term pseudogestational sac should not be used to describe an intrauterine fluid collection as this term can be confusing and improperly imply ectopic pregnancy prompting premature treatment. Rather, any intrauterine fluid collection should be regarded as a potential intrauterine pregnancy and reported as such. Ectopic pregnancies may also occur in unusual locations such as: the cervix, a cesarean section scar, the interstitial portion of the fallopian tube, within the ovary or concomitant with an intrauterine pregnancy. These unusual ectopic pregnancies are a unique subset of ectopic pregnancies requiring prompt diagnosis and alternative treatment options. Ultrasound does carry with it some limitations in the diagnosis of ectopic pregnancy related to both maternal and technical factors. Prompt diagnosis of all types of ectopic pregnancy and recognizing potential early intrauterine pregnancies will allow for appropriate follow up, optimal treatment and improve outcomes for these patients.

RC210C • The Fetus in the First Trimester

Carol B Benson MD (Presenter)

LEARNING OBJECTIVES

1) Use ultrasound during the first trimester to confirm the normal development of various fetal structures at specific gestational ages. 2) acquire the correct sonographic image to measure the fetal nuchal translucency between 11 and 14 weeks gestation and recognize when the nuchal translucency is abnormal. 3) use ultrasound to detect certain serious anomalies of the fetal cranium and brain during the latter half of the first trimester. 4) distinguish between normal physiologic herniation of the bowel into the base of the umbilical cord from a ventral wall defect, such as an omphalocele or gastroschisis in the first trimester.

ABSTRACT

As sonographic technology has improved, diagnosticians have gained the ability to visualize more fetal structures during the first trimester than used to be possible with older equipment. Because of this, it is important that practitioners who perform and interpret first trimester ultrasound understand how the fetus develops and recognize the sonographic appearance of fetal structures as they become apparent at different gestational ages during the first trimester. Some fetal structures are only visible in the first trimester fetus, but are no longer apparent after that. These include the nuchal translucency and physiologic bowel herniation. The nuchal translucency is a hypoechoic band behind the fetal neck, that, when thickened, is associated with increased risk of aneuploidy and cardiac anomalies. Physiologic bowel herniation is a normal protrusion of bowel into the base of the umbilical cord that can usually be distinguished from abnormal herniations through the ventral wall, such as omphalocele and gastroschisis. The fetal cranium and brain can be evaluated during the latter half of the first trimester, and anomalies such as anencephaly and holoprosencephaly can often be diagnosed. Likewise, other anomalies of the fetus can sometimes be diagnosed during the first trimester, including amniotic band syndrome, posterior urethral valves, and cardiac anomalies. Recognition of these anomalies in the first trimester will assist in early detection of fetal abnormalities, allowing for earlier and improved counseling for patients.

No Course RC211. See Series VSNM21 Nuclear Medicine Series: Assessment of Cancer Treatment Response: Updates

Monday, 08:30 AM - 10:00 AM

[Back to Top](#)

RC211

Imaging and Endografts

Monday, 08:30 AM - 10:00 AM • S504AB

[Back to Top](#)**RC212** • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5**RC212A • TEVAR Indications and Outcomes****Michael D Dake MD (Presenter) ***

LEARNING OBJECTIVES

1) Understand the current applications of thoracic endografts for management of thoracic aortic pathologies. 2) Recognize the benefits and existing limitations of current endograft technologies for treatment of different aortic lesions. 3) Identify the complications and failure modes of TEVAR. 4) Know the current outcome metrics typically evaluated after TEVAR treatment of thoracic aneurysms and aortic dissections. 5) List the important imaging findings and criteria currently used to assess the suitability of aortic anatomy for TEVAR.

RC212B • New Endografts for AAA**Constantino S Pena MD (Presenter) ***

LEARNING OBJECTIVES

1) Discuss the status of established AAA endografts. 2) Discuss new endografts for the treatment of AAA. Particularly discuss areas of improvement over established endografts. 3) Present data on novel endografts being developed.

RC212C • Post Endograft Essentials**Geoffrey D Rubin MD (Presenter) ***

LEARNING OBJECTIVES

1) To better select the best imaging modality for assessing stent-grafts. 2) To assure that CT acquisition technique is optimized for endoleak detection. 3) To learn how to identify structural failures in endografts.

No Course RC213. See Series VSPD21 Pediatric Radiology Series: Fetal-Neonatal Imaging

Monday, 08:30 AM - 10:00 AM

RC213[Back to Top](#)

No Course RC214. See Series VSIR21 Interventional Radiology Series: Peripheral and Visceral Occlusive Disease

Monday, 08:30 AM - 10:00 AM

RC214[Back to Top](#)

No Course R215. See Series VSBR21 Breast Series: Breast MR Imaging

Monday, 08:30 AM - 10:00 AM

RC215[Back to Top](#)

Vignette-based 'Disclosure of Medical Error in Radiology' (Sponsored by the RSNA Professionalism Committee) (An Interactive Session)

Monday, 08:30 AM - 10:00 AM • E450B

[Back to Top](#)**RC216** • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5**Director****Stephen D Brown , MD****Constance D Lehman , MD, PhD *****Thomas H Gallagher , MD****Elaine C Meyer , PhD, RN**

LEARNING OBJECTIVES

1) Understand error disclosure as an essential tenet of patient care and medical professionalism. 2) Identify barriers to effective error disclosure. 3) Develop strategies for effective disclosure of radiological errors to referring physicians, patients and families.

ABSTRACT

Disclosure of medical error is a daunting communication challenge for all physicians. Like many physicians, radiologists are unlikely to demonstrate full transparency and honesty when a medical error occurs. No educational programs have been developed specifically to help radiologists overcome barriers to disclosure of clinical errors, and learn how to approach communication about disclosure optimally. The objective of this Refresher Course is to enhance radiologists' understanding of and comfort with disclosure of radiological errors to referring physicians and patients. The 90-minute Course will include didactic presentations by clinician scholars in the field of medical error disclosure, and live enactments between trained personnel/actors and Course participants. Didactic material will discuss background information, risks, benefits, and barriers to disclosure, and introduce strategies toward discussing medical errors with patients and treating physicians. Enactments will entail conversations between volunteer Course participants and trained personnel who will portray physicians and patients to whom the Radiologist/participant must disclose an error. The enactments will be followed by debriefings and group discussions.

PET-MR/Hyperpolarized MR

Monday, 08:30 AM - 10:00 AM • S504CD

[Back to Top](#)**RC217** • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5**Moderator****Heike E Daldrup-Link , MD****RC217A • Hyperpolarized 13C MR-A Complementary Method to PET for Imaging in Vivo Metabolism****Daniel M Spielman PhD (Presenter)**

LEARNING OBJECTIVES

1) Assess the basic principles of hyperpolarized 13C MRS, including sample preparation, image acquisition, and data analysis. 2) Differentiate metabolic parameters measurable by hyperpolarized 13C MRS from those obtained with PET. 3) Compare PET versus hyperpolarized 13C MRS sensitivities, spatial resolution, and temporal resolution.

RC217B • MR/PET, A New Perspective of Molecular Imaging**Claus D Claussen MD (Presenter)**

LEARNING OBJECTIVES

1) To learn about the evolution of MR/PET. 2) To become familiar with current MR/PET imaging strategies. 3) To be informed about clinical applications of MR/PET.

RC217C • The Emerging Clinical Role of Hyperpolarized ¹³C MR in Prostate Cancer Imaging

John Kurhanewicz PhD (Presenter) *

LEARNING OBJECTIVES

1) Understand the clinical need and biochemical rationale for the use of hyperpolarized [1-¹³C] pyruvate for prostate cancer imaging. 2) Demonstrate a multi-hyperpolarized probe approach for simultaneously measuring prostate cancer metabolism and tumor micro-environment. 3) Demonstrate the utility of hyperpolarized ¹³C MR for measuring prostate cancer aggressiveness and response to therapy. 4) Demonstrate the safety, clinical feasibility, sensitivity and resolution, and future availability of clinical hyperpolarized ¹³C MR.

RC217D • Brain Dedicated PET-MRI -How Far Are We?

Zang-Hee Cho PhD (Presenter)

LEARNING OBJECTIVES

1) For the study of neurochemical and molecular activities in the human brain In-Vivo. 2) Roles of the ultra-high field MRI and high resolution brain PET and their fusion product.

ABSTRACT

Last decade or so nuclear medicine or molecular imaging has progressed substantially, especially with new brain dedicated PET such as HRRT and the ultra-high field MRI such as 7.0T. Combination of the two, that is HRRT-PET and 7.0T MRI MRI, designed for the brain dedicated molecular imaging began to provide a number of markedly improved images hitherto unavailable by the conventional systems. In this talk, recent development of PET-MRI fusion imaging focused onto the study of a number deep brain structures such as the hippocampus, the thalamus and brainstem would be discussed. For instance, brainstem molecular imaging of the raphe nuclei began to show individually resolved raphe nucleus glucose and serotonin transporter activities and suggesting us the potentials of the technique for to the study of the emotional and affect related disorders.

Pitfalls In Oncologic Imaging

Monday, 08:30 AM - 10:00 AM • E451A

OI

[Back to Top](#)

RC218 • AMA PRA Category 1 Credit [™]:1.5 • ARRT Category A+ Credit:1.5

LEARNING OBJECTIVES

1) Describe some common and important missed and mistaken diagnoses in body oncologic imaging with updated information on common problematic body oncologic imaging findings.

ABSTRACT

Research consistently indicates that there are serious errors in 1.0 to 2.6% of radiology reports, and there is no reason to believe the error rate in body oncologic imaging is substantially different. Accordingly, the recognition of potential pitfalls that may lead to mistakes in diagnosis, especially those that lead to inappropriate management, is of major importance. This course will highlight some of the common and important sources of error, especially those that are not widely appreciated or are newly described.

RC218A • Neuroradiology

Andrei I Holodny MD (Presenter) *

LEARNING OBJECTIVES

View learning objectives under main course title.

RC218B • Body Imaging

Fergus V Coakley MD (Presenter)

LEARNING OBJECTIVES

View learning objectives under main course title.

RC218C • Musculoskeletal Radiology

David M Panicek MD (Presenter)

LEARNING OBJECTIVES

1) Describe various imaging pitfalls in characterizing soft tissue and bone lesions. 2) Review several post-treatment pitfalls in bones and bone marrow.

ABSTRACT

Molecular and Functional Imaging/Surrogate Markers in Radiation Oncology

Monday, 08:30 AM - 10:00 AM • S104A

RO OI MI

[Back to Top](#)

RC220 • AMA PRA Category 1 Credit [™]:1.5 • ARRT Category A+ Credit:1.5

Nina A Mayr, MD

Carryn Anderson, MD

Jinxing Yu, MD

William T Yuh, MD

LEARNING OBJECTIVES

1) To understand challenges in the optimal and timely assessment of tumor response in clinical cancer therapy and in clinical trial testing new therapy regimens. 2) To understand the role and the potential of functional and molecular imaging modalities and techniques used prior, during or after cytotoxic therapy in headandneck, brain, lung, prostate and gynecologic malignancies. 3) To apply and integrate imaging modalities into the therapeutic management of cancer. 4) To review the role of imaging as predictors of tumor control and survival and their emerging role as short-term surrogate markers for long-term therapeutic outcome of cancer treatment regimens and its potential for adaptive therapy.

ABSTRACT

Medical Physics 2.0: Mammography

Monday, 08:30 AM - 10:00 AM • S404AB

PH DM BR

[Back to Top](#)

RC221 • AMA PRA Category 1 Credit [™]:1.5 • ARRT Category A+ Credit:1.5

Co-Director

Ehsan Samei, PhD *

Co-Director

Douglas E Pfeiffer, MS *

RC221A • Mammography Perspective

Douglas E Pfeiffer MS (Presenter) *

LEARNING OBJECTIVES

1) Understand the history and development of mammographic imaging equipment. 2) Understand the impact of equipment development on testing protocols. 3) Understand the impact of equipment development on regulation.

ABSTRACT

Mammographic imaging has undergone tremendous change since its inception. Rapid development from screen-film imaging to nearly universal acceptance of digital imaging has required a shift in testing methodology. This talk will briefly introduce the developments that have taken place and discuss the impact that this development has had on testing and regulation.

RC221B • Mammography 1.0

Melissa C Martin MS (Presenter)

LEARNING OBJECTIVES

1) Current requirements for Quality Control for Hologic Digital Mammography Units. 2) Current requirements for Quality Control for General Electric Digital Mammography Units. 3) Current requirements for Quality Control for Fuji Computed Radiography for Mammography Units. 4) Current requirements for Quality Control for Printers used with Digital Mammography Units. 5) Current requirements for Quality Control for Monitors used with Digital Mammography Units.

RC221C • Mammography 2.0

Eric A Berns PhD (Presenter)

LEARNING OBJECTIVES

1) To provide an overview of how the Medical Physicist can prepare for the future of clinical mammography physics. 2) To provide a landscape of mammography imaging technologies. 3) To describe methods of image quality metrics, dose reduction, and quality control in relation to mammography technologies. 4) To describe the future roles of the Medical Physicist in clinical mammography physics.

Uncertainties in Imaging for Radiation Oncology: Sources and Mitigation Techniques-Margins and Margin Design

Monday, 08:30 AM - 10:00 AM • S102C

PH RO

[Back to Top](#)

RC222 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Co-Director, Moderator
Laurence E Court, PhD

LEARNING OBJECTIVES

1) Incorporating IGRT uncertainties into treatment margins. 2) Approaches to using margins to mitigate uncertainties.

RC222A • Incorporating IGRT Uncertainties into Treatment Margins

Timothy Craig PhD (Presenter) *

LEARNING OBJECTIVES

1) Be able to identify the different terminology used to describe margins in radiation therapy. 2) Understand how different types of uncertainty contribute to the appropriate treatment margin. 3) Demonstrate an understanding of the many factors that can influence the margins required to account for treatment uncertainties. 4) Have the rationale to determine which approaches could/should be applied in their own practice.

ABSTRACT

During treatment planning a safety margin is added to the clinical target volume to ensure that the planned dose is actually delivered to the target. This margin may be calculated by correctly combining the contributions to the overall treatment uncertainty from numerous individual uncertainties. Once the uncertainties have been categorized, there are many ways in which they can be combined to give the actual treatment margin, and this must be done in a considered way. In this presentation we will describe how different uncertainties should be combined. We will describe published margin recipes, including the impact of different assumptions made in each recipe. These concepts will be discussed in the context of guidance documents from the International Commission on Radiation Units and Measurements.

RC222B • Approaches to Using Margins to Mitigate Uncertainties

Laurence E Court PhD (Presenter)

LEARNING OBJECTIVES

1) Understand practical approaches used to determine appropriate treatment margins. 2) Have the knowledge/skills to apply margin formulae in the IGRT era. 3) Appreciate the limitations and risks of applying margin formulae.

ABSTRACT

One advantage of IGRT is the potential for reducing margins. Clinical margins are typically determined in one of 3 ways: (1) Use same margins as before (pre-IGRT), (2) Reduce margins based on supposed improvement in accuracy/precision, perhaps based on published data, or (3) Evaluate institutions own uncertainties, and establish appropriate margins. The first two are probably the most common. However, each of these approaches has its own pitfalls: (1) does not take full advantage of our new technologies, (2) is fraught with potential error, including the fact that many published works do not adequately assess uncertainties, and (3) can be difficult, and not all physicists have the background knowledge to do this. In this presentation we will describe some practical approaches to using margin formulae and other methods used to determine safe clinical margins. The limitations, risks and pitfalls will be described.

Minicourse: Current Topics in Medical Physics-Practice Quality Improvement: Basics and Issues for Medical Physicists

Monday, 08:30 AM - 10:00 AM • S403B

QA PH

[Back to Top](#)

RC223 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator
G. Donald Frey, PhD

RC223A • Introduction

Richard L Morin PhD (Presenter)

LEARNING OBJECTIVES

1) The participant will have an overall orientation to the role of medical physics in nuclear cardiology.

RC223B • Practice Quality Control: The ABR Perspective

G. Donald Frey PhD (Presenter)

LEARNING OBJECTIVES

1) The participant will understand the role of PQI in the ABR MOC process.

ABSTRACT

This section is an overall introduction to the course and will place Practice Quality Improvement (PQI) into the perspective of the ABR Maintenance of Certification (MOC) process.

RC223C • Basics and Practical Projects

Paul G Nagy PhD (Presenter)

LEARNING OBJECTIVES

1) Learn why quality methodologies can be useful for physicists. 2) Discuss PQI projects a physicist can do in diagnostic radiology. 3) Learn the basics of quality techniques with a discussion around practical PQI projects. 4) Talk about how the physicist can be a real resource to physicians conducting PQI projects.

ABSTRACT

Mentored Case Approach to Pediatric Cardiovascular Disease 1: Vascular Disease (An Interactive Session)

Monday, 08:30 AM - 10:00 AM • E353B



[Back to Top](#)

RC224 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Director
S. Bruce Greenberg, MD
Director
Rajesh Krishnamurthy, MD *
S. Bruce Greenberg, MD
Cynthia K Rigsby, MD
Taylor Chung, MD

LEARNING OBJECTIVES

1) Understand the morphology, treatment, and long term complications of treated and untreated congenital heart disease via an interactive mentored-case approach with audience response system. 2) Highlight appropriateness of MRI and CT with regard to technique, pitfalls, indications and critical imaging findings that affect management for common imaging scenarios, including vascular rings and slings, coarctation, aortopathy, coronary anomalies, and congenital pulmonary arterial and venous anomalies. 3) Provide an opportunity for general radiologists, pediatric radiologists and cardiac imagers who have limited exposure to this area in their workplace an opportunity to refresh their pediatric cardiovascular imaging skills in a focused manner.

Quantitative Imaging: Diffuse Lung Disease Assessment Using CT

Monday, 08:30 AM - 10:00 AM • N229



[Back to Top](#)

RC225 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Director
Michael F McNitt-Gray, PhD *

RC225A • The Role of Quantitative CT in the Assessment of Diffuse Lung Disease

Jonathan G Goldin MBChB, PhD (Presenter)

LEARNING OBJECTIVES

1) Identify the application of quantitative imaging principles in the assessment of patients with Diffuse Lung Disease. 2) Identify conditions required for successful application of quantitative imaging principles. 3) Analyze quantitative imaging techniques and apply this knowledge to protocol development and patient management in the setting of both clinical workup and clinical trials involving patients with Diffuse Lung Disease.

RC225B • Quantitation in the Assessment of COPD

David A Lynch MBBCh (Presenter) *

LEARNING OBJECTIVES

1) Describe the methodology and limitations of non-invasive imaging in quantifying lung structure. 2) Describe the opportunities for non-invasive imaging in understanding the structure of the lung, and how that relates to phenotyping subjects for clinical trials and longitudinal studies. 3) Understand the clinical relevance of quantitative imaging of COPD. 4) Learn how to interpret quantitative CT results in the lung.

ABSTRACT

COPD is characterized on CT by emphysema, bronchial wall thickening, and small airway abnormalities. These morphologic findings may be quantified and grouped into phenotypes, with different clinical presentations and prognosis. Clinicians are increasingly using these quantitative imaging techniques to study COPD. This course will provide information on the results of large-scale clinical trials ongoing in COPD. The limitations and sources of variation of current quantitative imaging methods will be discussed. Relationships between quantitative CT measures, genetic markers, and clinical abnormalities will be stressed.

RC225C • Standardization of Imaging and Measurement Protocols

Matthew S Brown PhD (Presenter) *

LEARNING OBJECTIVES

1) Understand sources of quantitative lung CT measurement variation including technical, physiologic, and algorithmic. 2) Review strategies for standardization across multiple sites and imaging platforms. 3) Assess the impact on sample size in multicenter clinical trials.

No Course RC226. See Series VSIN21 Radiology Informatics Series: Mobile Computing Devices

Monday, 08:30 AM - 10:00 AM

RC226

[Back to Top](#)

Changing Role of Radiology in the U.S. Health Care System

Monday, 08:30 AM - 10:00 AM • N226



[Back to Top](#)

RC227 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

James V Rawson, MD
Marta E Heilbrun, MD
Alexander M Norbash, MD *

LEARNING OBJECTIVES

1) Discuss barriers and tools for incorporating guidelines and evidence based recommendations into radiology practice. 2) Review both the systemic shortfalls and benefits delivered to the citizens of Massachusetts during that state's implementation of universal health care. 3) Learn to identify alignment of incentives across multiple stake holders in the evolving landscape of US healthcare.

ABSTRACT

As the U.S. Health Care system continues to evolve, the role of the Radiologists will also change. The Radiologist will likely play a role in managing issues such as incorporation of evidence based guidelines into clinical practice, access to care, alignment of stakeholders and clinical outcomes.

Should I Scan That Patient? A Very Interactive Session on MR Safety and Regulations (An Interactive Session)

Monday, 08:30 AM - 10:00 AM • S402AB



[Back to Top](#)

RC229 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Jeffrey C Weinreb, MD *
Emanuel Kanal, MD *

LEARNING OBJECTIVES

1) Recognize a spectrum of common MR safety issues and regulations. 2) Assess the benefits and limitations of ferromagnetic detector technology. 3) Formulate policies for contrast administration and MR imaging of pregnant patients. 4) Compare current approaches to MR scanning of patients with pacemakers and other implanted cardiac devices.

Technologies for Creating Educational Content and Teaching Files

IN **ED**

RC230 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator
Kitt Shaffer, MD, PhD

LEARNING OBJECTIVES

RC230A • Podcasting and Screencasting for Teaching

Mahesh M Thapa MD (Presenter)

LEARNING OBJECTIVES

1) Identify the utility of podcasts and screencasts. 2) List major software packages available for creating podcasts and screencasts. 3) Understand the steps required to create a podcast or screencast.

RC230B • e-Publishing in Radiology

Michael L Richardson MD (Presenter)

LEARNING OBJECTIVES

1) Know the pros and cons of publishing electronic books. 2) Know the two main formats for publishing electronic books. 3) Be aware of several strategies for converting one's book to electronic form. 4) Know the pros and cons of several software packages used for electronic book conversion.

RC230C • Incorporating the iPad in Resident Education: Using Mobile Technology to Improve the Way We Teach

Harprit S Bedi MD (Presenter)

LEARNING OBJECTIVES

1) Identify techniques to incorporate mobile technology into your teaching program. 2) Appraise your current teaching practices in light of the new pedagogical approaches introduced in the lecture.

Master Class in Musculoskeletal Ultrasound (How-to Workshop)

Monday, 08:30 AM - 10:00 AM • E258

US **MK**

RC231 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Marnix T Van Holsbeeck, MD *
Kenneth S Lee, MD *
Catherine J Brandon, MD *
Michael A Dipietro, MD
Alberto S Tagliafico, MD
Joseph H Introcaso, MD

LEARNING OBJECTIVES

1) Recognize and identify pitfalls of scanning that lead to false positive or false negative musculoskeletal ultrasound results. 2) Perform skills for scanning difficult patients. 3) Follow rigorous protocols for the examination of different anatomic regions. 4) Position patients for more complicated musculoskeletal ultrasound examinations. 5) Recognize and integrate the importance of tissue movement in judging the functionality of the extremities.

ABSTRACT

In this Musculoskeletal Ultrasound Master class, an opportunity will be given to participants to start a written dialogue in advance to RSNA 2012. The electronically submitted questions will be sorted by instructors and organized per topic. A select number of recurrent themes in these questions will be prepared for dialogue on stage. When the questions focus on a particular scanning skill, the authors of the questions will be invited on the examination platform to show problems they encounter in their practice. By using a step-by-step approach in solving the scanning issues, all who are present should benefit from the technical interactions on stage. Cameras will project scanning details on large screens. The seating in the master class will guarantee close proximity for an enriching interaction between audience and stage. At the end of the master class, the audience will be broken up in smaller groups for a more personal interaction with the instructors with the intent of improving scanning skills on an individual level.

Compensation Plans

Monday, 08:30 AM - 10:00 AM • N228

LM **GN**

RC232 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Ronald L Arenson, MD
Pablo R Ros, MD, PhD *
Vincent P Mathews, MD *

LEARNING OBJECTIVES

1) Understand the need to offer incentive compensation (bonus) to faculty in Academic Radiology Departments. 2) To be able to describe the advantages and disadvantages of productivity only incentive plans in Academic Radiology. 3) Understand methods of providing incentives other than clinical productivity. 4) Understand how to insure fairness and a feeling of working as a team with incentive-based compensation plans. 5) Understand how incentive systems used by private practices are different from that of an Academic Radiology Department. (This course is part of the Leadership Track)

Interventional Stroke Treatment: Practical Techniques and Protocols (How-to Workshop)

Monday, 08:30 AM - 10:00 AM • S403A

ER **IR** **NR**

RC250 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Gary R Duckwiler, MD *
Joshua A Hirsch, MD *
David J Fiorella, MD, PhD *

LEARNING OBJECTIVES

1) Describe the diagnostic evaluation and decision making algorithms leading to urgent endovascular treatment of acute stroke. 2) Review endovascular techniques for the treatment of acute stroke from microcatheter set up to intraarterial thrombolysis to mechanical thrombectomy. 3) Discuss case examples of endovascular treatment including patient selection, technique, and pitfalls.

ABSTRACT

Advance imaging selection for the endovascular treatment of stroke is a topic that has been extensively reviewed in scientific meetings and journals that cater to Neuroradiologists. The MGH Neuroradiology Division was in an unusual position of having performed thousands of unenhanced CT, perfusion CT studies and MRI as patients presented through the Emergency Department with stroke over a multi-year period. The Neuroradiology division convened a two week lecture series and formed an expert panel to review our experience and the evidence for neuroimaging in stroke. Based on this review, a new algorithm was adopted that-based approach to develop the neuroimaging algorithm for patient with presumed anterior circulation occlusion (ACO) that includes: noncontrast CT to identify hemorrhage and large hypodensity followed by CT angiography to identify the ACO; diffusion MRI to estimate the core infarct; NIH stroke scale in conjunction with the diffusion data to estimate the clinical penumbra.

CT Dose Reduction: Diagnostic Information, Image Quality and CT Radiation Dose (How-to Workshop)

Monday, 08:30 AM - 10:00 AM • E261

**RC251** • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

LEARNING OBJECTIVES

1) Visual impression of general image quality parameters such as image noise, texture, sharpness and artifacts in CT. 2) Image guided tour on effects of radiation dose on general image quality parameters. 3) Image based display of effects of different scan parameters on general image quality metrics. 4) Image guided display of effects of radiation dose and different scan parameters on appearance of different lesion subtypes in adult and pediatric body CT examinations.

RC251A • General Image Quality Session: Interactive Discussion on Image Quality Parameters Such As Noise, Contrast, Sharpness, and Artifacts at Different Dose Levels**Mannudeep K Kalra** MD (Presenter) *

LEARNING OBJECTIVES

View learning objectives under main course title.

ABSTRACT

Using CT images acquired at different dose levels, radiologists will learn about general image quality metrics, such as image noise, sharpness, contrast, texture and artifacts. In addition, they will learn from images, how dose and different scan parameters affect these image quality metrics. In order to accomplish this, radiologists will scroll through clinical cases at different dose points in different body regions. Next, the radiologists will learn about the specific effects of dose on lesion detection and appearance. In this section, radiologists will go through multiple series of CT images at different dose levels to assess the effect of changing dose on specific lesion and image appearance for specific lesion types. They will be asked to perform a directed search for structures and lesions, some of which will exist and others will not exist in the provided datasets. At the end of each case, they will get to see the specific example template protocol for at least two scanner vendors. This course will help radiologists understand the need for specific clinical indication and size driven protocols.

RC251B • Lesion Detection: Multi-Dose CT Images with Clinical/Pathology Correlation**Mannudeep K Kalra** MD (Presenter) * ; **Donald P Frush** MD (Presenter) ; **Sarabjeet Singh** MD (Presenter)

LEARNING OBJECTIVES

View learning objectives under main course title.

US-guided Interventional Breast Procedures (Hands-on Workshop)**Monday, 08:30 AM - 10:00 AM • E264**[Back to Top](#)**RC252** • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Gary J Whitman, MD *
Annamaria Wilhelm, MD *
Richard M Chesbrough, MD *
Michael N Linver, MD *
Paula B Gordon, MD *
Stamatia V Destounis, MD
Anna I Holbrook, MD
Alice S Rim, MD
Alda F Cossi, MD
Eren D Yeh, MD
Gary W Swenson, MD
Catherine W Piccoli, MD *
Michael P McNamara, MD *
Selin Carkaci, MD
Jean M Seely, MD
Phan T Huynh, MD *
H. Carisa Le-Petross, MD
Basak E Dogan, MD
Jay A Baker, MD *
Tanya W Stephens, MD
Jiyon Lee, MD

LEARNING OBJECTIVES

1) Describe the equipment needed for ultrasound guided interventional breast procedures. 2) Review the basic principles of ultrasound guidance and performance of minimally invasive breast procedures. 3) Practice hands-on technique for ultrasound guided breast interventional procedures.

ABSTRACT

This course is intended to familiarize the participant with equipment and techniques in the application of US guided breast biopsy and needle localization. Participants will have both basic didactic instruction and hands-on opportunity to practice biopsy techniques on tissue models with sonographic guidance. The course will focus on the understanding and identification of: 1) optimal positioning for biopsy 2) imaging of adequate sampling confirmation 3) various biopsy technologies and techniques 4) potential problems and pitfalls

Introduction to Social Media (Hands-on Workshop)**Monday, 08:30 AM - 10:00 AM • S401CD**[Back to Top](#)**RC253** • AMA PRA Category 1 Credit™:1.5

C. Matthew Hawkins, MD
Safwan Halabi, MD
Garry Choy, MD, MS

LEARNING OBJECTIVES

1) Understand the different methods of communication offered by Facebook and Twitter. 2) Be able to establish active accounts/profiles on basic, mainstream social media platforms.

Introduction to Workflow Engines, Hands-on with an Open-source Platform**Monday, 08:30 AM - 10:00 AM • S401AB**[Back to Top](#)**RC254** • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Bradley J Erickson, MD, PhD *
Steve G Langer, PhD
Daniel J Blezek, PhD

LEARNING OBJECTIVES

1) Become familiar with workflow engine technology and how it relates to databases and imaging systems. 2) Attempt to build a workflow for an imaging task using a graphical workflow builder and workflow engine.

ABSTRACT

IN this hands-on session, attendees will be given the chance to observe and then operate a workflow engine that has been adapted to medical imaging tasks. The session will begin with a description of what a workflow engine is, and how it compares with other technologies used in imaging departments. We will then describe adaptations we made to a standard workflow engine, to make it more amenable to medical imaging departments. Finally, we will have each attendee attempt to create a simple workflow, deploy it, and then run it. At the end of the session, attendees should be familiar with the strengths and weaknesses of workflow engines, and how they complement existing systems in an imaging department.

Monday, 10:30 AM - 12:00 PM • S401CD[Back to Top](#)**ICIA21 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5****Kenichi Oishi**, MD, PhD
Andreia V Faria, MD
Johnny T Hsu, MS**LEARNING OBJECTIVES**

1) Learn practical aspects of DTI calculation: While the tensor calculation is an established process, there are several potential pitfalls and limitations. We will highlight these issues and discuss how we can resolve them. 2) Learn the concepts of image normalization: Image normalization is one of the crucial steps for quantitative image analysis. While this approach is widely used, the technology is far from complete. The issues specific to white matter anatomy and potential solutions will be discussed. 3) Learn atlas-based image analysis: Once the brain is normalized, there are many options for the final quantification step. Advantages and disadvantages of these options will be discussed.

ABSTRACT

Diffusion tensor imaging (DTI) can provide rich anatomical information of the brain white matter. Various white matter tracts, which are not visible in T1 and T2-weighted anatomical scans, can be clearly delineated in DTI-derived maps. The quantification of the white matter anatomy is, however, not straightforward. MriStudio consists of three programs designed for quantification of white matter anatomy. DtiStudio reads image data (such as DICOM) from multiple platforms and calculates various quantitative maps based on tensor calculation. Special emphasis is placed on image quality control at a various calculation steps. DiffeoMap then transforms the patient image into a common atlas space (or transform the atlas to the patient brain). Finally, RoiEditor provides an interface to perform automated or manual white matter segmentation, followed by reporting of anatomical properties of each segmented area. The quantification of 3D anatomical features poses many challenges and there are also difficulties specific to white matter structures. The purpose of this course is to learn various options to study white matter anatomy, practical issues encountered during the quantification, and their advantages and disadvantages.

Practical Informatics for the Practicing Radiologist: Part One (In conjunction with the Society for Imaging Informatics in Medicine)**Monday, 10:30 AM - 12:00 PM • S501ABC**[Back to Top](#)**ICII21 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5****LEARNING OBJECTIVES**

1) Define and describe the fundamental components of imaging informatics in a very practical and easy-to-understand way. 2) Understand methods to minimize distraction and reporting time when using speech recognition and structured reporting. 3) Understand the history and basic principles of business analytics.

ICII21A • The Road Ahead in Radiology Informatics**Paul G Nagy** PhD (Presenter)**LEARNING OBJECTIVES**

1) Discuss the current state of market penetration of RIS and PACS in the US. 2) Identify several commercial areas of innovation in the RIS. 3) Illustrate a model for a practice to assess how competitively they are leveraging informatics.

ICII21B • Using the RIS to Improve Efficiency in the Radiology Department**Alex Towbin** MD (Presenter) ***LEARNING OBJECTIVES**

1) Identify inefficiencies in radiology departmental workflow. 2) Provide examples of how the Radiology Information System can be used help to improve efficiency in the Radiology Department.

ABSTRACT

The radiology information system (RIS) is the central information system of many radiology departments. It was initially built as a system to schedule appointments and bill patients; however, it has grown to encompass all aspects of departmental workflow from the time an examination is ordered through the time a bill is sent and beyond. While certain elements of the RIS have been built for efficiency, others have lagged behind. The purpose of this talk is to describe methods by which the RIS can improve departmental efficiency. Case examples will be used to illustrate these methods and will include using the RIS to identify critical examinations at the time they are ordered, using the RIS to decrease incorrect orders, and using the RIS to drive departmental initiatives such as structured reporting.

ICII21C • Making the Case for Business Intelligence in Radiology**Matthew B Morgan** MD (Presenter) ***LEARNING OBJECTIVES**

You are starting to hear about 'big data' and you wonder how this will play a role in your radiology practice? What is Business Intelligence and Analytics? How will it help you, and how do you get started? You will learn the answers to these questions and more when you attend this presentation.

ABSTRACT**Creating, Storing, and Sharing Teaching Files Using RSNA's MIRC®: A Hands On Course****Monday, 10:30 AM - 12:00 PM • S401AB**[Back to Top](#)**ICIW21 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5****Krishna Juluru**, MD
Frederick E Weiss, MD
Tessa S Cook, MD, PhD**LEARNING OBJECTIVES**

1) Learn how easy it is to install the new and improved RSNA teaching file software with the one-click installer. 2) Learn how to create, organize, and share teaching files, create conference documents and save interesting cases for yourself, your group or your department.

Using myRSNA®: Hands-on Workshop**Monday, 12:30 PM - 02:00 PM • S401CD**[Back to Top](#)**ICIA22 • AMA PRA Category 1 Credit™:1.5****John W Basco**, MS**LEARNING OBJECTIVES**

1) Understand the different tools and applications within myRSNA. 2) Log in to myRSNA and set up a personal profile. 3) Using the tools within myRSNA, highlight different use case scenarios.

Practical Informatics for the Practicing Radiologist: Part Two (In conjunction with the Society for Imaging Informatics in Medicine)**Monday, 12:30 PM - 02:00 PM • S501ABC**[Back to Top](#)



ICII22 •AMA PRA Category 1 Credit™:1.5 •ARRT Category A+ Credit:1.5

LEARNING OBJECTIVES

1) Describe approaches to minimize eye strain, neck pain, and repetitive motion disorders and overall stress without compromising productivity in the radiology reading room. 2) Understand the challenges and unforeseen obstacles encountered when deploying your next PACS system. 3) To understand the utility of volumetric rendering and computer aided detection (CAD) in clinical practice.

ICII22A • Saving Your Body (and Your Mind): Redesigning the Radiology Reading Environment

Eliot L Siegel MD (Presenter) *

LEARNING OBJECTIVES

View learning objectives under main course title.

ICII22B • Divorce Counseling: Changing PACS

Steven C Horii MD (Presenter) *

LEARNING OBJECTIVES

View learning objectives under main course title.

ICII22C • So Many Images, So Little Time: Advanced Imaging Techniques

Adam E Flanders MD (Presenter)

LEARNING OBJECTIVES

View learning objectives under main course title.

National Library of Medicine PubMed: There's More to PubMed/MEDLINE: The Free My NCBI Tool

Monday, 12:30 PM - 02:00 PM • S401AB

[Back to Top](#)



ICIW22 •AMA PRA Category 1 Credit™:1.5 •ARRT Category A+ Credit:1.5

Holly A Burt
Chris Childs , MS
Susan M Anderson , MS

LEARNING OBJECTIVES

1) Use My NCBI to personalize PubMed. 2) Understand how to save search strategies and create email alerts. 3) Use filters to link to library full-text articles and to focus PubMed searches. 4) Understand how to save collections of citations including a personal bibliography.

ABSTRACT

In this hands-on workshop session, explore the free My NCBI tool in PubMed. Discover how to save search strategies, create email alerts to keep up with the latest publications, create instant links to library full-text resources, and build permanent online bibliographies. Topics covered include creating a free My NCBI account, adding search and library filters to PubMed, using My Bibliography to create an online list of personal publications, and the link between the NIH Manuscript Submission System and PubMed. Important highlights on effectively searching PubMed searching will also be included. The National Library of Medicine (NLM) provides free web access to nearly 24 million citations for biomedical and clinical medical articles through PubMed (available online at PubMed.gov) MEDLINE is a subset of PubMed.

Mobile Computing for Decision Support and Learning While You Work

Monday, 02:30 PM - 04:00 PM • S401CD

[Back to Top](#)



ICIA23 •AMA PRA Category 1 Credit™:1.5 •ARRT Category A+ Credit:1.5

Michael P D'Alessandro , MD
Jeffrey R Galvin , MD
James J Choi , MD

LEARNING OBJECTIVES

1) Learn to perform decision support on a mobile device at the point-of-care to answer questions that arise during clinical work and thus tie learning to practice and receive point-of care CME for it. 2) Learn to read Ebooks and educational apps on a mobile device. 3) Learn to stay up-to-date with radiology journals and society news on a mobile device. 4) Learn to manage a library of journal articles on a mobile device. 5) Learn to view podcasts and vodcasts on a mobile device. 6) Learn to maintain a learning portfolio / teaching file on a mobile device.

ABSTRACT

Acquiring and maintaining competency in the practice of radiology requires a program of continuous learning. This continuous learning would be most effectively performed during clinical work, when it has the greatest potential for modifying physicians' knowledge, attitudes, and behaviors as well as positively affecting patients' care, outcomes, and lives. The advent of mobile computing, and the rich assortment of authoritative radiology resources it allows easy access to, now allows this dream to become reality. This course will be a hands-on, state-of-the-art review that will teach the radiologist how to use mobile computing to perform continuous learning while you work. The Apple iOS and Google Android platforms will be covered. Participants will be encouraged to bring their own mobile phone or tablet to the course and will be asked before the course to download into their mobile device several free apps that will be demonstrated, so they can follow along during the session. These free apps are listed on the course handout at <http://www.radiologyebooks.com/rsna.html>

3-D Printing: Bridging the Gap between Theory and Practice

Monday, 02:30 PM - 04:00 PM • S501ABC

[Back to Top](#)



ICII23 •AMA PRA Category 1 Credit™:1.5 •ARRT Category A+ Credit:1.5

Frank J Rybicki , MD, PhD *

LEARNING OBJECTIVES

1) To understand the potential role of 3D printing in clinical practice. 2) To learn an algorithm for preparing volumetric CT images for 3D printing applications. 3) To learn the basics of 3D printing, including materials and formats. 4) To show illustrative examples of 3D printing, such as in surgical planning and for cardiac analyses.

ABSTRACT

Printing in three-dimensions (3D) has become a reality for many applications, including some in medicine. However, the printing of volumes in diagnostic radiology has not been extensively studied. There are several applications that have potential use. For example, complex surgical planning to date uses two-dimensional (2D) displays of 3D volumes to communicate findings between radiologists and surgeons. Because of the inherent 3D data sets used for these applications, there are potential uses for 3D printing for planning. We apply these principles to full face transplantation to illustrate the complexity of the analyses and the benefits of 3D computed tomography (CT) models when compared to traditional two-dimensional display formats. We also illustrate how 3D printing can be applied to clinically relevant research questions such as flow derived metrics from CT. These data can then be translated to clinical interpretations, as illustrated with examples currently under investigation.

ICII23A • 3D CT and MR Acquisitions

Karin E Dill MD (Presenter)

ICII23B • 3D Printing Technologies and Applications

Peter C Liacouras PhD (Presenter)

ICII23C • 3D Visualization versus 3D Printing

Michael L Steigner MD (Presenter) *

ICII23D • Current Indications for 3D Printing
Gerald T Grant DMD, MS (Presenter)

ICII23E • Future Indications for 3D Printing
Frank J Rybicki MD, PhD (Presenter) *

ICII23F • Congenital Heart Disease Models 'In Your Hands'
Shi-Joon Yoo MD (Presenter)

ICII23G • Models in Imaging Research: CT Flow
Dimitris Mitsouras PhD (Presenter)

Optimizing PowerPoint Slides

Monday, 02:30 PM - 04:00 PM • S401AB

IN

[Back to Top](#)

ICIW23 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5
William J Weadock, MD *
Sarah C Abate, BS

LEARNING OBJECTIVES

1) Review the components of an optimal slide presentation. 2) Learn about common errors made in slide preparation and how they can be avoided. 3) Learn about how to improve the quality of a presentation by using optimal different slide backgrounds, font size and color, and image sizes. 4) Learn tips to ensure a smooth presentation.

ABSTRACT

Electronic presentations are very common in radiology practice. This hands-on demonstration and questions and answer session will show attendees how to optimize their presentations. The focus will be on the use of slide templates, color selection (font and background), font and image size, and animations. Additional review of image and video display and management will be covered. Demonstrations will include tips to decrease time creating and modifying presentations. Bring your questions!

Using IHE Profiles to Plan for Medical Imaging

Monday, 04:30 PM - 06:00 PM • S401CD

IN

[Back to Top](#)

ICIA24 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator

Kinson Ho *
David A Clunie, MBBS *
Christopher Lindop *
Kinson Ho *
John T Donnelly, MBA, MS *

LEARNING OBJECTIVES

1) Value of IHE with content and vendor neutral integration. 2) How content neutral clinical information is managed with a Vendor Neutral Archive (VNA). 3) Planning for a Vendor Neutral Archive (VNA) or expand upon an existing VNA system to support both imaging and non-imaging content and systems. 4) The benefit of using IHE Imaging profiles for cross-enterprise and cross-community image sharing.

ABSTRACT

Integrating the Healthcare Enterprise (IHE) is a joint initiative of healthcare professionals and industry vendors to improve the way clinical systems in healthcare share information. IHE promotes the coordinated use of established standards such as webservices, DICOM and HL7 to address specific clinical need in support of optimal patient care. Established in 1997, the IHE Radiology Committee, a development domain of IHE, has profiled the clinical use cases to develop a framework of interoperability, known as the IHE Integration Profiles. Integration Profiles are developed specifically to be 'Vendor Neutral'. The first Integration Profile developed by IHE is known as Scheduled Workflow. It specifies how imaging departmental workflow can operate seamlessly between vendors. The Integration Profiles are maintained and published by IHE in the IHE Technical Framework. With the introduction of Cross-Enterprise Document Sharing (XDS) in 2005, IHE has extended the definition of 'Neutral' to include non-imaging content storage in healthcare. This course will specifically deliver and review the IHE Integration Profiles developed by IHE Radiology and the other IHE domain committees profile which can be used by healthcare professionals and the industry for the interoperability specification, procurement and installation of a 'Content' Vendor Neutral Archive (VNA).

Meaningful Use for Radiology IT Vendors: What Your Customers will Demand, and Your Competition will Provide

Monday, 04:30 PM - 06:00 PM • S501ABC

IN

[Back to Top](#)

ICII24 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

David E Avrin, MD, PhD *
Keith J Dreyer, DO, PhD *

LEARNING OBJECTIVES

ABSTRACT

Even with Phase II rules of Meaningful Use, the fit with Radiology remains a challenge. The focus of the federal agencies remains on the primary care practices of internal medicine, family practice, and pediatrics. However, with recent refinement of the US Federal Health IT rulings for Meaningful Use (MU), it is hoped that some US radiologists will be eligible for substantial CMS incentives. Collectively, these incentives could total over \$1 billion for radiologists alone. Up to \$44,000 is available per qualifying Eligible Provider. As important, incentives may turn to penalties within a few years. MU was initially targeted towards primary care specialties, but under certain circumstances could apply to diagnostic radiology.

Eligibility for MU will depend upon the individual radiologist's practice scenario. Some technology will come from existing infrastructure (including RIS, PACS, Reporting Systems) and others will come from new purchases (including Decision Support, Data Mining, Image Sharing and Patient Portals). In this lecture, the presenters will describe ways to analyze your existing portfolio of products to determine which MU measures they should be eligible for, and to define a pathway toward MU certification of these modules. Further, we will discuss the ability to determine what additional functionality might be added to your existing products to expand your MU certification offerings. Finally, we will explore ways for your company to provide all remaining MU measures, beyond your existing product portfolio, so that your existing and future customers can achieve Meaningful Use. We will also review results of an RSNA sponsored survey to propose a set of criteria that more appropriately define true MU for radiology to affect future federal rule setting when they move beyond primary care specialties.

Using RSNA Clinical Trial Processing (CTP) Software for Clinical Trials and Research Applications

Monday, 04:30 PM - 06:00 PM • S401AB

RS IN

[Back to Top](#)

ICIW24 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

John Perry
Justin Kirby

LEARNING OBJECTIVES

1) Learn how to install, configure, and use the RSNA's CTP software for clinical trials and research dataset processing. 2) Learn about the the unique challenges of DICOM image de-identification and how to utilize CTP to implement the Attribute Confidentiality Profile (DICOM PS 3.15: Appendix E) to properly de-identify DICOM images. 3) Learn how to customize CTP to process and transfer imaging studies according to the requirements of common research study scenarios.

ABSTRACT

Clinical Trial Processor (CTP) is a highly configurable and extensible stand-alone program that provides many features necessary for managing imaging as part of a clinical trial or research study. In this course participants will be provided with an overview of CTP's functionality, and then perform hands-on image processing of sample data based on common research and clinical trial scenarios. Additionally, participants will receive an overview of the unique challenges associated with de-identifying DICOM images and learn about using CTP to implement the DICOM standard's guidance for how best to ensure removal of PHI without compromising the utility of the data for research.
URL's

High-Resolution CT: A Pattern-based Approach (An Interactive Session)

Tuesday, 08:30 AM - 10:00 AM • E450A

[CT](#) [CH](#)

[Back to Top](#)

RC301 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC301A • High-Resolution CT: Principles and Anatomic Considerations

Gerald F Abbott MD (Presenter) *

LEARNING OBJECTIVES

1) To define and illustrate the anatomic structures that form the basis of high resolution CT (HRCT) imaging of the lung. 2) To define and illustrate the anatomic basis of the most common imaging patterns detected on HRCT.

RC301B • High-Resolution CT: Patterns and Differential Diagnoses

Brett M Elicker MD (Presenter)

LEARNING OBJECTIVES

1) Identify common findings and patterns on high resolution CT of the lung. 2) Give focused differential diagnoses based on a combination of HRCT findings and clinical information. 3) Understand the role of HRCT in diagnosis in relation to clinical and pathologic results.

RC301C • High-Resolution CT: Unknown Cases

Sujal R Desai MBBS (Presenter)

LEARNING OBJECTIVES

1) To understand the key relationship between high-resolution CT (HRCT) patterns and macroscopic histopathologic changes in diffuse interstitial lung diseases (DILD). 2) To learn the characteristic HRCT appearances of DILDs in which a confident (and accurate) radiologic diagnosis can be made. 3) To appreciate the importance of atypical and overlapping HRCT features in many DILDs.

Strategies for ABR Core Exam and ACGME Resident Performance Evaluations

Tuesday, 08:30 AM - 10:00 AM • S403B

[ED](#)

[Back to Top](#)

RC302 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:0.5

RC302A • Fresh from the First Core Exam: A Resident's Thoughts on Strategies That WORKED!

Christopher Stephens MD (Presenter)

LEARNING OBJECTIVES

1) Describe core exam preparation resources and better understand which resources are more effective. 2) Delineate alternative ways to prepare for the core exam during the first three years of residency. 3) Discuss successful strategies for the core exam physics preparation including the timing of the various components of the physics curriculum.

ABSTRACT

For several years now, program directors and residents have been planning the transition to the new curriculum and thinking about the new ABR core exam. This transition is now complete. The first core exam was administered in early October 2013 and the next exam is scheduled for June 2014. With so many resources available, trainees may feel overwhelmed by options on how to prepare for this exam. This session will discuss various successful preparation strategies utilized by residents who recently took the first exam.

RC302B • Radiology Checklist Manifesto! How Will Program Directors Cope with New Semi-Annual ACGME Reporting Requirements?

Darel E Heitkamp MD (Presenter)

LEARNING OBJECTIVES

1) Understand the major requirements of the Next Accreditation System. 2) Visualize these requirements in a helpful timeline format. 3) Understand how the timing of new reporting data may differ significantly from your conventional paradigm of resident evaluation. 4) Understand strategies for meeting the reporting timelines established by the ACGME.

ABSTRACT

The transition to the Next Accreditation System (NAS) of resident evaluation is well underway. While much of this new paradigm has been designed to streamline burdensome administrative and process-oriented evaluation, there are many new features that the program director must be aware of. One very important issue worthy of discussion is the timing of all of the various moving parts. A checklist of the major components of the NAS and a timeline of due dates will bring program directors up to speed on just how exactly they will have to change their schedules to meet ACGME-imposed timetables.

RC302C • Beyond the Differential Diagnosis: How Will Developing Professionalism Skills Prepare You For Practice and Patient Safety?

Lori A Deitte MD (Presenter)

LEARNING OBJECTIVES

1) Describe ways to promote the development of professionalism skills during residency training. 2) Discuss the potential impact of unprofessional behavior on patient safety and the medical practice environment. 3) Describe the desirable professional attributes outlined in the Physician's Charter that can strengthen your application for a radiology position and enhance your performance as a radiologist.

ABSTRACT

The traditional radiology residency curriculum consisted primarily of the acquisition of medical knowledge, the recognition of radiological findings, and the development of an appropriate differential diagnosis. While these skills are important to becoming a competent radiologist, they are not enough. This session will examine the humanistic qualities and professional skills that distinguish a truly great (and desirable) colleague/physician from the others. The negative impact of unprofessional behavior on patient safety will also be reviewed.

Cardiac Perfusion Imaging

Tuesday, 08:30 AM - 10:00 AM • N226

[CT](#) [CA](#)

[Back to Top](#)

RC303 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC303A • FFRCT

Jonathan A Leipsic MD (Presenter) *

LEARNING OBJECTIVES

1) Discuss the current evidence supporting FFR guided revascularization. 2) Provide an overview of the technical background of Fractional Flow Reserve derived from a resting coronary CT angiogram. 3) Review the data validating FFRCT for the detection and exclusion of lesion specific ischemia by invasive FFR.

RC303B • Adenosine Stress/Rest CT

Ricardo C Cury MD (Presenter) *

LEARNING OBJECTIVES

1) To review the available evidence supporting the use of Stress CT perfusion. 2) To understand the importance of combining anatomy and physiology in the non-invasive evaluation of chest pain patients. 3) To describe the limitations and understand the future directions of Stress CTP.

ABSTRACT

A major limitation of coronary CTA is that the physiological significance of stenotic lesions identified is often unknown. Stress myocardial computed tomography perfusion (CTP) is a novel examination that provides both anatomic and physiological information. Multiple single-center studies have established the feasibility of stress myocardial CTP. Furthermore, it has been illustrated that a combined CTA/CTP protocol improves the diagnostic accuracy to detect hemodynamic significant stenosis as compared with CTA alone; this combined protocol can also be accomplished at a radiation dose comparable to nuclear myocardial perfusion imaging exams. Stress CTP is a modality with significant potential, particularly in the evaluation of chest pain patients, given the advantages of short exam time and comprehensive data acquisition. This lecture will summarize the current literature, indications, limitations and discuss future directions of Stress CTP.

RC303C • MRI

Matthys Oudkerk MD, PhD (Presenter)

LEARNING OBJECTIVES

1) Understand that perfusion MRI can be implemented in every radiology department. 2) Learn how to differentiate normal from abnormal perfusion of the myocardium. 3) Compare the performance of perfusion MRI with other imaging modalities. 4) Identify indications and patient populations for perfusion MRI.

RC303D • Nuclear

Jack A Ziffer MD, PhD (Presenter) *

No Course RC304. See Series VSMK31 Musculoskeletal Radiology Series: Ultrasound

Tuesday, 08:30 AM - 10:00 AM

[Back to Top](#)

RC304

No Course RC305. See Series VSNR31 Neuroradiology Series: Brain Tumors

Tuesday, 08:30 AM - 10:00 AM

[Back to Top](#)

RC305

Temporal Bone Imaging

Tuesday, 08:30 AM - 10:00 AM • E451A

[Back to Top](#)



RC306 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC306A • The Inner Ear: Normal and Abnormal

John I Lane MD (Presenter)

LEARNING OBJECTIVES

1) Review the imaging approaches, critical anatomy, diagnoses and differential diagnoses of diseases in the bony and membranous labyrinth. 2) Apply the CT and MR Imaging approaches to lesions suspected in this area as well as comprehend the finer details of the underlying imaging anatomy of the inner ear. 3) The differential diagnosis discussion will permit the participant to analyze the imaging features of unknown lesions in this area, construct a statistically driven differential diagnosis list and come to a conclusion about the most likely diagnoses possible.

ABSTRACT

RC306B • Cholesteatoma and Inflammation

Gul Moonis MD (Presenter)

LEARNING OBJECTIVES

1) Recognize the imaging features of external and middle ear inflammatory abnormalities with emphasis on cholesteatoma. 2) Review inner ear inflammatory lesions. 3) Discuss complications of temporal bone inflammation.

ABSTRACT

1) Recognize the imaging features of external and middle ear inflammatory abnormalities with emphasis on cholesteatoma 2) Review inner ear inflammatory lesions. 3) Discuss complications of temporal bone inflammation.

URL's

<http://www.bidmc.org/Research/Departments/Radiology/NeuroRSNA.aspx>

RC306C • Tumors of the Temporal Bone

H. Ric Harnsberger MD (Presenter) *

LEARNING OBJECTIVES

1) Review the range of temporal bone tumors by temporal bone anatomic subsite (EAC, middle ear, inner ear, facial nerve, internal auditory canal). 2) Develop a differential diagnosis for each subsite. 3) Become familiar with the typical imaging appearances of the more common tumors of the temporal bone. 4) The participant should end up with an understanding as to when it is possible to make a histopathologic diagnosis of a temporal bone tumor based on CT and MR appearances and location.

ABSTRACT

In this portion of the temporal bone session the focus will be temporal bone tumors. A subsite specific discussion will review the tumors in each major area of the temporal bone including the external auditory canal, middle ear, inner ear, and intratemporal facial nerve. A differential diagnosis will be presented in each area with both benign and malignant tumors included. Tumor-specific imaging findings will be emphasized. Multiple cases of each diagnosis will be presented to give the participant exposure to the range of imaging manifestations seen. This location-based temporal bone tumor review will cover the following tumors by location:

- External auditory canal: Exostoses, osteoma, and squamous cell carcinoma.
- Middle ear: Glomus tympanicum paraganglioma, glomus jugulare paraganglioma, facial nerve schwannoma, middle ear adenoma, middle ear meningioma, and rhabdomyosarcoma.
- Inner ear: Intralabyrinthine schwannoma, endolymphatic sac tumor, and inner ear meningioma.
- Intratemporal facial nerve: Facial nerve schwannoma, facial nerve hemangioma (venous malformation), and perineural malignancy from the parotid gland.

No Course RC307. See Series VSGU31 Genitourinary Series: Prostate Cancer 2013-Review of the Disease and the Role of MR in Staging and Surveillance

Tuesday, 08:30 AM - 10:00 AM

[Back to Top](#)

RC307

Tuesday, 08:30 AM - 10:00 AM[Back to Top](#)**RC308****No Course RC309. See Series VSIG31 Gastrointestinal Series: Pancreas - Inflammation and Neoplasm****Tuesday, 08:30 AM - 10:00 AM**[Back to Top](#)**RC309****Second and Third Trimester Obstetrical Ultrasound****Tuesday, 08:30 AM - 10:00 AM • S405AB**[Back to Top](#)**US** **OB** **GU****RC310 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5****RC310A • Support Structures****Vickie A Feldstein MD (Presenter)****LEARNING OBJECTIVES**

1) Understand normal development and anatomy of the placenta and umbilical cord. 2) Optimize sonographic techniques for correct assessment of the placenta and cord. 3) Enhance knowledge of common and clinically important abnormalities of the placenta and cord to improve skills for accurate detection by ultrasound. 4) Recognize abnormal placentation, detect placenta accreta, placenta previa, and vasa previa in effort to optimize clinical care and management.

ABSTRACT

Normal placental and umbilical cord development and anatomy will be reviewed. Sonographic manifestations of common abnormalities of the placenta and cord will be presented. Ultrasound (US) findings will be demonstrated, highlighted with pathologic correlation. Attention to the placenta, an often-overlooked crucial structure, is important in the optimal performance and interpretation of 2nd and 3rd trimester obstetrical US. Placental thickness, morphology and echotexture will be addressed. Retroplacental hematomas, which may present clinically as abruption, pose risk to the fetus and impact management. Placenta previa, a placenta that overlies or is proximate to the internal cervical os, is the most common cause of bleeding in the 3rd trimester. US detection and suggested terminology regarding previa will be reviewed. Vasa previa is a rare, but clinically important condition related to placenta previa in which umbilical cord and/or fetal vessels are positioned between the presenting fetal part and cervix. Possible consequences of this condition, including hemorrhage and potential fetal exsanguination, are devastating. Improved outcomes depend upon accurate prenatal diagnosis and delivery by cesarean section. Placenta accreta refers to abnormal adherence of the placenta to the uterus with subsequent failure to separate after delivery of the fetus. Careful assessment of at-risk pregnancies is indicated as this condition may lead to massive obstetric hemorrhage. Prenatal diagnosis allows effective delivery management planning to minimize morbidity. Umbilical cord abnormalities can be found and have clinical implications. The most common abnormality of the cord is a single umbilical artery (SUA). Discovery of SUA prompts a search for any other detectable fetal malformation. Velamentous cord insertion, with attachment of the cord beyond the placental edge into the free membranes of the placenta, is associated with increased risk and this too can be detected by US.

RC310B • Fetal Genitourinary Anomalies**Roya Sohaey MD (Presenter) *****LEARNING OBJECTIVES**

1) Recognize the appearance of the normal fetal adrenal gland, kidney, bladder and genitalia in the first, second and third trimester. Anomalies of these structures will be shown and strategies for making accurate diagnoses of anomalies will be taught. 2) Current in utero and post natal treatment plans for fetal genitourinary anomalies will be discussed, particularly for prenatal and postnatal workup and evaluation of fetal hydronephrosis. The Society of Fetal Urologists grading system of hydronephrosis will be reviewed and it's utility in clinical practice discussed.

ABSTRACT

Genitourinary (GU) abnormalities are common in fetal life and range in severity from idiopathic, as in most cases of pelviectasis, to lethal, as in renal agenesis. A systematic approach to evaluation of the GU tract is important in order to make an accurate diagnosis. The fetal kidneys should be documented in two orthogonal planes. The adrenal gland can mimic the kidney if only the axial plane is obtained. The fetal bladder should be seen filling and emptying during the study. The adrenal glands are often easily identified and the fetal genitalia should be assessed whenever GU anomalies are seen. The approach to the abnormal urinary tract starts with identifying both kidneys and evaluating renal echogenicity and morphology. If hydronephrosis is present then quantitative and qualitative assessment of the whole collecting system, from calyces to urethra is performed. The anterior-posterior renal pelvis is measured and the SFU grade of hydronephrosis is estimated. If renal cysts are present then the differential diagnosis of multicystic dysplastic kidney vs renal cystic dysplasia (either primary or secondary) is explored. An abnormal fetal bladder is one which is either consistently 'too small' or 'too large', and the cause can be anatomic or physiologic. Adrenal masses can occur in utero or more often, the adrenal gland may be displaced by a suprarenal mass that is not adrenal in origin, such as an extralobar pulmonary sequestration. Congenital adrenal hyperplasia presents as enlarged adrenal glands and is associated with ambiguous genitalia in female fetuses. Genitalia anomalies can be isolated or associated with syndromes and aneuploidy. Making an accurate diagnosis of fetal GU anomalies results in better prenatal counseling and post natal treatment. Some fetuses with GU anomalies may benefit from in utero intervention as well, such as bladder drainage. Most need prenatal and postnatal surveillance which is often determined by the prenatal findings.

RC310C • Multiple Gestations**Anne M Kennedy MD (Presenter)****LEARNING OBJECTIVES**

1) Determine chorionicity and amnionicity and understand why it is important to do so in all multiple gestations. 2) Understand and diagnose specific complications of monochorionic twinning such as twin to twin transfusion syndrome and twin reversed arterial perfusion. 3) Recognize the indications for more frequent surveillance and intervention in complicated twin pregnancies.

ABSTRACT

The prognosis in multiple gestations is dependent on chorionicity therefore it is essential that this be documented in all cases. The easiest time to do this is in the first trimester but we will review tips for diagnosis in the second and third trimesters as well. Specific complications of monochorionic twinning include twin to twin transfusion syndrome (TTTS) in which there is an arteriovenous shunt from the donor twin to the recipient. The donor is oligemic and the recipient is hypovolemic thus there is oligohydramnios in the donor sac and polyhydramnios in the recipient sac. Untreated the outcome is poor but laser ablation of the vascular connections in the placenta has markedly improved prognosis. In twin reversed arterial perfusion (TRAP) there is an artery to artery anastomosis between the pump twin and the malformed co-twin which can become very large. It is important to recognize TRAP sequence early in pregnancy as the abnormalities in the malformed twin are lethal. The pump twin is at risk for hydrops due to the high output state. Early intervention prevents continued growth of the abnormal twin and protects the pump twin such that the patient has a good prognosis for one live birth. Multiple gestations are at risk for growth restriction and discordant growth; the incidence of fetal anomalies and maternal complications of pregnancy is also increased. Because of this multiple gestations are followed more intensively than singletons and, when monochorionic, surveillance for specific complications is increased. The prognosis for TTTS and TRAP is much improved with intervention but there is finite window of opportunity in which interventional procedures can be performed thus appropriate referral is essential. Accurate diagnosis of chorionicity and early recognition of complications in multiple gestations will result in better management and improved outcomes.

No Course RC311. See Series VSNM31 Nuclear Medicine Series: Non-FDG PET Radiotracers in Oncology**Tuesday, 08:30 AM - 10:00 AM**[Back to Top](#)**RC311****Acute Abdominal Vascular Diseases****Tuesday, 08:30 AM - 10:00 AM • E350**[Back to Top](#)**CT** **VA** **GI**

RC312A • Aortic Branch Dissections

Dominik Fleischmann MD (Presenter) *

LEARNING OBJECTIVES

1) Review the epidemiology of aortic side-branch dissections, which can occur as a complication of aortic dissection, or as isolated spontaneous dissections of the visceral or renal arteries. 2) Explain the pathophysiology of side branch malperfusion syndroms. 3) Present the key imaging features which distinguish between the two main mechanisms of side branch malperfusion: local obstruction versus inflow obstruction.

ABSTRACT

Dissections of aortic side branches is a common complication of Type A and Type B acute aortic dissection which substantially increases mortality. It is important to understand the pathophysiology and the two principle mechanisms of side branch malperfusion in aortic dissection: flow obstruction can be due to (A) local abnormalities, such as occlusive dissection flaps, blind ending false lumen with true lumen occlusion ('windsock'), or frank thrombosis. Side-branch malperfusion may also occur due to (B) limited inflow: The classic situation is complete true lumen collapse in the upstream aorta, resulting in underperfusion of all downstream branches supplied by the true lumen. While local obstructions are most commonly treated by stent placement into the diseased side branch, inflow-lesions typically require surgical or endovascular repair of the upstream aorta.

Spontaneous dissections of the celiac, mesenteric, or renal arteries are relatively rare events, and typically present with acute abdominal or flank pain. Dissections of side branch arteries can lead to ischemic complications or to frank rupture. Patients presenting with mesenteric or renal artery dissection require a thorough workup to identify genetic disorders (notably Ehlers Danlos IV), inflammatory conditions (vasculitis), and other entities such as fibromuscular dysplasia and segmental arterial mediolysis (SAM).

RC312B • Symptomatic Aneurysms

W. Dennis Foley MD (Presenter)

LEARNING OBJECTIVES

1) To detail the anatomic location and clinical presentation of symptomatic aneurysms. 2) To review appropriate imaging strategies using CT angiography. 3) To emphasize physiologic support and patient monitoring while in the imaging environment. 4) To utilize appropriate anatomic coverage in CT angiography procedures for both the diagnosis of symptomatic aneurysms and surgical and endovascular planning. 5) To detail the role of 2D and 3D image processing in the emergency situation for anatomic diagnosis and treatment planning.

ABSTRACT

Symptomatic aneurysms cover the spectrum of arterial aneurysms presenting with a) localized symptoms secondary to aneurysm expansion and possible rupture b) regional symptoms secondary to dissection and embolism and c) systemic cardiovascular dysfunction related to hypotension and organ dysfunction. Common clinical scenarios include aneurysm rupture most commonly abdominal aortic, popliteal and abdominal visceral aneurysms as well as thoracoabdominal aortic dissection. Symptomatic aneurysms may also occur in patients with known arterial pathology including connective tissue disorders such as Marfan's and Ehlers-Danlos syndrome and Takayasu aortitis/arteritis. Patients with suspected rupture of abdominal aortic or iliofemoropopliteal artery aneurysms may initially be evaluated by sonography. However, in all circumstances, CT angiography due to its robust implementation and high-resolution imaging of the vasculature and regional anatomy that allows for planning of endovascular and surgical intervention is the preferred technique. CT Angiographic protocols appropriate to the suspected anatomic location of the aneurysm that provide an adequate roadmap for endovascular or surgical intervention are employed. Extended coverage is particularly important in patients with suspected thoracoabdominal aortic dissection or aneurysms associated with peripheral embolism. Cardiac gating should be utilized in any patient with a suspected type A aortic dissection or rupture of an ascending aortic aneurysm. Aortic, cardiac and coronary artery imaging are integral to the evaluation and management of these patients. A particular subset of the symptomatic aneurysm is post-trauma aortic disruption, usually thoracic in which diagnosis of traumatic aneurysm is critical and the aneurysm is associated with additional sites of soft tissue and skeletal trauma. Guidelines for endovascular or surgical intervention or non invasive management with serial CT Angiographic imaging will be discussed.

RC312C • Mesenteric Ischemia

Iain D Kirkpatrick MD (Presenter)

LEARNING OBJECTIVES

1) Discuss the various categories of mesenteric ischemia (arterial occlusive, embolic, venous thrombotic, and nonocclusive), and the pathophysiological basis behind the imaging findings in each case. 2) Understand the basis behind modern CT protocols for mesenteric ischemia, particularly the biphasic examination with CT mesenteric angiography. 3) Demonstrate techniques to rapidly analyze a mesenteric CT angiographic dataset. 4) Review the CT signs of mesenteric ischemia and their sensitivity and specificity. 5) Evaluate the current literature on mesenteric ischemia and discuss optimal diagnostic criteria.

ABSTRACT

Acute mesenteric ischemia (AMI) is a life-threatening condition said to affect up to 1% of patients presenting with an acute abdomen, and it carries a mortality rate ranging between 59-93% in the published literature. Time to diagnosis and surgical treatment are the only factors which have been shown to improve mortality, and evidence shows that the clear test of choice for AMI is now biphasic CT. Water is preferably administered as a negative contrast agent, followed by CT mesenteric angiography and then a portal venous phase exam. Diagnostic accuracy is significantly improved by analysis of the CT angiogram for arterial stenoses or occlusions, evidence of emboli, or angiographic criteria of nonocclusive ischemia. It is the use of CT angiography in addition to routine portal phase imaging which has pushed the sensitivity and specificity of the test to >90% in recent published articles. Other nonangiographic CT findings that are relatively specific for AMI in the appropriate clinical setting include pneumatosis intestinalis, portal or mesenteric venous gas or thrombosis, and decreased bowel wall enhancement. Bowel wall thickening, mesenteric stranding, ascites, and mucosal hyperenhancement are more nonspecific findings which may also be seen. Nonocclusive ischemia may be the most difficult form to diagnose, and findings of shock abdomen can aid in identification. Knowledge of the patient's clinical history is critical not only for the selection of an appropriate study protocol but also for interpretation of the imaging findings in context.

RC312D • CTA of Gastrointestinal Bleeding

Jorge A Soto MD (Presenter) *

LEARNING OBJECTIVES

1) To review the appropriate implementation of CT angiography in the evaluation of patients presenting with acute lower intestinal bleeding. 2) To describe the technical details that are necessary for acquiring good quality CT angiography examinations. 3) Illustrate the characteristic CT angiographic findings of active or recent bleeding with specific examples of multiple etiologies.

ABSTRACT

Acute gastrointestinal bleeding is a serious condition that may threaten a patient's life depending on the severity and duration of the event. Precise identification of the location, source and cause of bleeding are the primary objective of the diagnostic evaluation. Implementation of colonoscopy in the emergency setting poses multiple challenges, especially the inability to adequately cleanse the colon and poor visualization owing to the presence of intraluminal blood clots. Scintigraphy with technetium 99m-labeled red blood cells is highly sensitive but also has some limitations, such as the inability to precisely localize the source of bleeding and determine its cause. Properly performed and interpreted CT angiography examinations offer logistical and diagnostic advantages in the detection of active hemorrhage. A three-phase examination (non-contrast, arterial and portal venous) is typically performed. Potential technical and interpretation pitfalls should be considered and will be explained. The information derived from CT angiography helps direct therapy and select the most appropriate hemostatic intervention (when necessary): endoscopic, angiographic, or surgical. Precise anatomic localization of the bleeding point also allows a targeted endovascular embolization. The high diagnostic performance of CT angiography makes this test a good alternative for the initial emergent evaluation of patients with acute lower intestinal bleeding.

No Course RC313. See Series VSPD31 Pediatric Radiology Series: Chest/Cardiovascular Imaging I

Tuesday, 08:30 AM - 10:00 AM

[Back to Top](#)

RC313

No Course RC314. See Series VSIR31 Interventional Radiology Series: Venous Disease

Tuesday, 08:30 AM - 10:00 AM

[Back to Top](#)

RC314

No Course RC315. See Series VSBR31 Breast Series: Emerging Technologies in Breast Imaging

RC315

The Aging Radiologist: How to Cope, When to Quit (Sponsored by the RSNA Professionalism Committee) (An Interactive Session)

Tuesday, 08:30 AM - 10:00 AM • E450B

PR LM

[Back to Top](#)

RC316 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator**Donald M Bachman**, MD**Stephen Chan**, MD**Bruce J Barron**, MD ***William J Casarella**, MD**Robert A Schmidt**, MD ***LEARNING OBJECTIVES**

1) Identify physiological and psychological manifestation of aging specific to performance as a radiologist. 2) Institute non-prejudicial evaluation of function and performance of radiologists in their department as they age. 3) Understand economic, health, emotional and professional factors that stimulate radiologists to either continue working or retire. 4) Identify strategies for instituting meaningful and satisfying activities after retirement from active radiology practice.

ABSTRACT**MR-Guided High Intensity Frequency Ultrasound (HIFU)**

Tuesday, 08:30 AM - 10:00 AM • S504CD

US MR IR

[Back to Top](#)

RC317 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator**Pejman Ghanouni**, MD, PhD**RC317A • Palliation of Painful Metastases to Bone****Pejman Ghanouni** MD, PhD (Presenter)**LEARNING OBJECTIVES**

1) Therapeutic options for palliation of painful metastases to bone. 2) Patient selection for MR guided focused ultrasound palliation of painful bone metastases. 3) Results of Phase III pivotal study of ExAblate MR guided focused ultrasound for palliation of painful bone metastases. 4) Technical aspects of successful patient treatment. 5) Immediate post-treatment imaging-based assessment of results. 6) Future applications of MR guided focused ultrasound for the management of osseous metastatic disease.

ABSTRACT

Cancer patients commonly have metastases to bone; as the survival of cancer patients is prolonged by more effective therapies, the prevalence of patients with metastases to bone is also increasing. Bone metastases are often painful, and often diminish the quality of life. Radiation therapy (RT) is the standard of care for the treatment of bone metastases, but a significant subset of patients do not respond to RT. MR guided focused ultrasound non-invasively achieves localized tissue ablation and provides a proven method of pain relief in patients who do not respond to radiation therapy. MR imaging provides a combination of tumor targeting, real-time monitoring during treatment, and immediate verification of successful treatment. The results of the pivotal Phase III trial that led to FDA approval of the ExAblate MR guided focused ultrasound device for the palliation of painful metastases to bone will be reviewed. In particular, patient selection, the technical aspects of successful patient treatment, and post-treatment assessment of results will be described. Concepts for future development of this technology with regard to the management of osseous metastatic disease will also be presented.

RC317B • Technical Considerations when Performing MR-Guided High Intensity Frequency Ultrasound**Kim R Butts Pauly** PhD (Presenter) ***LEARNING OBJECTIVES**

1) To understand the basic physical principles of focused ultrasound and the considerations for clinical treatments. 2) To understand the basic physical principles of MR thermometry and thermal dose and the consideration for clinical treatments.

ABSTRACT

Focused ultrasound uses a large area array, typically outside the body, that is geometrically or electronically focused to a point. Such focusing provides amplification of the ultrasound intensity, thereby allowing heating of tissue to the point of coagulation at the focus, without damage to the intervening tissue. Treatment of tissues deep in the body requires image guidance such as MR thermometry. The concept behind MR thermometry is straightforward: changes in hydrogen bonding with temperature result in a change in the proton resonant frequency, seen in the phase of gradient echo images. Temperature standard deviations less than 1°C are readily achievable and thermal dose maps are easily calculated. Considerations for focused ultrasound include patient positioning and target access, good coupling, near field and far field effects, long treatment times for sizable ablation volumes, and, in the case of the brain, phase aberrations from the skull. Considerations for MR thermometry are motion of the target tissue or motion of other organs such as occurs during respiration. In addition, metallic hardware from prior surgeries reduce the visualization on MR temperature maps. Further, there is little visualization of temperature rises in adipose tissue, and in some cases the FUS equipment prevents the use of local coils. Nonetheless, recent developments in MRgFUS are overcoming these challenges.

RC317C • Transcranial MR-guided High Intensity Frequency Ultrasound**Jeff Elias** (Presenter)**LEARNING OBJECTIVES**

1) To understand the issues of transcranial sonication, and the technology available to achieve this. 2) To review the current neurological applications for MRI guided focused ultrasound surgery.

ABSTRACT

Recent advances in ultrasound transducer technology have now enabled the precise delivery of acoustic energy to deep regions of the brain with MRI guidance. The first treatment in humans have demonstrated that MRI-guided FUS is feasible for the treatments in the brain. Clinical trials are currently underway primarily for the treatment of movement disorders, but also for brain tumors, neuropathic pains, and obsessive-compulsive disorder.

RC317D • Body Applications of MR-Guided High Intensity Frequency Ultrasound**Wladyslaw M Gedroyc** MBBS, MRCP (Presenter)**LEARNING OBJECTIVES**

1) Where Can FUS be applied. 2) Which patients are most suitable for fibroid FUS. 3) What are the potential complications of fibroid FUS. 4) What are the medium-term results of FUS for uterine fibroids. 5) What requirements does a prostate FUS system require for safe and effective application. 6) What are the potential complications of prostate MR guided FUS. 7) What are the technological requirements necessary to improve MR guided focused ultrasound therapy to the liver. 8) What other areas can MR guided focused ultrasound potentially be applied to in the body.

ABSTRACT

The largest area of FUS application has been of uterine fibroids. These benign tumours are extremely common and responsible for huge expenditure each year. FUS can provide a completely non-invasive way of treating women with fibroids in an outpatient manner with negligible complications and very minor post-operative pain. Selecting appropriate patients is vital and will be discussed together with methods of assessing success. Improved technology can now speed up fibroid treatment with ablation spots up to 7 cm in length that can be rapidly moved from one point to another minimizing heating in front of the focal spot whilst treating multiple areas. Current follow-up studies suggest that if a nonperfused volume of greater than 60% is achieved symptomatic response is well over 80% at one year and that the requirement for further fibroid related treatment is 11% at two years. Because of the outpatient non-invasive nature of the procedure FUS becomes highly cost-effective Percutaneous destruction of liver tumours in a completely non-invasive manner would change therapy to the liver radically. FUS holds out such a prospect but the technological improvements required to our current machinery are substantial. The barrier of the FUS absorbing rib cage is hard to overcome and to date MR guided focused ultrasound has only been able to reach lesions that are not covered by ribs. The movement produced by respiration presents a significant problem currently addressed by controlled ventilation during FUS. Technological

improvements are slowly being implemented to address these areas. New endorectal MR guided transducers which can ablate areas of the prostate under accurate MR targeting and thermal control are in phase 1 studies treating low risk prostate carcinoma and looking at safety and early efficacy. These results will be discussed. A brief discussion of MR guided focused ultrasound application to the breast and soft tissue tumours will also be presented.

Imaging of Irradiated and Ablated Tumors

Tuesday, 08:30 AM - 10:00 AM • S104A

[Back to Top](#)



RC318 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC318A • Imaging of Recurrent Disease in the Irradiated Head and Neck

Christopher P Hess MD, PhD (Presenter) *

LEARNING OBJECTIVES

1) Illustrate the limitations of CT, MRI and PET in the evaluation for residual and recurrent malignancy in the head and neck. 2) Review typical imaging changes that result from radiation and common pitfalls. 3) Develop a structured approach for interpreting studies in the post-radiation neck.

URL's

<http://www.radiology.ucsf.edu/research/meetings/rsna>

RC318B • Imaging after Ablation of Hepatic and Renal Tumors

Steven S Raman MD (Presenter)

LEARNING OBJECTIVES

1) Background on ablation and histopathological changes. 2) Understanding hepatic ablation related changes chronologically: Differences between heat, cold and electroporation on CT, MRI and US. 3) Understanding renal thermal ablation changes chronologically: Differences among heat, cold and electroporation on CT, MRI and US.

RC318C • Imaging after Irradiation of Pelvic Malignancy

Antonio C Westphalen MD (Presenter)

LEARNING OBJECTIVES

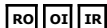
1) Recognize recurrent rectal, cervical, and prostate cancer. 2) Identify benign findings that can mimic recurrent disease. 3) Describe common complications associated with radiation treatment.

ABSTRACT

Role of Stereotactic Ablative Radiotherapy (SABR) and Interventional Radiology in the Management of Oligometastases

Tuesday, 08:30 AM - 10:00 AM • S504AB

[Back to Top](#)



RC320 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator

Simon S Lo, MD

LEARNING OBJECTIVES

1) Understand the role, eligibility criteria, expected treatment outcomes and toxicities of stereotactic ablative radiotherapy (SABR) for lung, liver and other visceral metastases. 2) Understand the role, eligibility criteria, expected treatment outcomes and toxicities of SABR for spinal metastases in primary, postoperative and recurrent setting. 3) Understand the role of interventional radiology in the management of lung and liver metastases. 4) Understand the controversies regarding the use of local aggressive therapy for oligometastases based on evidence from the literature.

ABSTRACT

It has been a notion that once distant metastases occur, cancer is typically widely disseminated. Hellman and Weichselbaum from University of Chicago have proposed the state of oligometastasis where the metastatic disease is limited in number and site. There is clinical evidence to suggest that local aggressive therapy such as surgical resection may prolong survival and may even achieve a cure. Most recently, non-surgical therapies such as stereotactic ablative radiotherapy and image-guided ablative therapies for oligometastases have emerged, appearing to yield promising results based on multiple retrospective studies and single arm clinical trials. There are certainly controversies with regard to the use of local aggressive therapies for oligometastases. To establish this strategy as the standard of care for oligometastasis, a randomized controlled trial comparing conventional care and local aggressive therapy would be ideal. The potential toxicities associated with these therapies have to be seriously considered before offering them to patients. Currently, there is an ongoing international randomized trial comparing SABR and conventional treatment enrolling patients in Canada and Europe and the results of this trial are eagerly awaited.

RC320A • SABR for Visceral Oligometastases

Simon S Lo MD (Presenter)

LEARNING OBJECTIVES

View learning objectives under main course title.

RC320B • SABR for Spinal Oligometastases

Arjun Sahgal (Presenter) *

LEARNING OBJECTIVES

View learning objectives under main course title.

RC320C • Interventional Radiology in the Management of Oligometastases

Sandeep Vaidya MD (Presenter)

LEARNING OBJECTIVES

View learning objectives under main course title.

RC320D • Controversies in the Management of Oligometastases

David Palma MD, FRCPC (Presenter)

LEARNING OBJECTIVES

View learning objectives under main course title.

Medical Physics 2.0: Nuclear Imaging

Tuesday, 08:30 AM - 10:00 AM • S102D

[Back to Top](#)



RC321 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Co-Director

Ehsan Samei, PhD *

Co-Director

Douglas E Pfeiffer, MS *

RC321A • Nuclear Imaging Perspective

Douglas E Pfeiffer MS (Presenter) *

LEARNING OBJECTIVES

1) Understand the history and development of nuclear imaging. 2) Become introduced to the advances of hybrid imaging. 3) Understand the impact of equipment development on medical physics support.

ABSTRACT

Nuclear imaging has not received the attention or development enjoyed by other imaging modalities. Nevertheless, our understanding of nuclear imaging and development of protocols and hybrid systems has led to new requirements for testing and other medical physics support. This presentation will discuss these developments and the impact they have had on the medical physics support needed by nuclear imaging departments.

RC321B • Nuclear Imaging 1.0

Osama R Mawlawi PhD (Presenter)

LEARNING OBJECTIVES

1) Learn acceptance testing and commissioning of gamma cameras/SPECT / and PET-CT systems. 2) Describe routine quality control procedures and their frequencies. 3) Become familiar with ACR accreditation of planar, SPECT, and PET systems. 4) Learn about various potential image artifacts of gamma camera, SPECT and PET systems.

ABSTRACT

The aim of this lecture is to provide the audience with an overview of the current medical physics testing procedures that are performed on gamma cameras, SPECT and PET systems. The lecture will be divided into 3 main parts; the first part will describe the tests performed for acceptance testing of these systems while the second part will describe the routine quality control and assurance tests and their frequencies. The last part of the lecture will focus on the ACR accreditation process and the necessary phantom imaging for gamma cameras, SPECT and PET systems. Throughout the lecture, examples of potential image artifacts will be presented.

RC321C • Nuclear Imaging 2.0

Jeffrey Nelson (Presenter)

LEARNING OBJECTIVES

1) Become familiar with new physics metric and analytics in nuclear imaging. 2) Determine testing implication of emerging technologies in nuclear imaging. 3) Envision the clinical implementation of new physics metrics and analytics.

ABSTRACT

Uncertainties in Imaging for Radiation Oncology: Sources and Mitigation Techniques-Incorporation of Imaging as a Biomarker in RT

Tuesday, 08:30 AM - 10:00 AM • E261



[Back to Top](#)

RC322 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

**Co-Director, Moderator
Robert Jeraj**

LEARNING OBJECTIVES

1) Anatomical imaging in treatment response (RECIST, volumetrics). 2) PET in treatment response assessment (PERCIST etc) with uncertainties. 3) MRI in treatment response assessment. 4) Imaging biomarkers.

RC322A • Introduction to Biomarkers

Robert Jeraj (Presenter)

LEARNING OBJECTIVES

1) Imaging biomarkers and surrogate endpoints. 2) Prentice's criteria vs real world. 3) Imaging biomarker characteristics. 4) Imaging biomarker validation and qualification.

RC322B • PET Assessment/Uncertainties

Paul E Kinahan PhD (Presenter) *

LEARNING OBJECTIVES

1) Understand the advantages and disadvantages of PET/CT as a biomarker for radiation oncology. 2) Understand sources of bias and variance in PET/CT imaging, both in data acquisition and analysis. 3) Understand the limitations of functional PET/CT techniques currently being used to evaluate treatment effect.

RC322C • MRI Assessment/Uncertainties

Edward F Jackson PhD (Presenter)

LEARNING OBJECTIVES

1) Understand the physical principles of functional MR techniques currently being used to evaluate treatment effect. 2) Understand selected applications of each of these techniques to the assessment of radiation therapy. 3) Understand current limitations of each of the techniques.

URL's

web.me.com/efjackson

Minicourse: Current Topics in Medical Physics-Radiation Dose Reduction in Medical Imaging

Tuesday, 08:30 AM - 10:00 AM • S404AB



[Back to Top](#)

RC323 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

**Moderator
Mahadevappa Mahesh , MS, PhD ***

ABSTRACT

This mini-course will include discussions on how to reduce radiation dose and clinical management in the areas of CT, Fluoroscopy and Radiography (CR and DR). Discussion will include dose-reducing strategies applicable due to technological advances, and also include practical steps on how to manage patient and staff safety clinically.

RC323A • CT Dose Reduction and Clinical Management

Mahadevappa Mahesh MS, PhD (Presenter) *

LEARNING OBJECTIVES

1) To identify various radiation dose reduction strategies in CT. 2) To assess impact of technological advances on reducing CT dose. 3) To describe ways to optimize radiation dose in CT.

ABSTRACT

RC323B • Fluoroscopy dose reduction and Clinical Management

Pei-Jan P Lin PhD (Presenter)

LEARNING OBJECTIVES

1) To identify that there are two basic schools of fluoroscopy operation logic design (FOLD). Discussion of FOLD enables us to understand how the modern fluoroscopy systems are able to. 2) Provide a wider dynamic range of patient thickness and reduce the patient exposure at the same time. 3) And, to identify there is a need to establish a hospital wide radiation monitoring and tracking system (HWRM).

ABSTRACT

There are two basic schools of fluoroscopy operation logic design (FOLD). Discussion of FOLD enables us to understand how the modern fluoroscopy systems are able to (1) lower radiation dose to the patient, (2) maintain the image quality required and (3) provide a wider dynamic range of patient thickness. While equipment based reduction of patient dose is effective, there is a need to monitor the overall radiation dose as the patient receives various types of radiological examinations. A hospital wide radiation monitoring (HWRM) is ever increasing as public-at-large becomes aware of potential radiation injuries from some of the radiological examinations. A sample monitoring system that is designed to monitor various patient dose data generated from CT and RF equipment will be discussed.

RC323C • CR and DR Dose Reduction and Clinical Management

Charles E Willis PhD (Presenter)

LEARNING OBJECTIVES

1) Appreciate why dose reduction efforts are necessary in projection radiography using CR and DR. 2) Identify the meaning of vendor-specific receptor exposure indicators and the new standardized receptor exposure indicators, and their indirect relationship to patient dose. 3) Assess the role of output indicators, DAP, KAP, and EAP, in estimating patient dose. 4) List simple operational methods for managing radiation doses in clinical radiography.

ABSTRACT

Computed Radiography (CR) and Digital Radiography (DR) are key technologies that enable the electronic practice of radiology. Both CR and DR are capable of producing acceptable diagnostic quality images over a wide range of exposures. A combination of traditional and new methods is necessary to manage the concomitant radiation dose to patients undergoing projection radiography examinations.

Mentored Case Approach to Pediatric Cardiovascular Disease 2: Cardiac Disease (An Interactive Session)

Tuesday, 08:30 AM - 10:00 AM • S402AB



[Back to Top](#)

RC324 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Director

S. Bruce Greenberg, MD

Director

Rajesh Krishnamurthy, MD *

Rajesh Krishnamurthy, MD *

Frandics P Chan, MD, PhD *

Laureen M Sena, MD

LEARNING OBJECTIVES

1) Understand the morphology, treatment, and long term complications of treated and untreated congenital heart disease via an interactive mentored-case approach with audience response system. 2) Highlight appropriateness of MRI and CT with regard to technique, pitfalls, indications and critical imaging findings that affect management for common imaging scenarios, including conotruncal anomalies, single ventricle, cardiomyopathy and myocarditis. 3) Provide an opportunity for general radiologists, pediatric radiologists and cardiac imagers who have limited exposure to this area in their workplace an opportunity to refresh their pediatric cardiovascular imaging skills in a focused manner.

Quantitative Imaging: Functional MRI (fMRI)

Tuesday, 08:30 AM - 10:00 AM • E353A



[Back to Top](#)

RC325 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Director

Michael F McNitt-Gray, PhD *

RC325A • Quality Assessment and Quantitation of Language and Motor fMRI

James T Voyvodic PhD (Presenter)

LEARNING OBJECTIVES

1) Understand the major sources of variance in fMRI results. 2) Be aware of post-processing approaches for reducing variance and improving reproducibility. 3) Understand the quality assessment methods used to measure sources of variance within individual patient scans. 4) Appreciate how to evaluate whether a particular patient fMRI scan meets the quality assessment criteria necessary for obtaining quantitative fMRI measurements within clinically useful reproducibility margins.

ABSTRACT

Many different variables affect clinical fMRI mapping of language and motor function, including behavioral task performance, head motion, tissue pathology, physiological variables, scanner performance, and software analysis methods. In order to achieve reproducible quantitative clinical fMRI results it is important to assess each of the major sources of variability, and to reduce unwanted signal variability where possible. This presentation will focus on identifying specific quality assessment criteria necessary to obtain reproducible quantitative fMRI results. It will also discuss the quantitative precision that can be expected for clinical fMRI results if the quality assessment criteria have been met. By establishing objective quality assessment criteria and validated reproducibility constraints, clinicians should be able to evaluate the quantitative confidence (i.e. margin of error) of the fMRI results for individual patient scans. Such guidelines are essential to enable quantitative measurements of the laterality, location, and spatial extent of clinically important functional brain areas.

<http://hawking.biac.duke.edu/RSNA>

RC325B • More Quantitative fMRI Paradigms for Presurgical Mapping of the Visual System

Edgar A Deyoe PhD (Presenter) *

LEARNING OBJECTIVES

1) Review the functional organization of the human visual cortex. 2) Become familiar with state-of-the-art methods for presurgical mapping of the visual system with fMRI. 3) Learn of new methods for visualizing and interpreting fMRI brain maps of the visual system. 4) Become aware of interpretational issues such as neurovascular uncoupling that can significantly affect interpretation in a presurgical mapping context.

ABSTRACT

The complexity of MRI technology and the wealth of new information it provides can leave clinicians hard pressed to stay abreast of the latest developments and applications, especially since the field continues to evolve at a brisk pace. The goal of this session will be to review clinically relevant aspects of fMRI methods and their use in mapping the visual system to aid diagnosis of vision-related CNS diseases and to assist treatment planning, delivery and followup. The session will include a review of fundamental organizational principles of the human visual system with an emphasis on those properties that may be particularly relevant for clinical applications. Some principles, such as retinotopic organization may be generally familiar, but the ability to map this organization in detail quantitatively in individual patients and its utility in specific clinical applications is likely to be novel. Unique methods will be described for visualizing this organization both within the brain and as it relates to the patient's visual field and scotomata. The session will describe specific clinical applications of visual system mapping with fMRI and will present case studies to highlight such applications. Also, included is a description of methodology aimed at streamlining the clinical workflow and highlighting practical issues that should be considered to obtain high quality data with clinical patients. The overall goal is to show how it is possible to spend as little as 10 minutes of fMRI scan time yet obtain information that can be invaluable for diagnosis and treatment of patients with brain tumors, arteriovenous malformations, epilepsy and other pathologies that can impact central visual pathways.

RC325C • BOLD Cerebrovascular Reactivity Mapping as Applied to Brain Tumor fMRI

Jay J Pillai MD (Presenter) *

LEARNING OBJECTIVES

1) Understand the role of breath hold cerebrovascular reactivity (BH CVR) mapping in the assessment of neurovascular uncoupling potential. 2) Appreciate how neurovascular uncoupling may affect the reliability of BOLD fMRI activation maps. 3) Describe how BH CVR mapping can be performed in brain tumor patients.

ABSTRACT

The phenomenon of neurovascular uncoupling (NVU) is an important limitation of blood oxygen level dependent (BOLD) functional MRI (fMRI). One effective and practical method for assessment of risk of NVU is BOLD breath hold cerebrovascular reactivity (BH CVR) mapping. BH CVR mapping, similar to MR perfusion methods, allows assessment of regional hemodynamic impairment that may result in NVU and thus may lead to false negative activation on task-based sensorimotor or language fMRI that may be used for presurgical mapping in patients with brain tumors and other resectable brain lesions. However, unlike MR perfusion imaging, which assesses static or baseline perfusion to brain tumors and peritumoral regions, BOLD BH CVR mapping enables a dynamic assessment of cerebrovascular response, and its results can be applied to any task-based activation map. This lecture will describe the technique of BH CVR mapping, some of its strengths and limitations, and include cases in which interpretation of clinical fMRI exams has been affected by the additional information provided by these maps.

Quantitative Imaging: A Revolution in Evolution (In Association with the Society for Imaging Informatics in Medicine)

Tuesday, 08:30 AM - 10:00 AM • N229



[Back to Top](#)

RC326 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Co-Moderator

Luciano M Prevedello, MD, MPH

Co-Moderator

Adam E Flanders, MD

LEARNING OBJECTIVES

1) Develop an understanding of what quantitative imaging is and how it may revolutionize the way we practice diagnostic radiology today. 2) Learn the research advances and the current clinical applications of this technology. 3) Appreciate the current challenges involved in using these tools clinically and understand the steps required for a successful clinical implementation.

ABSTRACT

Medicine has undergone a gradual evolution in which diagnostic imaging has become the centerpiece in establishing a clinical diagnosis and in assessing disease response. In recent years, the focus has changed such that for some disease categories (e.g. oncology) we now perceive medical imaging as a phenotypic expression of the genetic makeup of that disease. To that end, imaging now serves as a biomarker of genetic disease subtypes with features that may offer clues to understanding the natural behavior of the disease and specific changes that may occur as part of a therapeutic response. It is now well recognized that there is a substantial amount of objective information contained within diagnostic imaging studies that can be exploited beyond the level of simple measurements. The extraction of quantitative and semi-quantitative information from imaging studies that is both useful and reproducible is the challenge and opportunity for clinical trials research and radiologic reporting today and in the future. This session will explore the revolution and evolution of quantitative imaging; providing attendees with research advances, clinical applications, and the challenges of clinical implementation.

RC326A • What is Quantitative Imaging?

Katherine P Andriole PhD (Presenter)

LEARNING OBJECTIVES

1) Be able to describe what is meant by quantitative imaging. 2) Understand existing issues in implementing quantitative imaging techniques in the clinical arena as well as in the research realm, and see how informatics tools may help. 3) Be aware of on-going international efforts to address current challenges and to move quantitative imaging forward.

ABSTRACT

Quantitative imaging has rapidly evolved in recent years from a promising research activity to an essential clinical tool. Physicians consider the objective metrics obtained from imaging studies, in making critical patient management decisions. What is meant by quantitative imaging will be described using illustrative real-world use cases. Existing issues including technical as well as workflow challenges will be discussed. An introduction to imaging informatics tools and techniques such as standards, integration, data mining, cloud computing, ontologies, data visualization and navigation tools, and business analytics applications that may assist in filling current gaps in the clinical implementation of quantitative imaging will be given. An overview of activities of the RSNA's Quantitative Imaging Biomarkers Alliance (QIBA), an international initiative whose goal is to optimize the potential of quantitative imaging, including a description of the data warehouse project will be provided.

RC326B • Informatics Approaches to Enable Quantitative Imaging in Real World Radiology Practice

Daniel L Rubin MD,MS (Presenter) *

LEARNING OBJECTIVES

1) To highlight limitations in current radiological quantitative imaging practice and identify opportunities for improvement through informatics. 2) To introduce Annotation and Image Markup (AIM) as a new standard for capturing and sharing quantitative imaging metadata. 3) To demonstrate new AIM-enhanced tools that can streamline and improve quantitative imaging assessment and workflow for the radiologist.

ABSTRACT

Radiology practice is increasingly a quantitative endeavor. Radiologists frequently need to measure the length of lesions to track treatment response or measure the size of structures to for diagnostic assessment. Current practices of quantitation are cumbersome; measurements are recorded as screen captures that cannot be processed by machine, and the numbers must be transcribed into a radiology report. It is currently exceedingly difficult to create structured databases of quantitative image information for discovery about how, say, change in tumor size over time relates to drug treatment. Quantitative imaging is currently at best a labor-intensive process and at worst error-prone. We have been developing informatics methods to streamline the electronic capture of quantitative imaging results as image metadata in structured format that can be easily processed by computers. Tools that we are producing will allow the radiologist to perform quantitative imaging assessment in their current routine workflow measuring lesions on the PACS, while simultaneously their measurements will be captured and transmitted in standardized formats to applications that can automate accurate reporting, analysis, and decision support. In the future such tools will even help researchers to discover new ways that quantitative signals in images can improve assessment of treatment and prediction of disease course.

RC326C • QI Clinical Use Cases Outside of Oncology

Eliot L Siegel MD (Presenter) *

LEARNING OBJECTIVES

1) Understand the use of quantitative imaging outside of oncology. 2) Learn how to apply these QI techniques to current radiology practice.

Hot Topics in Malpractice Litigation 2013: Communication of Radiologic Findings and Common Medicolegal Issues in Body Imaging

Tuesday, 08:30 AM - 10:00 AM • S403A



[Back to Top](#)

RC327 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Leonard Berlin, MD

Jonathan W Berlin, MD *

LEARNING OBJECTIVES

1) Understand the importance of communicating radiologic findings to healthcare providers responsible for the care of patients. 2) Briefly review the American College of Radiology Communication Guidelines. 3) Review common medical legal pitfalls in body imaging, including suboptimal technique and search pattern.

ABSTRACT

Allegations of radiology negligence continue. This course will review a common but occasionally misunderstood source of malpractice allegation -- failure to communicate radiologic findings on exams that may have been interpreted correctly by the radiologist. The American College of Radiology Communication Guidelines will be discussed, and examples will be presented which illustrate potential communication breakdown between healthcare providers. The course will also discuss and illustrate common medical legal pitfalls in body imaging, including suboptimal technique and search pattern.

HCC Diagnosis Using LI-RADS (An Interactive Session)

Tuesday, 08:30 AM - 10:00 AM • E353B



[Back to Top](#)

RC329 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC329A • MRI features

Benjamin M Yeh MD (Presenter) *

LEARNING OBJECTIVES

1) Review underlying clinical scenarios that predispose patients to develop hepatocellular carcinoma. 2) Understand typical imaging appearances at MR imaging such that when characteristic imaging features are seen in the correct clinical setting, we can be certain that the diagnosis is hepatocellular carcinoma. 3) Describe variant features and secondary signs that are either suggestive of, or argue against, the diagnosis of hepatocellular carcinoma.

ABSTRACT

RC329B • LI-RADS Principles

Cynthia S Santillan MD (Presenter)

LEARNING OBJECTIVES

1) To familiarize radiologists with the Liver Imaging Reporting and Data System (LI-RADS) and its associated lexicon, atlas, and reporting recommendations. 2) To review the categories for liver observations in LI-RADS. 3) To demonstrate how to access and use the algorithm for determining the category of a liver observation.

ABSTRACT

RC329C • LI-RADS Cases

Reena C Jha MD (Presenter) *

LEARNING OBJECTIVES

We will review LI-RADS categories, and criteria for classification by means of clinical cases. Classic and atypical cases will be presented with audience participation to reinforce the LI-RADS algorithm.

ABSTRACT

RC329D • Reporting LI-RADS Results

Mustafa R Bashir MD (Presenter) *

LEARNING OBJECTIVES

1) To discuss standards for liver lesion reporting, using the Liver Imaging Reporting and Data System (LI-RADS).

ABSTRACT

The Liver Imaging Reporting and Data System (LI-RADS) includes a reporting template for contrast-enhanced CT and MRI, and minimum reporting standards. This talk will discuss those reporting standards and provide tips for clear and concise reporting.

No Course RC330. See Series VSIN31 Radiology Informatics Series: Natural Language Processing: Extracting Information from Text Radiology Reports to Improve Quality

Tuesday, 08:30 AM - 10:00 AM

[Back to Top](#)

RC330

Change Management in Radiology

Tuesday, 08:30 AM - 10:00 AM • S404CD

[Back to Top](#)

LM GN

RC332 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Michael N Brant-Zawadzki , MD

William T Thorwarth , MD

N. Reed Dunnick , MD

LEARNING OBJECTIVES

1) Participants will appreciate the importance of understanding the culture of an organization. 2) Participants will understand that strategic planning will not result in a successful outcome if it is not consistent with the culture of the organization. 3) Participants will learn techniques that can help modify organizational culture and make it more effective in addressing new issues. (This course is part of the Leadership Track)

ABSTRACT

Culture may be defined as the behaviors and beliefs of a social, ethnic or age group. It is the set of shared attitudes, values, goals and practices that characterize the group. Understanding the culture of our professional organizations is essential to effectively creating and implementing a strategic plan. Each of us is involved in many organizations including private practice groups, multispecialty clinics, university departments and a variety of professional societies which are linked by common interests. These include a interests related to a specific geographic region, an anatomic organ system, or an imaging or therapeutic modality. They may also be connected to a common goal such as education, research, reimbursement, regulation, government affairs, or radiology administration.

The pace of change in our society is quickening. This is true not only for communication and imaging technology, but also for the entire health care industry and the regulations that govern our behavior. American medicine has been criticized for being too expensive and having only average quality. Furthermore, a large number of unnecessary deaths have been attributed to medical error. If our field is going to respond effectively to these many challenges, we must understand the cultures of our various professional organizations in order to enable them to better implement needed responses.

Cardiac CT Angiography (A Practical Guide) (How-to Workshop)

Tuesday, 08:30 AM - 10:00 AM • E260

[Back to Top](#)

IR CT VA CA

RC350 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator

Alison Wilcox , MD *

RC350A • Pre-, Peri-, and Postprocedural Care of Cardiac CT Angiography Patients

Bonnie Garon MD (Presenter)

LEARNING OBJECTIVES

1) Review preprocedural patient preparation including appropriate patient selection, beta blockade, contraindications and alternatives beta blockers. 2) Discuss how to manage nonstandard patients (atrial fibrillation, pacemaker, young adults). 3) Periprocedural issues including vasodilation, continued heart rate control, and breathholding requirements. 4) Image acquisition including radiation dose reduction techniques, technique choice, and post CABG patient. 5) Postprocedural complications include contrast reactions and their management.

ABSTRACT

Cardiac CTA involve slightly more preparation than the standard CT acquisition. Heart rate control is the most important aspect that needs to be addressed prior to the patient arriving in the radiology department. Periprocedural issues mostly involved how to optimize technique while having the lowest radiation dose especially in the new age of dose reduction. Almost as important as heart rate management is how to treat postprocedural complications especially contrast reactions. This presentation will discuss these aspects and include treatment options as well as their alternatives.

RC350B • Clinical Indications for Cardiac CT Angiography

Alison Wilcox MD (Presenter) *

LEARNING OBJECTIVES

1) What is some of the history behind the indications for cardiac CTA. 2) What are the resources available to decide what the clinical indications are for cardiac CTA which may affect reimbursement and patient care. 3) Effectively deliver information to referring clinicians about the uses of cardiac CTA. 4) Discuss indications for cardiac cta in the ED. 5) Some examples of these clinical indications and how they can be applied in daily practice.

ABSTRACT

Although there are many studies that prove the usefulness and cost-effectiveness of cardiac CTA, there remains some skepticism in the medical community. Medicare and other private insurance company reimbursements have limited the use of cardiac CTA. Radiologists and referring clinicians need to be aware of the clinical indications for cardiac CTA and what resources are available to them to make these decisions. The resources are available both from radiology and cardiology groups, as well as from the government. This presentation will discuss those resources and provide examples of those indications. In addition a brief discussion of Cardiac CTA in the ED will be included as a potential use to improve patient care and reduce cost to the ED.

RC350C • Nonatherosclerotic Disease Noted at Cardiac CT Angiography

Jabi E Shriki MD (Presenter)

LEARNING OBJECTIVES

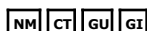
1) Enhance knowledge of normal and abnormal coronary and cardiac anatomy, with an emphasis on differentiating benign from significant variants. 2) Demonstrate the spectrum of nonatherosclerotic congenital and acquired diseases that may affect the coronary arteries. 3) Demonstrate the spectrum of non-atherosclerotic congenital and acquired diseases that may affect the heart.

ABSTRACT

A variety of non-atherosclerotic conditions are detectable on cardiac CT scans, including diseases of the heart, and disease processes which may affect the coronary arteries, or other vascular structures. Cardiac CT has a number of unique advantages in detecting non-atherosclerotic conditions, including congenital and acquired diseases. The focus of this presentation will be non-atherosclerotic conditions of the coronary arteries and of the heart. Variants of normal and abnormal anatomy of the coronary arteries will be discussed, including tips for identifying when coronary anatomic variants are significant. Acquired, non-atherosclerotic diseases of the coronary arteries will also be discussed. This presentation will also discuss the spectrum of non-atherosclerotic diseases of the heart which may be detected at cardiac CT, including congenital and acquired valvular and cardiac diseases. At the end of this exhibit, the viewer will have a better appreciation for abnormal coronary and cardiac anatomy and the broad spectrum of non-atherosclerotic cardiovascular diseases which may be seen at cardiac CT.

CT/PET in the Abdomen and Pelvis: How and When (How-to Workshop) (An Interactive Session)

Tuesday, 08:30 AM - 10:00 AM • E353C



[Back to Top](#)

RC351 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC351A • CT/PET: Value of Iodinated Contrast

Erik K Paulson MD (Presenter)

LEARNING OBJECTIVES

1) Discuss the role of iodinated contrast as a complement to FDG-PET/CT. 2) Discuss appropriate/efficient utilization of PET/CT relative to routine CT or MR.

RC351B • CT/PET: Metabolic Assessment in Reporting

Eric M Rohren MD, PhD (Presenter) *

LEARNING OBJECTIVES

1) Discuss the role of metabolic parameters in response assessment using FDG-PET/CT. 2) Compare the use of anatomic and metabolic response evaluation systems in the evaluation of patients with malignancy.

RC351C • Artifacts/Pitfalls/Incidentals

Terence Z Wong MD, PhD (Presenter) *

LEARNING OBJECTIVES

1) Recognize and address common benign findings on FDG-PET / CT scans that can simulate malignancy. 2) Understand technical factors that can influence interpretation and quantification of FDG-PET studies.

ABSTRACT

Diagnostic accuracy of FDG-PET/CT scans can be degraded by potential technical artifacts during imaging acquisition as well as interpretive pitfalls encountered when evaluating regions of tracer accumulation. Technical artifacts occur relatively frequently due to the complexity of the PET and CT image acquisition and reconstruction; examples of important artifacts will be presented, along with potential solutions. Thoughtful design of PET/CT imaging protocols and attention to detail during image acquisition can reduce the incidence of artifacts. In addition, interpretive pitfalls due to false positive and false negative FDG accumulation is a major source of angst in interpreting oncologic PET/CT studies. Examples of common interpretive pitfalls will be presented along with approaches to distinguish malignant from benign FDG accumulation.

RC351D • Select Issues in Abdominal and Pelvic CT/PET

Andrea G Rockall MRCP, FRCR (Presenter) *

LEARNING OBJECTIVES

1) To know the indications for PET/CT in pelvic malignancy. 2) To recognize the typical findings on FDG-PET/CT in pelvic malignancies, including gynaecologic and urologic cancers. 3) To be aware of some new tracers that are being used in pelvic malignancy.

Doppler US: Visceral, Extremity and Carotid Applications (Hands-on Workshop)

Tuesday, 08:30 AM - 10:00 AM • E264



[Back to Top](#)

RC352 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Shweta Bhatt, MD, MBBS

Wui K Chong, MD *

M. Robert Dejong *

Vikram S Dogra, MD *

Corinne Deurdulian, MD

Edward G Grant, MD *

Ulrike M Hamper, MD, MBA

Felix A Hester

Mark E Lockhart, MD

Mani Montazemi

Michelle L Robbin, MD *

Ravinder Sidhu, MD

Leslie M Scouff, MD *

Sadhna Verma, MD *

LEARNING OBJECTIVES

1) Understand basic concepts associated with abdominal, extremity and carotid Doppler. 2) Describe ultrasound techniques, protocols, and diagnostic criteria for evaluation of the carotid arteries. 3) Gain experience in Doppler techniques through personalized hands-on scanning of models with a variety of ultrasound machines. 4) Describe common pitfalls in Doppler examinations.

ABSTRACT

This hands-on course will focus on the details that constitute good Doppler technique in the evaluation of vascular flow, specifically within the neck, extremities and abdomen. Technical considerations for optimization of Doppler images will be discussed and the concepts will be applied to abnormalities commonly encountered in patients. Initial brief lectures will begin by discussing common pitfalls in vascular imaging and then followed by basic concepts and techniques of

renal Doppler. The majority of the session will give participants an opportunity to scan live models to improve technical skills in color and spectral Doppler. Faculty will be available at multiple stations using a variety of ultrasound machines. Participants will be encouraged to inquire about any areas of interest in the neck, abdomen, pelvis, or extremities during the hands-on component of the course.

URL's
umhamper@jhu.edu

Hands-on HL7 Data Manipulation (Hands-on Workshop)

Tuesday, 08:30 AM - 10:00 AM • S401CD

[Back to Top](#)

IN

RC353 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Richard J Bruce, MD *
Walter W Pepler, PhD *

LEARNING OBJECTIVES

1) Understand where radiology ordering, scheduling, and reporting workflows utilize HL7. 2) Develop a basic understanding of HL7 messaging principles. 3) Gain introductory hand-on experience with HL7 data manipulation. 4) Understand how HL7 can be used to build functionality in a variety of radiology workflows.

ABSTRACT

HL7 messaging is the foundation upon which many healthcare systems rely for interaction and data exchange. Many common radiology functions including order and report transmittal are often dependent on HL7 to function. The goal of this hand-on refresher course is to introduce the attendee to HL7 workflows and some of the tools used to build HL7 interfaces and manipulate HL7 data. More importantly we hope to show why understanding HL7 can be helpful to radiology practices and show where HL7 can be used to build better radiology workflows.

Next-Generation Educational Content Creation: Screencasting and Video Editing (Hands-On)

Tuesday, 08:30 AM - 10:00 AM • S401AB

[Back to Top](#)

IN

RC354 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

George L Shih, MD, MS *
Richard S Ha, MD
Kurt T Teichman, BSC, MENG
Ian R Drexler, MD, MBA

LEARNING OBJECTIVES

1) Assess the potential of online and mobile e-learning innovations to augment your residents', medical students', and staff's educational curricula. 2) Acquire the domain knowledge to use already available content (eg, PowerPoint presentations) to both create video content and deploy e-learning courses on modern web-based and mobile platforms. 3) Acquire the domain knowledge to use already available content (eg, PowerPoint presentations) to electronic books (e-books), with or without digital rights management (DRM), and obtain an ISBN number for publishing.

ABSTRACT

1. From OpenCourseWare to the Khan Academy, and now to Coursera, e-learning has been dramatically improved over the last decade, changing education from the normal classroom into learning done at convenience, and also allows for more creative and engaging content during the typical lecture. Stanford Med recently published positive initial findings in utilizing video-based lectures in an interactive class setting. Leveraging this new way of learning, requires knowledge about the types of technology and platforms for these courses. 2. The workflow required to host an e-learning course can be summarized in 3 steps: (a) creating the educational content, (b) hosting the materials, and (c) making the materials available to the intended audience. E-content today typically consists of lecture slides along with video recordings captured by technology like TechSmith Camtasia (non-free) and Apple Quicktime (free). Once the materials are created and edited, one must choose a suitable hosting platform realistic to the skills and goals of the instructor with options that include coursesites.com, iTunes U, and YouTube / Google Hangouts. Students can then be invited to view the material or the content can be made available to the public. 3. Creating and publishing e-books is a great way to share your teaching material as an engaging interactive tool. Publishing in e-book format solves many logistical problems of conventional publishing and the e-book format has interactive features that paper books can't match. We will review the process of creating your own e-book from assembling material to layout design to submitting for e-publication. Specifically Apple iBooks Author software will be used to demonstrate converting an existing Powerpoint presentation or journal publication into an e-book. In addition, the course will go over how to publish with or without DRM (copy-protection) and ways to obtain an ISBN for publishing for sale. Online resources will also be reviewed.

Using myRSNA®: Hands-on Workshop

Tuesday, 10:30 AM - 12:00 PM • S401CD

[Back to Top](#)

IN

ICIA31 • AMA PRA Category 1 Credit™:1.5

John W Basco, MS

LEARNING OBJECTIVES

1) Understand the different tools and applications within myRSNA. 2) Log in to myRSNA and set up a personal profile. 3) Using the tools within myRSNA, highlight different use case scenarios.

The RSNA Reporting Initiative: Developing a Library of Best-Practices Radiology Report Templates

Tuesday, 10:30 AM - 12:00 PM • S501ABC

[Back to Top](#)

IN

ICII31 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Curtis P Langlotz, MD, PhD *
Charles E Kahn, MD, MS *
Marta E Heilbrun, MD

LEARNING OBJECTIVES

1) Understand the meaning and purpose of structured reporting and standard terminology. 2) Review the progress on RSNA's library of best-practices radiology report templates. 3) Discuss directions for further development of the report template library. 4) Learn how radiologists can use these reporting templates to improve their practice.

ABSTRACT

This session will review the RSNA-sponsored initiative to improve radiology reporting practices. The RSNA has created a library of over 200 exemplary report templates that contain reusable structured data based on RadLex and other standard terminologies. These report templates represent best-practices that can be adopted by radiologists and adapted based on local practice patterns. The template library, available on the RSNA web site, serves as a resource for radiologists who wish to improve their practice by standardizing the format, content, and structure of their reports. Over the last 2 years, the RSNA has collaborated with IHE and DICOM to develop standards for radiology report templates that will provide new reporting capabilities. This session will provide an overview of structured reporting, review the progress of the RSNA-sponsored initiative, and describe how radiologists can take advantage of this effort to improve their clinical practice.

URL's

http://www.rsna.org/Reporting_Initiative.aspx

Overview of RSNA's Teaching File Software (MIRC®)

Tuesday, 10:30 AM - 12:00 PM • S401AB

[Back to Top](#)

RS

IN

ICIW31 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Krishna Juluru, MD
William J Weadock, MD *

LEARNING OBJECTIVES

1) Learn the features of the RSNA's MIRC software for teaching files. 2) Learn how to download and install the software. 3) Learn to use the RSNA MIRC Wiki to obtain documentation on the software.

3D Interactive Visualization of DICOM Images for Radiology Applications: Hands-on Workshop

Tuesday, 12:30 PM - 02:00 PM • S401CD

[Back to Top](#)



ICIA32 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Sonia M Pujol, PhD
Ron Kikinis, MD
Kitt Shaffer, MD, PhD

LEARNING OBJECTIVES

1) Facilitate interpretation of DICOM images through the use of computer-assisted 3D visualization. 2) Increase the understanding of the correlation of the three dimensional relationships of the segments of the liver and lung with the surrounding vascular anatomy. 3) Introduce cutting-edge open-source computer graphics applications for Radiology.

ABSTRACT

Three-dimensional visualization of anatomy is emerging as a vital component of clinical imaging through the combined development of technological breakthroughs in Radiology hardware and increasingly sophisticated software tools for medical image analysis. For the past eight years, the National Alliance for Medical Image Computing (NA-MIC), one of the seven National Centers for Biomedical Computing, and part of the NIH Roadmap for medical research, has converted some of the major scientific advances made by the biomedical imaging community into open-source software tools, contributing to increase the deployment of cutting-edge visualization techniques on a national and international scale. As part of the NA-MIC toolkit, the 3DSlicer open-source software has been developed as a technology delivery platform for clinical researchers. 3DSlicer has evolved into a multi-institution effort to share the latest advances in image analysis with the scientific and clinical community. This workshop is an introduction to the basics of viewing and interacting in 3D with DICOM volumes and anatomical models using the 3DSlicer software. The 90 minute course is divided into three sections: the first part introduces the concepts of 3D visualization through an hands-on training session using an MR DICOM dataset of the brain and 3D reconstructed models of cerebral structures; the second section presents 3D models of the segments of the liver reconstructed from three clinical cases; and the third section guides the user through the exploration of the bronchopulmonary segments of the lung reconstructed from DICOM images. Interactions with 3D anatomical models are fostered by a series of five radiological tasks for participants to complete for each clinical case. Detailed answers to the tasks are provided during the workshop as the instructors guide the audience through the 3D visualization settings to enhance the understanding of the complexity of the anatomical structures involved.

URL's

http://www.na-mic.org/Wiki/index.php/RSNA_2012

Meaningful Use: Experience from Private Radiology Practices

Tuesday, 12:30 PM - 02:00 PM • S501ABC

[Back to Top](#)



ICII32 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator
J. Raymond Geis, MD *
James Whitfill, MD *
Alberto F Goldszal, PhD, MBA *
Alan D Kaye, MD

LEARNING OBJECTIVES

1) Learn how various radiology practices have approached Meaningful Use to date. 2) Understand the challenges of achieving Meaningful Use compliance with existing vendor products available today. 3) Explore ways to participate with either your hospital or multi-specialty practice to achieve Meaningful Use.

ABSTRACT

Display Technology

Tuesday, 12:30 PM - 02:00 PM • S401AB

[Back to Top](#)



ICIW32 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

David S Hirschorn, MD
Michael J Flynn, PhD
Elizabeth A Krupinski, PhD

LEARNING OBJECTIVES

1) Appreciate that displays have undergone significant changes in recent years - primarily a shift towards incorporating color displays into primary interpretation environments, using pairs of displays (2MP or 3MP) vs double wide displays (4MP or 6MP), and total number of pixels to pixel pitch and the impact that has of which display you need to buy. 2) Understand the importance of assessing and balancing the key physical properties of displays when engaged in the purchasing process.

ABSTRACT

Displays have undergone significant change over the past 3-4. Specifically, the changeover to mostly color displays, including why some are resistant to the change, using pairs of displays (2MP or 3MP) vs double wide displays (4MP or 6MP), the shift of focus from total number of pixels to pixel pitch and the impact that has of which display you need to buy (e.g., 2 MP vs 3MP, which is almost double the price), the FDA's relaxation of requiring 5 MP for mammography, special needs for tomosynthesis (need short response time for high frame rate, i.e., video sequence) which is relatively new, benefits of centralized monitoring of a fleet of displays (conformance, especially in light of new state laws requiring such records, and even things like properly budgeting for end of life equipment). What is in the future for displays ♦ touch screens, organic LEDs which have astounding contrast ratios because the blacks are so black (which is not always a good thing). Displays are the only special hardware of PACS that radiologists look at all day long and it is important to understand their features in order to optimize them and make the best purchasing decision.

Monitoring Radiation Exposure: Standards, Tools and IHE REM

Tuesday, 02:30 PM - 04:00 PM • S401CD

[Back to Top](#)



ICIA33 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator
Kevin O'Donnell *
Kevin O'Donnell *
Michael F McNitt-Gray, PhD *
Tessa S Cook, MD, PhD

LEARNING OBJECTIVES

1) Learn about key radiation exposure metrics, such as CTDI, and how to interpret them. 2) Learn about radiation exposure monitoring methods and tools. 3) Capturing dose information with the DICOM Radiation Dose SR (RDSR) standard. 4) Managing RDSR objects with the IHE Radiation Exposure Monitoring (REM) Profile. 5) Integrating 'CT dose screens' from legacy systems into RDSR. 6) Pre-scan dose pop-ups on the CT console defined by the MITA Dose Check standard. 7) Recent AAPM guidance on their use. 8) Learn how to specify the above features when purchasing and integrating Radiology Systems. 9) Learn about components of a dose management program such as protocol optimization. 10) Participation in the ACR Dose Registry, and reporting requirements such as California SB-1237.

Decoding the Alphabet Soup (IHE®, MIRC®, RadLex®, Reporting): Whirlwind Tour of RSNA Informatics Projects

Tuesday, 02:30 PM - 04:00 PM • S501ABC

[Back to Top](#)

IN **ICII33** • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

John Eng, MD
David S Mendelson, MD *
Krishna Juluru, MD
Daniel L Rubin, MD, MS *
Charles E Kahn, MD, MS *

LEARNING OBJECTIVES

1) Articulate the main objectives of each of the RSNA-sponsored informatics projects. 2) Identify the practical problems being addressed by each project. 3) Understand the relationships between these informatics projects.

ABSTRACT

The RSNA is a longstanding leader in developing and promoting informatics tools and technologies for the practicing radiologist. In this refresher course, leaders of four of RSNA's most important informatics projects will introduce their respective projects, discuss the latest work, and describe what these projects mean to the practicing radiologist. MIRC is a set of free software tools for managing radiology teaching files and clinical imaging trials. RadLex is a unified system of radiology terminology that allows standardized description and indexing of many kinds of radiology information for diverse applications. The Reporting project creates and maintains a collection of best-practice radiology report templates. IHE is an organization that promotes standardized communication between all types of health information systems such as PACS.

URL's

http://www.rsna.org/Reporting_Initiative.aspx

Creating, Storing, and Sharing Teaching Files Using RSNA's MIRC®: A Hands On Course

Tuesday, 02:30 PM - 04:00 PM • S401AB

[Back to Top](#)

IN **ED**

ICIW33 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Mary R Wyers, MD
Frederick E Weiss, MD

LEARNING OBJECTIVES

1) Learn how easy it is to install the new and improved RSNA teaching file software with the one-click installer. 2) Learn how to create, organize, and share teaching files, create conference documents and save interesting cases for yourself, your group or your department.

ABSTRACT

Interactive Game: The Audience Participation Game (Chest Imaging)

Tuesday, 04:30 PM - 06:00 PM • E451A

[Back to Top](#)

CT **CH**

RC401 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

LEARNING OBJECTIVES

1) To provide an approach to the imaging evaluation of the patient with mediastinal and lung disease. 2) To list the imaging features that allow categorization of diseases as mediastinal, airway, or interstitial. 3) To enumerate the key radiographic and CT features of these abnormalities with emphasis on providing a focused differential diagnosis. 4) To establish the role of the radiologist in the multidisciplinary approach to the management of affected patients. This interactive session will use RSNA Diagnosis Live™. Please bring your charged mobile wireless device (phone, tablet or laptop) to participate.

ABSTRACT

Diffuse lung disease is a challenging imaging finding as it is often nonspecific. Determination of potential etiologies relies on the clinical profile of the affected patient, the chronicity of symptoms, relevant laboratory findings and the distribution of disease on chest radiography. Although the above may provide clues to the diagnosis, many of these patients are evaluated with thin-section or high-resolution chest CT (HRCT). Diffuse lung diseases may affect the airways, the airspaces and/or the pulmonary interstitium.

Airways diseases may include abnormalities of airway caliber, wall thickness, and bronchiolitis (including cellular and constrictive types). Abnormalities of the airspaces may include alveolar filling with edema fluid, blood, infectious purulent material, lipoprotein and neoplastic cells, among various entities. Interstitial lung diseases are a complex group of idiopathic and secondary lung diseases (including smoking related diseases) often complicated by pulmonary fibrosis. The radiologist plays an important role in the prospective diagnosis of idiopathic interstitial fibrosis. Cystic lung diseases can also be considered within the spectrum of interstitial lung disease and may relate to abnormal cellular proliferations or may be the sequela of cigarette smoking.

This course will present a systematic approach to the imaging evaluation of patients with diffuse lung disease with emphasis on the formulation of a focused differential diagnosis, management recommendations and strategies for establishing the final diagnosis. The course will be presented as a series of case studies and enhanced by the use of the DX Live Audience Participation Game which will allow the audience to analyze the cases and make the diagnoses in a systematic fashion.

RC401A • Interstitial Lung Disease

Laura E Heyneman MD (Presenter)

LEARNING OBJECTIVES

View learning objectives under main course title.

ABSTRACT

RC401B • Mediastinal Disease

Jared D Christensen MD (Presenter)

LEARNING OBJECTIVES

View learning objectives under main course title.

RC401C • Airway Disease

Santiago Martinez-Jimenez MD (Presenter) *

LEARNING OBJECTIVES

View learning objectives under main course title.

Resident Interviewing: Skills that Work!

Tuesday, 04:30 PM - 06:00 PM • E353A

[Back to Top](#)

PR **ED**

RC402 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

LEARNING OBJECTIVES

1) Describe basic interview skills appropriate to various levels. 2) Conduct an effective interview. 3) Avoid interview ❖don'ts.❖

ABSTRACT

Interviewing is a critical part of the hiring process, often the decisive factor in hiring decisions. Additionally, virtually every radiologist will be required to be an interviewer or interviewee during his or her career. Despite the importance placed on interviews, candidates and interviewers rarely undergo training to either 1) present themselves in the most favorable light, or 2) optimize the interview to quickly and accurately assess a candidate's qualifications and personality fit for a particular job. Through didactic teaching and a series of vignettes, this course will review basic interview and interviewing skills for residents, fellows, and staff radiologists as well as for leadership positions at the department level and above (section chiefs, vice chairs, chairs, chief of staff, deans).

RC402A • Program Director, Chair, and Dean as Interviewers

Jonathan S Lewin MD (Presenter)

LEARNING OBJECTIVES
View learning objectives under main course title.

RC402B • Resident, Fellow, and Radiologist as Interviewees

Fred T Lee MD (Presenter) *

LEARNING OBJECTIVES
View learning objectives under main course title.

ABSTRACT

Interviewing is a critical part of the hiring process, often the decisive factor in hiring decisions. Additionally, virtually every radiologist will be required to be an interviewer or interviewee during his or her career. Despite the importance placed on interviews, candidates and interviewers rarely undergo training to either 1) present themselves in the most favorable light, or 2) optimize the interview to quickly and accurately assess a candidate's qualifications and personality fit for a particular job. Through didactic teaching and a series of vignettes, this course will review basic interview and interviewing skills for residents, fellows, and staff radiologists as well as for leadership positions at the department level and above (section chiefs, vice chairs, chairs, chief of staff, deans).

RC402C • Interview Role-Playing

Fred T Lee MD (Presenter) * ; Jannette Collins MD, MEd (Presenter) ; Jonathan S Lewin MD (Presenter)

LEARNING OBJECTIVES
View learning objectives under main course title.

ABSTRACT

Interviewing is a critical part of the hiring process, often the decisive factor in hiring decisions. Additionally, virtually every radiologist will be required to be an interviewer or interviewee during his or her career. Despite the importance placed on interviews, candidates and interviewers rarely undergo training to either 1) present themselves in the most favorable light, or 2) optimize the interview to quickly and accurately assess a candidate's qualifications and personality fit for a particular job. Through didactic teaching and a series of vignettes, this course will review basic interview and interviewing skills for residents, fellows, and staff radiologists as well as for leadership positions at the department level and above (section chiefs, vice chairs, chairs, chief of staff, deans).

URL's
<http://med.uc.edu/radiology/facstaff/collij4/index.html>

Cardiac PET/CT and PET/MR

Tuesday, 04:30 PM - 06:00 PM • N228

NM MR CT CA

[Back to Top](#)

RC403 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC403A • Clinical Indications, Methods and Interpretation of Cardiac Magnetic Resonance Imaging

Gilbert Raff MD (Presenter) *

LEARNING OBJECTIVES

1) To learn appropriate indications for the use of cardiac magnetic resonance imaging. 2) To appreciate the strengths and weaknesses of cardiac MRI in relation to other cardiovascular imaging modalities. 3) To define the relative and absolute contraindications in selecting patients for cardiac MRI. 4) To know the spectrum of clinical information available from cardiac MRI. 5) To learn the basic pulse sequences and MRI protocols most commonly used in cardiac MRI.

ABSTRACT

Cardiac magnetic resonance imaging (CMR) is a noninvasive imaging modality most commonly available in tertiary referral centers. In general, it is a secondary, rather than primary test. However, in many appropriately referred patients, echocardiography, computed tomography, nuclear scintigraphy and/or invasive angiography are insufficient for definitive diagnosis. Additionally, in certain clinical situations primary referral for CMR is preferable due to unique capabilities or institutional preferences and/or expertise. The evaluation of cardiomyopathies is a frequent use of CMR; in particular to differentiate ischemic, infiltrative, restrictive, inflammatory, hypertrophic and idiopathic myopathies. This is due to its unique capacity for tissue characterization using first pass and delayed contrast enhancement and T1 and T2 sensitive pulse sequences. Another use is in pre- and post-operative evaluation of congenital heart disease, in which the ability to provide anatomic, functional and vascular information from the entire thorax is unique, and particularly advantageous in young, radiation sensitive patients. Another frequent indication is analysis of suspected intracardiac or pericardial masses, which also benefits from the anatomic flexibility and tissue characterization capabilities of this modality.

RC403B • Cardiac PET/MRI: Clinical Applications

Pamela K Woodard MD (Presenter) *

LEARNING OBJECTIVES

1) Participants in this course will learn clinical applications of cardiac PET/MRI. 2) Participants in this course will learn potential workflows for the performance of a cardiac PET/MRI myocardial perfusion examination.

RC403C • Cardiac PET Imaging: Perfusion and Viability

Fabio Esteves MD (Presenter)

LEARNING OBJECTIVES

1) Identify the current clinical applications of cardiac PET. 2) Compare advantages and disadvantages of myocardial perfusion PET versus SPECT. 3) Recognize image artifacts associated with cardiac PET/CT. 4) Demonstrate understanding of myocardial viability interpretation and its use in clinical practice.

ABSTRACT

RC403D • The Promise of a Combined MRI/PET Scanner

Bruce E Hammer PhD (Presenter)

LEARNING OBJECTIVES

Basic concepts behind acquiring a MRI and a PET image will be reviewed. Inherent resolution capabilities of MRI and PET imaging modalities as stand-alone scanners will be compared to that of combined MRI/PET scanners. The effect of MRI hardware on PET image quality and that of PET hardware on MRI image fidelity will also be explored.

Current Imaging of the Shoulder: Rotator Cuff and Glenohumeral Joint Instability including Normal Variants, Pitfalls, Controversies, and Postoperative Challenges

Tuesday, 04:30 PM - 06:00 PM • E450A

MR MK

[Back to Top](#)

RC404 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC404A • MR Checklist Approach

David W Stoller MD (Presenter)

LEARNING OBJECTIVES

1) Develop a shoulder checklist method including interpretation techniques for the rotator cuff and interval, biceps labral complex, inferior glenohumeral ligament complex, and capsular structures including the anterior band. 2) Identify glenoid wear patterns in multidirectional instability, microinstability, anterior and posterior instability.

ABSTRACT

The shoulder checklist represents a way of approaching shoulder MRIs consistently by emphasizing key structures that should be reviewed in specific planes. In the coronal plane, the AC joint should be evaluated for arthrosis; the rotator cuff should be evaluated first anteriorly and then posteriorly so that far anterior cuff tears or isolated infraspinatus tears posteriorly are not missed. The biceps labral complex is where the superior labrum and the intrarticular biceps are adherent. The superior labrum is evaluated for intralabral tear or detachment from the biceps. The IGLLC is evaluated for tear or hyperintensity and thickening. The articular cartilage of the humeral head is inspected for congruity. In the axial plane, the anterior inferior labrum is established on the inferior axial images with no fluid between the fibral cartilage and the articular cartilage of the glenoid. The anterior band of the IGL is usually identified at or above the equator. There is no fluid between the posterior labrum and the articular cartilage of the glenoid. The subscapularis tendon is evaluated along its entire insertion from inferior to superior. The extraarticular biceps is evaluated for medial subluxation. In the sagittal plane, the rotator cuff is evaluated to differentiate contributing tendons of the supraspinatus and the infraspinatus and to assess the size of the rotator cuff in the anterior to posterior plane. The biceps pulley at the mid rotator cuff interval is evaluated. The glenoid fossa is inspected for sclerosis or osteophytic ridging.

RC404B • MR of the Rotator Cuff and Impingement including Postoperative Cuff

Michael B Zlatkin MD (Presenter)

LEARNING OBJECTIVES

1) Understand the anatomy of the rotator cuff including the subjacent bony structures that make up the coracoacromial arch, as well as the concept of the rotator cuff footprint. 2) Become familiar with the pathophysiology of rotator cuff disease including classic Neer type extrinsic impingement and other forms of impingement that result in rotator cuff injury. 3) Learn how to classify rotator cuff tears, and their various stages, both partial and complete. 4) Understand the various surgical and arthroscopic techniques used to treat rotator cuff lesions and impingement, and the resultant postoperative anatomy, both bony and soft tissue. 5) Recognise recurrent rotator cuff lesions in the postoperative state.

RC404C • MR of Glenohumeral Ligaments and Biceps Labral Complex

David W Stoller MD (Presenter)

LEARNING OBJECTIVES

1) To understand and identify the relationship of the inferior glenohumeral ligament, and the anterior band attachment variants. 2) The role of the superior glenohumeral ligament relevant to the biceps pulley and its relationship to the CHL ligament. 3) Biceps labral complex will be defined and discussed with Type I-III. 4) BLC sulcus will be defined. 5) SLAP tear pattern recognition and subtypes 1-10 will be reviewed. 6) Relevance of ABER review and MR arthrography.

ABSTRACT

The anterior glenoid labrum provides the major area of attachment for the anterior band of the IGL. The middle glenohumeral ligament (MGL) is considerable more variable, but may also contribute fibers to the more superior aspects of the anterior glenoid labrum as it approaches the biceps tendon. Above the epiphyseal line (i.e. the junctions of the upper and middle thirds of the glenoid body fossa), the attachment of the glenoid labrum is variable. Inferior to the epiphyseal line, the labrum is continuous with the glenoid articular cartilage and serves as the insertion site for the IGL. It is the superior and anterosuperior portion of the labrum that can be variably attached to the glenoid. There are three different types of attachment of the biceps labral complex (BLC) to the glenoid. **IGL**-The IGL consists of anterior and posterior bands and an axillary pouch that attaches to the inferior two-thirds of the entire circumference of the glenoid by means of the labrum. The IGL is lax in the adducted position. As it tightens with increasing adduction, the anterior and posterior. **MGL**-The MGL attaches to the anterior aspect of the anatomic neck of the humerus, medial to the lesser tuberosity. It arises from the glenoid by way of the labrum and scapular neck. The foramen of Weitbrecht is located between the superior glenohumeral ligament (SGL) and MGL, and the foramen of Rouviere is located between the MGL and IGL. **SGL**-The SGL originates from the upper pole of the glenoid cavity and base of the coracoid process, and is attached to the MGL, to the biceps tendon, and to the labrum. It inserts just superior to the lesser tuberosity in the region of bicipital groove.

RC404D • MRI of Instability Excluding SLAP Lesions

Timothy G Sanders MD (Presenter)

LEARNING OBJECTIVES

1) Understand and be able to recognize the MR imaging appearance of lesions of anterior and posterior instability of the glenohumeral joint. 2) Understand the anatomy of the rotator interval and to recognize the lesions of 'micro-instability'. 3) Understand the various injuries that occur in the overhead (throwing) athlete and to be able to recognize these injuries on MR imaging. 4) Recognize on MR imaging the common postoperative complications following shoulder reconstruction for glenohumeral instability.

ABSTRACT

The glenohumeral joint is an intrinsically unstable joint and MR imaging is a very effective noninvasive means of evaluating for the numerous lesions of instability. The standard MR imaging protocols and use of MR arthrography will be discussed. I. There are numerous osseous and soft tissue lesions which can occur in conjunction with anterior and posterior shoulder instability including: -Bankart lesion -Perthes -Anterior labroligamentous periosteal sleeve avulsion injury -Osseous Bankart/Hill Sachs lesions -Humeral avulsion of the glenohumeral ligament -Glenolabral articular disruption II. Lesions of Micro-instability refers to instability lesions which occur within the superior aspect of the glenohumeral joint and include: -SLAP lesions/SLAC lesions -Rotator interval lesions -Biceps anchor and pulley lesions III. Injuries that are commonly seen in overhead (throwing) athletes include: -Extrinsic impingement-instability overlap -Labral and rotator cuff injuries resulting from distraction forces -Internal impingement -Glenohumeral internal rotation deficit disorder IV. Postoperative shoulder complications include: -Breakdown of labral repair/recurrent labral tear -Hardware complications -Chondrolysis of the glenohumeral joint

RC404E • The Role of Ultrasound in the Evaluation of the Shoulder

J. A Bouffard MD (Presenter)

LEARNING OBJECTIVES

1) To enumerate the indications for shoulder ultrasound. 2) To describe the normal ultrasound anatomy of the shoulder. 3) To identify lesions of the rotator cuff. 4) To localize effusions of the shoulder. 5) To recognize shoulder impingement during dynamic imaging.

Interactive Game: Pediatric CNS Disorders

Tuesday, 04:30 PM - 06:00 PM • E451B



RC405 • AMA PRA Category 1 Credit™: 1.5 • ARRT Category A+ Credit: 1.5

Moderator

Erin S Schwartz, MD

LEARNING OBJECTIVES

This interactive session will use RSNA Diagnosis Live. Please bring your charged mobile wireless device (phone, tablet or laptop) to participate.

RC405A • Fetal and Neonatal Brain Disorders

Ellen Grant MD (Presenter)

RC405B • Phakomatoses in Children

Gilbert Vezina MD (Presenter)

LEARNING OBJECTIVES

1) Define the imaging characteristics of the common phakomatoses. 2) Understand the underlying genetic/molecular basis of the imaging findings in the phakomatoses.

ABSTRACT

Presentation summary:

The presentation will review the clinical and imaging findings of the common phakomatoses, primarily neurofibromatosis type 1 and 2, tuberous sclerosis complex, von Hippel-Lindau disease, and Sturge-Weber. The phakomatoses, also known as the neurocutaneous syndromes, are a heterogeneous group of disorders characterized by multiple hamartomas and other congenital malformations affecting mainly structures of ectodermal origin. Many are inherited through autosomal dominant means. The underlying genetic abnormalities that cause most of the phakomatoses are well-characterized, leading to a good understanding of the genotype-phenotype correlation. In most cases, the loss of a suppressor activity results in proliferation of normal and abnormal cells. This

[Back to Top](#)

leads to the characteristic hamartomas and neoplasms seen in many of the phakomatoses.

RC405C • Pediatric CNS Cases

Susan L Rebsamen MD (Presenter)

LEARNING OBJECTIVES

1) To familiarize the diagnostic radiologist as well as the fellowship trained neuroradiologist with the appearance and imaging characteristics of the more commonly encountered developmental brain anomalies as well as other pediatric intracranial pathology. 2) To demonstrate the utility of new technological advances and MRI sequences for the characterization of pediatric intracranial pathology and developmental brain anomalies.

Skull Base and Nerves

Tuesday, 04:30 PM - 06:00 PM • N227



[Back to Top](#)

RC406 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC406A • The Central Skull Base

Nancy J Fischbein MD (Presenter)

LEARNING OBJECTIVES

1) To review the anatomy of the Central Skull Base. 2) To present common and uncommon pathologies that affect the Central Skull Base. 3) To remind the audience of imaging pitfalls of the Central Skull Base. 4) To discuss the complementary roles of CT and MR in imaging the Central Skull Base.

ABSTRACT

Imaging of the skull base presents many challenges due to its anatomical complexity, numerous normal variants, and lack of familiarity to many radiologists. As the skull base is a region which is not amenable to physical exam, and as lesions of the skull base are generally difficult to biopsy and even more difficult to operate on, the radiologist plays a major role in directing patient management via accurate image interpretation. Knowledge of the skull base should not be limited to neuroradiologists and head and neck radiologists, however, as the central skull base in particular is routinely included in the field of view when cross-sectionally imaging the brain, cervical spine, or head and neck with CT or MRI, and hence its nuances should be familiar to general radiologists as well. We review the basic anatomy of the central skull base, including bony anatomy as well as the anatomy of adjacent soft tissue structures. We will also present imaging findings of common and uncommon pathologies of the central skull base, including primary tumors such as chordoma and chondrosarcoma, metastases and plasmacytoma, and non-neoplastic lesions of the central skull base. We will review some imaging pitfalls and **don't touch** lesions of the central skull base, and will emphasize the complementary roles of CT and MR in solving difficult cases.

RC406B • Cranial Nerves I-VI

Jenny K Hoang MBBS (Presenter) *

LEARNING OBJECTIVES

1) To review the anatomy and function of cranial nerves I-VI. 2) To have a systematic approach to evaluating imaging in patients present with suspected cranial nerve disease. 3) To recognize the signs of cranial nerve pathology and the most common differentials for disease in cranial nerves I-VI.

ABSTRACT

RC406C • Cranial Nerves VII-XII

Claudia F Kirsch MD (Presenter) *

LEARNING OBJECTIVES

1) To review anatomy and function of cranial nerves VII- XII. 2) To present a systematic approach to evaluating imaging in patients present with cranial nerve VII- XII pathology. 3) To recognize the imaging findings of cranial nerve pathology in CN VII- XII, and the differential diagnosis associated with the radiographic findings.

ABSTRACT

Bladder, the Forgotten Organ: Role of CT, MRI, and PET in Diagnosis, Staging, and Surveillance of Bladder Cancer

Tuesday, 04:30 PM - 06:00 PM • S402AB



[Back to Top](#)

RC407 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Coordinator

Stuart G Silverman, MD *

Andrew B Rosenkrantz, MD

Homer A Macapinlac, MD

LEARNING OBJECTIVES

1) Learn the latest developments on the role of CT, MRI, and PET/CT in the detection, diagnosis, staging, and surveillance of patients with bladder cancer. 2) Learn currently recommended CT, MRI, and PET/CT techniques and protocols and how to implement them in clinical practice. 3) Learn how to interpret CT, MRI, and PET/CT scans of the bladder with an emphasis on case review and diagnostic pitfalls.

ABSTRACT

The urinary bladder is the most common site of malignancy of the urinary tract and is imaged by radiologists on many abdominal imaging exams. However, historically the bladder has been a **forgotten** organ and thought to be largely the purview of the urologist due to the central role that cystoscopy has played in both the diagnosis and local staging of bladder cancer. Recent advances in CT, MRI, and PET have emerged that now allow radiologists to play an important role in the detection, diagnosis, staging, and surveillance of patients with or suspected of having bladder cancer. This course will detail these advances and explain how, when, and why radiologists should be using these three modalities in clinical practice today. Using illustrative case examples, advances in knowledge such as how CT urography can be used to detect bladder cancer, how MR urography can be used to distinguish muscle-invasive from superficial tumors and evaluate the upper tracts, and how PET/CT (and the newly introduced PET/MRI) can be used to stage and follow patients. With additional advances in low dose CT, emerging MRI techniques, and novel PET agents, radiology will play an increasingly vital role in the care of patients with bladder cancer in the future.

Stroke Imaging for the Emergency Radiologist (An Interactive Session)

Tuesday, 04:30 PM - 06:00 PM • E450B



[Back to Top](#)

RC408 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC408A • Early and Easily Missed Findings on Non-contrast Head CT

Diego B Nunez MD, MPH (Presenter)

LEARNING OBJECTIVES

1) Demonstrate understanding of the role of non contrast brain CT (NCCT) in the setting of acute ischemic stroke. 2) Identify early and subtle CT findings that can easily escape recognition in patients with suspected stroke. 3) Analyze imaging clues to minimize errors in interpretation and to diagnose stroke mimickers and pitfalls.

ABSTRACT

RC408B • Fundamentals of CT Angiography and CT Perfusion in Stroke Imaging

Wayne S Kubal MD (Presenter) *

LEARNING OBJECTIVES

1) Discuss the role of CT angiography (CTA) and CT perfusion (CTP) in the evaluation of acute ischemic stroke. 2) Through the use of illustrative examples, identify CTA and CTP findings that contribute to the diagnosis and characterization of acute ischemic stroke. 3) Through the use of illustrative examples, recognize the limitations and pitfalls of CTA and CTP in the evaluation of acute ischemic stroke.

ABSTRACT

According to the American Heart Association, stroke is the third leading cause of death in the United States and a leading cause of serious, long-term disability. Based on data gathered from over twenty clinical trials, thrombolytic therapy has shown to be of substantial benefit for select patients with acute cerebral ischemia. Patient selection is based in part upon imaging. In patients with acute onset of stroke-like symptoms, CT angiography (CTA) and CT perfusion (CTP) can help to rule out a nonvascular etiology for the symptoms, define the extent of the acute ischemic process, and differentiate between the infarcted core and the ischemic penumbra. By characterizing the ischemia, CTA and CTP can help to identify which patients might benefit from thrombolytic therapy, direct the therapy for maximum effectiveness, and, on subsequent imaging, evaluate the effectiveness of therapy. Multiple examples will also illustrate the limitations and pitfalls of CTA and CTP in the evaluation of acute ischemic stroke.

RC408C • Fundamentals of MR in Stroke Imaging

Peter G Kranz MD (Presenter)

LEARNING OBJECTIVES

1) WHEN: Understand how the appearance of ischemia changes with time on conventional MRI. 2) WHERE: Review the distribution of the major intracranial arteries and their watersheds. 3) WHY: Understand how certain MR imaging patterns can suggest the etiology of stroke.

Gastrointestinal: Tumor Response Assessment

Tuesday, 04:30 PM - 06:00 PM • E350



[Back to Top](#)

RC409 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC409A • RECIST and Other Criteria

Vahid Yaghmai MD (Presenter)

LEARNING OBJECTIVES

1) To review the concepts behind development of anatomic imaging biomarkers. 2) To learn the strengths and weaknesses of RECIST and other anatomic imaging biomarkers. 3) New criteria for evaluation of gastrointestinal tumor response assessment.

ABSTRACT

Improvements in imaging technology and therapeutic options for the management of gastrointestinal tumors have revolutionized the way tumor response to therapy is assessed. Cytotoxic therapies result in tumor shrinkage and their efficacy is commonly assessed by evaluating tumor size based on strict guidelines such as the Response Evaluation Criteria in Solid Tumors (RECIST). This review will familiarize radiologists with the steps that have led to the development and modifications of the RECIST. New cytostatic and locoregional therapies may not change tumor size and have exposed many weaknesses of the RECIST. As a result, tumor and therapy specific response assessment criteria have been developed. These new criteria, including Choi, EASL, mRECIST and irRC will also be discussed.

RC409B • CT and MR Perfusion Imaging

Dushyant V Sahani MD (Presenter)

LEARNING OBJECTIVES

1) Understand newer concepts in oncology including tumor angiogenesis and the evolving role of imaging biomarkers in drug trials. 2) Discuss the basic principles of CT-MR perfusion and limitations of each method. 3) Develop basic knowledge and skills for acquisition and interpretation of perfusion imaging in the abdomen and pelvis. 4) Assess the potential of perfusion imaging in the oncology trials and in non-oncologic clinical settings.

RC409C • Diffusion-Weighted Imaging

Ihab R Kamel MD, PhD (Presenter) *

LEARNING OBJECTIVES

1) Discuss the basic concepts for DWI in body applications. 2) Describe the emerging role of DWI in assessing response in cancer. 3) Discuss the application of DWI in whole body imaging.

ABSTRACT

Diffusion-weighted magnetic resonance imaging (DWI) can provide functional information at a cellular level by measuring water diffusion values. DWI is sensitive to changes in the micro diffusion of water and the apparent diffusion coefficient (ADC) is an indicator of the movement of water within the tissue. In abdominal oncology, DWI has been successfully used in assessing treatment response of liver tumors. In addition, ADC values have been shown to predict tumor response to treatment. In some instances low tumor ADC before treatment can be predictive of better outcome. Assessing response of in the entire tumor volume may be more valuable than a single ROI measurement. Moreover, multiparametric response maps that include changes in both ADC and enhancement after therapy are more predictive of response and patient survival compared to ADC or enhancement alone. We will review the different response criteria for various liver tumors treated with intra arterial therapy. New application of DWI including whole body applications will also be discussed.

RC409D • PET-MR-What Do We Know in 2013

Raj M Paspulati MD (Presenter)

LEARNING OBJECTIVES

1) To understand the PET-MR technology, types of current PET-MR scanners and challenges. 2) To understand the clinical application, comparison with PET-CT, protocols and optimizing work flow. 3) To understand the pitfalls, artifacts and future of PET-MR.

ABSTRACT

Introduction of PET-CT had substantial influence on cancer staging and has become a standard practice of care in certain types of cancer staging, restaging and document tumor response to treatment. The low soft tissue contrast of the CT, especially the low dose non contrast CT is the main limitation of hybrid PET-CT imaging. MR imaging proved to be superior to even contrast enhanced CT certain anatomical regions such as pelvis, head and neck due to its excellent soft tissue contrast resolution. There has been a quest for combined PET ;MRI system to provide anatomical, physiological and molecular information with single integrated imaging. The main hurdle has been the sensitivity of PET photomultiplier tubes to magnetic field. This is overcome and integrated PET-MR systems are now available for clinical practice. There are currently two types of integrated PET-MR systems available from two different vendors. In the sequential type the photomultiplier tubes of PET are shielded from magnetic field by separating the PET and MR gantries. In the simultaneous type Photomultiplier tubes and MR coils are integrated in one system by using magnetically insensitive avalanche photo diodes. Both these systems have some advantages and disadvantages, but have common challenges. MR attenuation correction is the major challenge faced by both type of systems. World wide, there is limited literature available on the utility and clinical application of the PET-MR system. There has been lot of enthusiasm as well as anxiety in incorporating this integrated system into clinical practice by radiologists as well as physicians involved in managing cancer patients. This refresher course addresses these issues of clinical PET ;MR system, key areas where they have impact on patient care and management. At the end of the course the attendees of the course will be familiar with current types of PET-MR systems, clinical applications in oncology, advantages, limitations, pit falls and challenges.

Vascular Doppler (An Interactive Session)

Tuesday, 04:30 PM - 06:00 PM • E353B



[Back to Top](#)

RC410 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC410A • Challenges in Carotid Doppler

Edward G Grant MD (Presenter) *

LEARNING OBJECTIVES

1) Understand the various forms of extracranial pathology affecting the arteries serving the brain and their diagnostic appearance/criteria as seen by the ultrasound examination. 2) Be familiar with the indications for a cerebrovascular examination and its relationship to correlative imaging. 3) Know the criteria set forth by the Society of Radiologists in Ultrasound Consensus Conference for internal carotid artery stenosis and their rationale.

RC410B • Vertebral Artery Ultrasound: A Gateway to the Great Vessels

Mindy M Horrow MD (Presenter) *

LEARNING OBJECTIVES

1) Describe normal anatomy and spectral Doppler of the vertebral arteries. 2) Describe the spectrum of Doppler findings of the subclavian steal phenomenon: pre, partial and complete steal. 3) Detect proximal disease in the innominate vessels and aorta using vertebral artery waveforms in combination with carotid waveforms.

ABSTRACT

RC410C • Ultrasound Evaluation of the Upper and Lower Extremity Veins

Leslie M Scutt MD (Presenter) *

LEARNING OBJECTIVES

1) Describe the US criteria for diagnosis of DVT in the upper and lower extremities. 2) Discuss common pitfalls in US evaluation of DVT. 3) Discuss current controversies in the US evaluation of DVT such as: acute vs chronic (residual) DVT; use of the D-dimer assay; should the calf veins be evaluated; is it appropriate to do unilateral exams. 4) Describe the role of US in identifying other causes of extremity pain and swelling.

ABSTRACT

This lecture will describe the technique and diagnostic criteria for the US diagnosis of DVT in the upper and lower extremities. Common pitfalls in sonographic assessment of DVT will be described as well as current clinical questions in US evaluation of patients suspected of harboring DVT such as: what is the importance of pre-test probability?, what is the role of the D-dimer assay?, how to differentiate acute from chronic DVT?, and should the calf veins be routinely examined? In addition, the US appearance of other causes of extremity pain and swelling will be described as US has been shown to be useful in making alternative diagnoses, which are often important for patient management, in up to 10% of cases.

Improving PET Interpretation: Present Updates in GI and GYN Cancers with Case Examples (An Interactive Session)

Tuesday, 04:30 PM - 06:00 PM • S505AB



[Back to Top](#)

RC411 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC411A • Updates in PET Imaging of GYN Malignancies

Drew A Torigian MD, MA (Presenter)

LEARNING OBJECTIVES

1) To learn about the diagnostic performance of PET/CT for evaluation of various gynecologic malignancies. 2) To better understand the practical utility of PET/CT for evaluation of gynecologic malignancies through case example. 3) To learn about new horizons in PET for evaluation of gynecologic malignancies.

ABSTRACT

RC411B • Updates in PET Imaging of Colorectal Malignancies

Harry Agress MD (Presenter)

LEARNING OBJECTIVES

1) Understand the increasingly important role of PET/CT imaging in the evaluation of staging and restaging of colorectal cancer with the use of case studies and literature review. 2) Demonstrate how PET/CT helps guide surgical, endoscopic and CT-guided approaches for evaluating the presence of colonic malignancy in such cases as unexpected pre-clinical colonic lesions and metastatic disease. 3) Learn how to deal with subtle findings and understand the important correlation of the PET and CT components of the examination to optimize interpretation.

ABSTRACT

URL's

www.hrgimaging.com Go to [For Physicians](#) [Download](#) ? RSNA 2010

RC411C • Updates in PET Imaging of Other GI Malignancies

Paul D Shreve MD (Presenter)

LEARNING OBJECTIVES

1) List the gastrointestinal malignancies that tend not to be FDG avid. 2) Describe the role of FDG PET-CT in initial staging of pancreatic cancer. 3) Compare the GIST tumor response criteria of FDG PET vs CT. 4) Compare FDG PET-CT with MRI in evaluation of primary hepatic and biliary tract malignancies.

Advanced Vascular Imaging Techniques and Applications

Tuesday, 04:30 PM - 06:00 PM • S502AB



[Back to Top](#)

RC412 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC412A • MRI of Chronic Mesenteric Ischemia

Frاندics P Chan MD, PhD (Presenter) *

LEARNING OBJECTIVES

1) To review the natural history and treatment outcome for mesenteric ischemia. 2) To distinguish the imaging work ups for acute versus chronic mesenteric ischemia. 3) To learn how to image the abnormal physiologic responses of chronic mesenteric ischemia.

ABSTRACT

Mesenteric ischemia is the result of inadequate perfusion and oxygen delivery to the small intestine caused by vascular obstructions. Acute mesenteric ischemia (AMI) brought on by the abrupt occlusion of the superior mesenteric artery is a medical emergency. Mortality rate of AMI has been reported as high as 80%. Prompt CT angiography of the abdomen is the diagnostic imaging of choice. In contrast, chronic mesenteric ischemia (CMI) is the result of gradual obstructions of multiple splanchnic arteries. 90% of cases are caused by advanced atherosclerotic. Clinical diagnosis is difficult because symptoms are often vague and nonspecific. The classic clinical triad of gradual weight loss, fear of large meal, and post-prandial bowel angina may be absent. The gradual nature of the arterial obstruction promotes development of collateral arteries. The finding of an occluded splanchnic artery on angiography is not necessarily diagnostic of CMI. In difficult cases, a physiologic test that can demonstrate the sequelae of bowel ischemia would be helpful. Different imaging protocols have been proposed to detect changes in blood flow and oxygen saturation in the mesenteric circulation after a meal challenge. We will review some of these protocols and their abnormal physiologic responses indicative of CMI.

RC412B • Renovascular MRI

Henrik J Michaely MD (Presenter) *

LEARNING OBJECTIVES

1) To familiarize the audience with multi-parametric MRI of the kidneys including: MRA, MR-perfusion measurements, DWI, DTI and BOLD imaging. 2) To point out the physical basis of functional MRI of the kidneys. 3) To present clinical applications of functional MRI of the kidneys.

ABSTRACT

Due to its complementary information to standard morphological functional renal magnetic resonance imaging is a rapid growing field of radiology. This refresher course provides a comprehensive overview of state-of-the-art functional renal imaging techniques including renal magnetic resonance angiography (high-yield information on improving your clinical practice), first pass renal perfusion for assessment of renal function (how to and clinical applications), blood-oxygen level dependant imaging of the kidneys and diffusion-weighted imaging of the kidneys including diffusion-tensor imaging of the kidneys. Basic technical concepts for all sequences will be laid out and will be illustrated by current clinical examples. Future applications of functional renal imaging are presented which also include iron-enhanced MRI.

RC412C • Pre and Post Reconstructive Surgery Vascular Imaging

Frank J Rybicki MD, PhD (Presenter) *

LEARNING OBJECTIVES

1) To understand the principles of vascular imaging in organ transplantation and reconstructive/ restorative surgery. 2) To learn common angiography protocols for vascular mapping and surgical planning. 3) To review image post-processing that renders findings optimal for communication with the comprehensive patient care team. 4) To review the most recent imaging results in pre- and post organ transplantation and reconstructive/ restorative surgery.

ABSTRACT

Complex transplantation and restorative surgery, such as full face transplantation, is a unique model for studying vascular adaptation and the interaction between donor and recipient vascularized tissue. There are important consequences for surgical planning, and to date there is no published data on the mechanisms of vascular reorganization after these complex procedures. Data will be presented that hold potential to better our understanding of the biology after complex restorations, and these data have important implications on graft survival and rejection. This refresher course lecture will provide an overview of these complex processes from the perspective of vascular imaging, and the lecture will illustrate the arterial and venous adaptation to this unique environment. As the number and complexity of these procedures increases on a global scale, this initial evaluation is designed to serve as a template for future studies that will positively impact surgical outcomes and patient care.

RC412D • Functional Vascular Imaging in Athletes

Richard L Hallett MD (Presenter)

LEARNING OBJECTIVES

1) Identify anatomic and functional lesions that predispose to vascular entrapment and fibrotic syndromes in athletes. 2) Describe methods to assess vascular entrapment and fibrotic syndromes in athletes using dynamic, functionally challenged CTA and MRA. 3) Describe the imaging findings for diagnosis and follow-up of affected athletes.

ABSTRACT

While exercise is a mainstay in preventing and treating atherosclerotic peripheral vascular disease, some vascular disorders manifest primarily in athletes. Both recreational and competitive athletes are at risk for development of non-atherosclerotic vascular diseases. These disease entities range from iliac endofibrosis in cyclists, popliteal entrapment syndrome in running sports, and thoracic inlet / outlet syndromes in overhead athletes. Recently, computed tomography angiography (CTA) and magnetic resonance angiography (MRA) have become valuable diagnostic options for many vascular diseases that can occur in the athlete. Optimum imaging in these disorders requires the ability to tailor the exam protocol to the specific disease entity and vascular territory in question. By combining rapid CT image acquisition with functional, physiologic provocative maneuvers, diagnostic information can be maximized. Newer blood-pool MR contrast agents also allow functional assessment without ionizing radiation exposure. This session will review the pathophysiology, risk factors, diagnosis, and classification of vascular diseases seen in the athlete. Logical protocol development utilizing (when necessary) provocative maneuvers will be reviewed. Interpretation strategies for interacting with these resulting large, dynamic datasets will also be reviewed.

No Course RC413. See Series VSPD32 Pediatric Radiology Series: Advanced Pediatric Abdominal Imaging

Tuesday, 04:30 PM - 06:00 PM

[Back to Top](#)

RC413

Pain and Sedation in 2013

Tuesday, 04:30 PM - 06:00 PM • N226

[Back to Top](#)



RC414 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Max P Rosen, MD, MPH *
Fred E Shapiro, DO
Hesham H Malik, MD
Richard D Urman, MD, MBA

LEARNING OBJECTIVES

1) Review of institutional requirements for providing moderate and/or deep sedation vs. minimal sedation. 2) Medico-legal ramifications of moderate, deep or minimal sedation. 3) Nuts and Bolts: pearls on how to survive an 'accreditation' visit. 4) Patient and Procedure selection: Should I consult an anesthesiologist? 5) Case presentation and discussion: Common disasters and how to avoid them.

Breast Interventional Procedures

Tuesday, 04:30 PM - 06:00 PM • S406B

[Back to Top](#)



RC415 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC415A • Stereotactically-guided Breast Biopsy

Cecilia L Mercado MD (Presenter)

LEARNING OBJECTIVES

1) Understand the basis of performing stereotactically-guided breast biopsies. 2) Understand the practical use, indications, pitfalls and limitations of the procedural technique. 3) Demonstrate understanding of the importance of concordance and multidisciplinary management of results.

ABSTRACT

Stereotactically-guided breast biopsy has become a common procedure routinely used in the diagnosis of breast abnormalities. This discussion will review the basics of the procedural techniques and will focus on the indications and practical usage of stereotactically-guided breast biopsies. It will also detail troubleshooting techniques that may be useful while performing difficult cases; these include apparent lesion movement, targeting errors, targeting far posterior or superficial breast lesions and targeting lesions in the thin breast. Contraindications and pitfalls of the technique will be outlined, and limitations of the procedure will be elucidated. The discussion will also emphasize the importance of radiologic-pathologic concordance and the importance of a multidisciplinary approach to management of biopsy results.

RC415B • US-guided Biopsy

Mary C Mahoney MD (Presenter) *

LEARNING OBJECTIVES

1) Discuss the types of US-guided breast intervention. 2) Review technical considerations related to US-guided intervention. 3) Describe post-biopsy management.

ABSTRACT

The proliferation of image-guided biopsies has been driven by the high levels of accuracy for percutaneous techniques, advantages over surgery, as well as a recognition that most lesions undergoing breast biopsy are benign and do not require surgery. US has emerged as the preferred guidance method for interventional procedures for several reasons. These include better patient tolerance, the speed with which the procedure can be performed, the benefit of real time visualization, greater accessibility to areas of the breast and axilla, lack of ionizing radiation, and lower cost.

RC415C • I-125 Seed Localization

Michelle D McDonough MD (Presenter)

LEARNING OBJECTIVES

1) Understand procedural technique for I-125 seed localization utilizing mammographic and US guidance Be able to describe advantages and disadvantages of I-125 seed localizations compared to conventional hookwire localizations. 2) Be able to describe advantages and disadvantages of I-125 seed localizations compared to conventional hookwire localizations. 3) Understand importance of an intergrated multidisciplinary approach and involvement in Nuclear Regulatory requirements.

ABSTRACT

I-125 seeds are small radioactive sources measuring approximately 5mm that can be deployed thru a hollow needle. These seeds can be detected with a gamma probe in the operating suite and are therefore suitable to be placed for breast biopsy or lumpectomy localization for non palpable lesions. This discussion will focus on the advantages of implementing an I-125 seed localization program as compared to the use of a hookwire for localization of breast lesions for surgical excision including; no significant migration, uncoupling of the radiology and the surgery schedule, improved patient satisfaction and comfort, decreased tissue volume at time of surgery and an increased negative margin rate. Disadvantages to be detailed include; inability to place I-125 seeds under MRI guidance, significant restriction and hurdles to be overcome due to radiation safety concerns that vary widely between states and required integration between multiple specialties to track and retrieve seeds. Basic placement techniques will be reviewed using mammographic and ultrasonic guidance.

Patient-centered Radiology: How to Communicate Effectively (Sponsored by the RSNA Public Information Committee)

Tuesday, 04:30 PM - 06:00 PM • N229

LM GN

[Back to Top](#)

RC416 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator

Judy Yee, MD *
Brent J Wagner, MD
Elliot K Fishman, MD *
Susan D John, MD

LEARNING OBJECTIVES

1) Understand the rationale for and growing value of increased personalization of patient interactions in diagnostic radiology. 2) Recognize the best opportunities for increasing patient awareness of radiologists' contributions and how to demonstrate this in various practice settings. 3) Identify and implement patients' preferred method of communications, including traditional, digital and current social media.

ABSTRACT

Modern medicine has become so complicated and sub-specialized that patients and their families often are confused. Frequently patients are not even aware that a radiologist is providing important services or the nature of those services. In the current era of consumer-driven healthcare, outsourcing of imaging services and growing competition from non-radiologists, radiologists must provide personal and patient-friendly services and connect with patients to prevent imaging from becoming a commodity. The way to personalize and optimize patient contact varies according to practice setting. This course will provide specific examples and strategies for experienced imaging professionals as well as residents and fellows.

Quantitative CT and MR Perfusion Imaging

Tuesday, 04:30 PM - 06:00 PM • S504CD

OI MR CT BQ GI

[Back to Top](#)

RC417 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator

Sandip Biswal, MD *

LEARNING OBJECTIVES

1) To understand the principles of CT perfusion analysis for tumor assessment. 2) To understand the pathophysiological basis of CT perfusion parameters for tumors. 3) To understand unique CT perfusion analysis of the liver due to its characteristic dual blood supply. 4) To describe the potential clinical applications, with a focus on hepatic and extrahepatic applications and clinical trials. 5) To discuss several recent challenging issues regarding CT perfusion. 6) To discuss areas for further development including assessment of tumor heterogeneity.

ABSTRACT

With the emergence of novel targeted therapies for cancer, imaging techniques that assess tumor vascular support have gained credence for response assessment alongside standard response criteria. CT perfusion techniques that quantify regional tumour blood flow, blood volume, flow-extraction product, and permeability-surface area product through standard kinetic models, are attractive in this scenario by providing evidence of a vascular response or non-response. Additionally, these techniques may provide prognostic and predictive information to the clinician. Their increasing acceptance in oncological practice in recent years has been related to the combination of clinical need and technological improvements in CT, including faster tube rotation speeds, higher temporal sampling rates, the development of dynamic 3D acquisitions and development of commercial software programmes embedded within the clinical workflow. Recently published consensus guidelines provide a way forward to performing studies in a more standardized manner. To date single centre studies have provided evidence of clinical utility. Future studies that include good quality prospective validation correlating perfusion CT to outcome endpoints in the trial setting are now needed to take CT perfusion forward as a biomarker in oncology. These presentations will cover the principles of CT perfusion analysis for tumor assessment and its pathophysiological basis. Clinical applications will be discussed focusing on hepatic and extrahepatic applications and clinical trials. Areas for further development including assessment of tumor heterogeneity will also be discussed.

RC417A • CT Perfusion in Oncology: Hepatic Imaging

Se Hyung Kim (Presenter)

LEARNING OBJECTIVES

1) To understand unique CT perfusion analysis of the liver due to its characteristic dual blood supply. 2) To describe the potential clinical applications, with a focus on hepatic applications. 3) To discuss several recent challenging issues regarding CT perfusion.

RC417B • CT Perfusion in Oncology: Extrahepatic Imaging

Vicky J Goh MBBCh (Presenter) *

LEARNING OBJECTIVES

1) To understand the principles of CT perfusion analysis for tumor assessment. 2) To understand the pathophysiological basis of CT perfusion parameters for tumors. 3) To describe the potential clinical applications, with a focus on extrahepatic applications and clinical trials. 4) To discuss areas for further development including assessment of tumor heterogeneity.

ABSTRACT

With the emergence of novel targeted therapies for cancer, imaging techniques that assess tumor vascular support have gained credence for response assessment alongside standard response criteria. CT perfusion techniques that quantify regional tumour blood flow, blood volume, flow-extraction product, and permeability-surface area product through standard kinetic models, are attractive in this scenario by providing evidence of a vascular response or non-response. Additionally, these techniques may provide prognostic and predictive information to the clinician. Their increasing acceptance in oncological practice in recent years has been related to the combination of clinical need and technological improvements in CT, including faster tube rotation speeds, higher temporal sampling rates, the development of dynamic 3D acquisitions and development of commercial software programmes embedded within the clinical workflow. Recently published consensus guidelines provide a way forward to performing studies in a more standardized manner. To date single centre studies have provided evidence of clinical utility. Future studies that include good quality prospective validation correlating perfusion CT to outcome endpoints in the trial setting are now needed to take CT perfusion forward as a biomarker in oncology. This presentation will cover the principles of CT perfusion analysis for tumor assessment and its pathophysiological basis. Clinical applications will be discussed focusing on extrahepatic applications and clinical trials. Areas for further development including assessment of tumor heterogeneity will also be discussed.

RC417C • Technical Considerations for Perfusion Imaging: CTP, DSC, and ASL

Roland Bammer PhD (Presenter) *

LEARNING OBJECTIVES

1) Understand the key technical principles of Dynamic Susceptibility Contrast, Arterial Spin Label, and CT Perfusion Imaging. 2) Know the basic MR pulse

sequences and CT acquisition schemes for perfusion imaging. 3) Appreciate the strengths and weaknesses between CT and MR Perfusion imaging methods. 4) Understand the Central Volume Principle, Diffusible Tracer, and Deconvolution Methods.

RC417D • Quantitative MR Perfusion Imaging of the Brain

Greg Zaharchuk MD, PhD (Presenter) *

LEARNING OBJECTIVES

1) Understand the difference between quantitative and qualitative perfusion measurements. 2) Distinguish several approaches for obtaining quantitative perfusion maps in the brain. 3) Appreciate the strengths and weaknesses between the two major techniques, arterial spin labeling and bolus contrast dynamic susceptibility imaging.

Imaging Mimics of Common Malignancies

Tuesday, 04:30 PM - 06:00 PM • N230

01

[Back to Top](#)

RC418 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC418A • Brain Tumor Mimics

Soonmee Cha MD (Presenter)

LEARNING OBJECTIVES

1) Present an overview of various brain tumor mimicking lesions on imaging that can pose diagnostic dilemma and challenges in clinical management and assessment of prognosis. 2) Illustrate the three different disease processes--infectious, ischemic, and inflammatory--in the brain that most often mimic brain tumor on imaging. 3) Discuss imaging strategies to avoid making erroneous diagnosis and present specific imaging features that can help to differentiate brain tumor and brain tumor mimics.

RC418B • Mimics of Thoracic Cancers

Steven L Primack MD (Presenter)

LEARNING OBJECTIVES

1) To present a category based differential approach to mimics of thoracic malignancy. 2) To demonstrate imaging features of a variety of entities that can mimic thoracic malignancy. 3) To present an approach to help distinguish mimics from malignancy.

ABSTRACT

RC418C • Mimics of Abdominal Malignancy

Cynthia S Santillan MD (Presenter)

LEARNING OBJECTIVES

1) To familiarize radiologists with congenital, infectious, and inflammatory entities that may mimic abdominal malignancies. 2) To demonstrate some artifacts that can be misinterpreted as abdominal malignancies. 3) To demonstrate imaging features that can distinguish between these entities and neoplasms.

ABSTRACT

RC418D • Mimics of Gynecologic Cancers

Liina Poder MD (Presenter)

LEARNING OBJECTIVES

1) Present an overview of various mimics of cancers of GYN origin, a case-based approach. 2) Discuss multi-modality approach to imaging and imaging strategies to avoid pitfalls in diagnosis.

ABSTRACT

Review of more common as well as rare benign conditions that can mimic malignancy of gynecologic origin.

Medical Physics 2.0: Radiography

Tuesday, 04:30 PM - 06:00 PM • E351

PH

[Back to Top](#)

RC421 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Co-Director

Ehsan Samei , PhD *

Co-Director

Douglas E Pfeiffer , MS *

LEARNING OBJECTIVES

1) To gain an appreciation for the broad developments in radiography technology and operation from film to digital, CR to DR, and the implications. 2) To understand the major challenges to optimized radiography that can be addressed by physics input and expertise.

ABSTRACT

Radiography continues to be the mainstay of medical imaging practice worldwide. The last 30 years have witnessed a number of major technological transitions in radiography, in particular from analogue to digital technologies, and from CR to DR. While these and newer advances have addressed a number of prior shortcomings, they have introduced new challenges. Image post-processing, for example, while praised as an asset of digital operation, has often been underutilized and suboptimal. This lecture aims to provide a historical perspective on these topics and to offer topics that worth the focus of the medical physics community.

RC421A • Radiography Perspective

Ehsan Samei PhD (Presenter) *

LEARNING OBJECTIVES

View learning objectives under main course title.

RC421B • Radiography 1.0

Aaron K Jones PhD (Presenter)

LEARNING OBJECTIVES

1) Review the testing philosophies, tests, and foci of current quality control programs in radiography. 2) Understand the motivation and basis for these current foci. 3) Investigate the limitations, shortcomings, and relevancy of these current foci in the modern radiography era.

RC421C • Radiography 2.0

Eric L Gingold PhD (Presenter)

LEARNING OBJECTIVES

1) Identify the likely changes in medical physics services for radiographic systems over the next 5-10 years. 2) Recognize the value of data logging capabilities of modern digital radiographic systems. 3) Understand how to utilize data to identify quality issues and recommend changes that can improve performance in digital radiography. 4) Understand how to employ modern image performance metrics to analyze image quality and assist facilities in optimizing the capabilities of radiographic systems. 5) Utilize modern process control methods to monitor stability.

ABSTRACT

Uncertainties in Imaging for Radiation Oncology: Sources and Mitigation Techniques-Imaging for Target Definition

Tuesday, 04:30 PM - 06:00 PM • S102D

[Back to Top](#)

PH RO

RC422 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5
Co-Director, Moderator
Robert Jeraj

RC422A • Uncertainties in Physical Target Definition Using PET

Assen S Kirov PhD (Presenter) *

LEARNING OBJECTIVES

1) PET segmentation requirements for target definition. 2) Types of PET auto-segmentation approaches. 3) Challenges for PET segmentation.

URL's

<http://www.mskcc.org/staff/assen-kirov>

RC422B • Practice and Uncertainties in Biological Target Definition

Robert Jeraj (Presenter)

LEARNING OBJECTIVES

1) Dose painting definitions. 2) Dose painting workflow. 3) Uncertainties in dose painting. 4) Dose painting studies.

Minicourse: Current Topics in Medical Physics-Nuclear Cardiac Imaging for Physicists

Tuesday, 04:30 PM - 06:00 PM • S403B

[Back to Top](#)

PH NM CA

RC423 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5
Moderator
G. Donald Frey, PhD

LEARNING OBJECTIVES

1) The participant will understand the role of nuclear cardiology in the diagnosis of cardiac disease. 2) The participant will understand the role of the medical physicist in PET imaging of the heart. 3) The participant will understand the role of SPECT imaging of the heart.

RC423A • Introduction

G. Donald Frey PhD (Presenter)

LEARNING OBJECTIVES

1) The participant will have an overall orientation to the role of medical physics in nuclear cardiology.

ABSTRACT

This section of the course will provide an overall introduction

RC423B • SPECT Imaging of the Heart

Mark T Madsen PhD (Presenter)

LEARNING OBJECTIVES

1) Understand how cardiac SPECT studies are acquired. 2) Understand how cardiac SPECT studies are reconstructed and what corrections are required. 3) Understand how cardiac SPECT studies are analyzed. 4) Become familiar with cardiac SPECT instrumentation.

ABSTRACT

Cardiac SPECT is the most common nuclear medicine procedure and it contributes nearly 85% of the radiation dose associated with nuclear medicine imaging. In this presentation, the instrumentation and algorithms associated with cardiac SPECT will be reviewed. We begin with conventional general purpose SPECT systems that rely on parallel collimation along with the associated special purpose cardiac SPECT systems that are based on the conventional approach. Recent advances in SPECT instrumentation have made available cardiac systems that rely on novel collimation and detector systems and these will also be reviewed. SPECT reconstruction approaches will be discussed including methods for motion, scatter and attenuation correction. Commercially available resolution recovery software for improving image quality and potentially reducing patient dose will round out the presentation..

RC423C • PET Imaging of the Heart

Sameer Tipnis PhD (Presenter)

LEARNING OBJECTIVES

1) To understand the basic physics of cardiac PET imaging and the differences with cardiac SPECT. 2) To learn the proper way of acquiring data, including ECG gating, choice of bins, list mode data acquisition. 3) To understand the factors that affect image quality. 4) To learn tips for acquiring good clinical images. 5) To understand the role of dynamic PET imaging for determination of coronary flow reserve (CFR).

ABSTRACT

Publishing in Radiology: What You Always Wanted to Know and Never Asked

Tuesday, 04:30 PM - 06:00 PM • E352

[Back to Top](#)

PR ED

RC424 • AMA PRA Category 1 Credit™:1.5
Moderator
Herbert Y Kressel, MD *
Deborah Levine, MD *
Alexander A Bankier, MD, PhD *
Elkan F Halpern, PhD *
David F Kallmes, MD *

LEARNING OBJECTIVES

1) Understand on what a manuscript submitted to RADIOLOGY is judged during the review and decision process. 2) Understand why it is important to clearly represent research results so that all parts of the written manuscript clearly reflect the research question. 3) Understand how to organize the inner logic of a manuscript submitted to RADIOLOGY. 4) Illustrate how graphs and charts can be best utilized to appropriately illustrate your results. 5) Understand the common statistical errors in manuscripts and how they can be avoided.

ABSTRACT

More than 2000 manuscripts per year are submitted to RADIOLOGY. Despite their variety in their subject matter and content, many manuscripts share common problems in the research design, description, and style which need improvement. The Publication Information for Authors is available on-line at <http://www.rsna.org/publications/rad/PIA/index.html>. This provides a basic set of guidelines for manuscript preparation and submission. This presentation will complement and extend beyond these guidelines by further illustrating points from the Publication Information for Authors with realistic examples and tangible scenarios based on our experience with the submission, review, and decision making process. The Editor, three Deputy Editors, and statistician of RADIOLOGY will provide practical tips as well as Do's and Don'ts for preparing the major elements of a RADIOLOGY manuscript. In addition, we will discuss the most common statistical problems we encounter in reviewing manuscripts, and discuss the issue of why many published research results turn out to be incorrect. At the end of the session, the registrants will gain an enhanced understanding of the required elements of an original submission, and have a better understanding of common author pitfalls encountered during manuscript review and the editorial process.

**RC425** • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5**Director**
Michael F McNitt-Gray, PhD ***RC425A • The Physical Principles and Challenges of Dynamic Contrast Enhanced MRI Applications****Edward F Jackson** PhD (Presenter)**LEARNING OBJECTIVES**

1) Understand selected applications of quantitative MR imaging biomarkers, particularly DCE-MRI applications. 2) Understand the factors that currently limit widespread acceptance and use of such quantitative MR imaging biomarkers, including sources of bias and variance. 3) Understand some of the current initiatives focused on the standardization, qualification, and validation of selected quantitative MR imaging biomarkers.

ABSTRACT

Clinical and clinical research applications of quantitative anatomical and functional MR imaging biomarkers, including those focused on treatment assessment, have continued to dramatically expand. Studies at single centers have clearly demonstrated the potential of such applications. However, sources of bias and variance of quantitative MR imaging biomarkers have not previously been adequately investigated, thus limiting the implementation of robust methods to mitigate their effects. Therefore, when it comes to applications of such techniques across vendor platforms, centers, and time, challenges arise due to lack of standards, appropriate phantoms, and protocols. During the past few years, several quantitative MR imaging initiatives have been instigated. This symposium presentation will review selected applications of quantitative MR imaging biomarkers, illustrate some of the current challenges in broadening the use of such biomarkers, and discuss some of the current initiatives of various scientific and federal organizations that are focused on the standardization, qualification, and validation of MR quantitative imaging biomarkers. Specific examples of DCE-MRI applications and standardization efforts will be provided.

URL's
web.me.com/efjackson**RC425B • Clinical Applications of Quantitative DCE-MRI****Michael V Knopp** MD, PhD (Presenter)**LEARNING OBJECTIVES**

1) To apply the concepts and pathophysiology of quantitative DCE MRI in clinical applications. 2) To review technical and procedure considerations for clinical applications. 3) To familiarize with current and evolving clinical applications of qDCE-MRI. 4) To utilize qDCE-MRI in and interpret clinical applications.

ABSTRACT

Dynamic contrast enhanced MRI has evolved over the last two decades into a readily available MRI add-on procedure that enables a spatial and time resolved insight into the microcirculation of tissues, both neoplastic as well as benign. While the cinematic display of the temporal contrast enhancement as well as the visual inspection of a signal intensity curve placed over a region of interest enables a ready visual perception of the characteristics of contrast enhancement, a methodological data reduction to a quantitative readout has been more challenging to validate, implement and interpret. Today, the fundamental pathophysiology, appropriate MRI acquisition and post-processing approach are well understood. Quantification is a key enabler to use imaging more as a disease (bio) marker especially for monitoring disease response or progression, as well as putting a more structured interpretation of the dynamic imaging findings into the patient care process. The clinical applications that benefits the most are those where the extent and/or intensity of tissue microcirculation can serve as a marker of biologic characteristics, guide the further diagnostics (tissue biopsies) and/or therapy management. The most common use of applying the fundamental methodologies of DCE-MRI is MR Mammography which is further evolving from a purely morphologic to a semi-quantitative or quantitative imaging procedure. Characterizing malignant tissues, inflammation or angiogenic processes with quantitative approaches is expanding our radiologic toolbox and ability to provide outcome impacting information. Quantitative DCE MRI is evolving to be an increasingly meaningful, clinically relevant and obtainable functional readout of the underlying tissue microcirculation and it will depend on our expansion of radiologic disease insight to truly capitalize on its capabilities.

RC425C • Oncologic Applications of Quantitative DCE-MRI**Anwar R Padhani** MD (Presenter) ***LEARNING OBJECTIVES**

1) To show that DCE-MRI can be analyzed using qualitative to quantitative methods. 2) To illustrate that routine clinical use of DCE-MRI makes use of qualitative assessments. 3) To indicate that early drug development requires quantification including reproducibility assessments. 4) To realise that complex DCE analysis has roles in validation, drug development, and is needed for multiparametric assessments.

ABSTRACT

Using DCE-MRI in oncologic clinical practice should not be delayed/hindered by the complexities of the technique. The last 20 years of validation work allows us to be confident that DCE-MRI (morphology, subtraction maps, curve shapes and semi-quantitative methods) work in the clinic. Complex quantitative DCE analysis has roles in validation, drug development, and is needed for multiparametric assessments. Future work should now focus on incorporating mpMRI imaging for directing personalized medicine.

Next Generation Infrastructure for Medical Imaging (In Association with the Society for Imaging Informatics in Medicine)**RC426** • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5**Moderator**
Paul J Chang, MD ***RC426A • Interoperability and Integration-from HL7, DICOM, IHE, to SOA****Paul J Chang** MD (Presenter) ***LEARNING OBJECTIVES**

1) The participant will be introduced to the importance of information system integration and interoperability to support modern radiology workflow. 2) Examples of practical integration strategies that have been used successfully (e.g. web viewer EHR integration, single sign-on, RIS vs PACS driven workflow) will be discussed. 3) Advanced integration strategies, including using vendor APIs, state aggregation, SOA, and IHE, will be presented.

ABSTRACT

Modern radiology workflow requires consumption, choreography, and orchestration of content from multiple disparate information systems that do not natively talk to each other. Without optimal integration and interoperability amongst these systems, humans are required to serve as integrating agents: this frequently results in inefficiency and error. This session will provide an introduction to the importance of system integration and will provide a practical introduction to commonly used integration strategies. In addition, more advanced integration approaches, including leveraging vendor APIs (application programming interfaces), IHE, and SOA (service oriented architecture) will be discussed.

RC426B • Image Sharing-A Fond Farewell to CDs**David S Mendelson** MD (Presenter) ***LEARNING OBJECTIVES**

1) Understand the importance of Image Sharing / Exchange with regard to the quality of care a radiologist delivers as well as to efforts to control costs. 2) Understand the benefits and pitfalls of CDs and the transition to internet based sharing. 3) Understand the different internet (Cloud) based solutions that are available and what distinguishes them. 4) Learn that the cloud can be employed not only for archival but for a variety of radiology services. 5) Learn about the IHE XDS-I and related profiles and their role in internet based image exchange. 6) Understand what solutions a radiologist might implement at this time. 7) Understand how image exchange fits into the broader efforts directed at healthcare information exchange and interoperability through EHRs.

ABSTRACT

RC426C • Vendor Neutral Archives vs Archive Neutral Vendors: Towards the Next Generation Archive

Richard L Kennedy MSc (Presenter)

LEARNING OBJECTIVES

1) Understand the differences between vendor neutral archives, archive neutral vendors, and and cloud archives. 2) Identify key strategic advantages and disadvantages of these three respective models of archival. 3) Observe some potential obstacles to implementation of these three respective models of archival.

Aligning Incentives between the Physician Practice and the Hospital: Finding the Win:Win

Tuesday, 04:30 PM - 06:00 PM • S104A

[Back to Top](#)



RC427 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Norman J Beauchamp, MD *
Angelisa M Paladin, MD
Edward Weinberger, MD *
Cheryl Wieber

LEARNING OBJECTIVES

As healthcare costs become a primary area of emphasis, the 'premium' that was allowed for academic medical centers is no longer in place. However, optimal care at acceptable cost is readily attainable in an academic center when the missions of the academic department and the hospital are aligned. In this presentation, the learner will recognize approaches to educating the next generation of radiologists while improving access, decreasing overutilization, enhancing safety and decreasing cost.

MRI Safety Update (An Interactive Session)

Tuesday, 04:30 PM - 06:00 PM • E353C

[Back to Top](#)



RC429 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC429A • Implants and Devices

Frank G Shellock PhD (Presenter) *

LEARNING OBJECTIVES

1) To understand the MRI issues for implants and devices. 2) To comprehend the MRI labeling terminology for implants and devices. 3) To understand current information pertaining to managing patients that present with passive and active implants (e.g., neurostimulation systems, pacemakers, etc.). 4) To apply knowledge about implants and devices to ensure safety for patients undergoing MRI examinations.

ABSTRACT

RC429B • MRI Technologist Perspectives

William H Faulkner BS, RT (Presenter) *

LEARNING OBJECTIVES

1) To understand the steps required to research information relating to MR safety status of implants and / or devices. 2) To learn how to properly screen patients for MR procedures. 3) To understand the importance of being able to control access to Zones III and IV. 4) To learn how to manage patient warming and avoid patient burns.

ABSTRACT

RC429C • Standard and MR Conditional Cardiac Pacemakers

Patrick M Colletti MD (Presenter) *

LEARNING OBJECTIVES

1) Identify, schedule, prepare, examine with MRI, and confirm reprogramming for patients with MR conditional pacemaker systems. 2) Consider the risks and benefits for MR imaging in patients with non-conditional electrophysiology devices. 3) Optimize 3rd party coverage for MR services in patients with MR conditional pacemaker systems.

ABSTRACT

There are more than 1.5 million patients in the US with implanted cardiac devices. It is estimated that 750,000 to 1M may have indications for MRI. There have been more than 15 monitored cardiac device/ MR trials involving over 1419 participants examined at 0.2T to 3T. At least 17 deaths with unmonitored MRI examinations have been reported. Until recently, most radiologists and MR centers have opted out of examining patients with cardiac devices. In 2008, Gimbel presented results of MR examination of patients with cardiac pacemakers at 3-Tesla with no restrictions placed on pacemaker dependency, region scanned, device type, or manufacturer, suggesting that monitored pre-programmed 3T MRI scans may be safely performed. There is currently one available FDA approved MR conditional system available for limited use. Protocol for MR conditional MR includes:

1. Confirm clinical requirement for MR.
2. Confirm functioning MR conditional device.
3. Schedule MR exam.
4. Program device to scan mode.
5. Monitor and scan patient at 1.5T.
6. Reprogram device, confirm, and discharge.

Impact of Legislative Policy and Regulations on Imaging Informatics

Tuesday, 04:30 PM - 06:00 PM • S403A

[Back to Top](#)



RC430 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1

Co-Moderator
Arun Krishnaraj, MD, MPH
Co-Moderator
Safwan Halabi, MD

RC430A • Clinical Decision Support and CMS

Safwan Halabi MD (Presenter)

LEARNING OBJECTIVES

1) Identify the primary drivers of imaging utilization. 2) Understand the impact of legislative policy aimed at curbing imaging utilization growth rates. 3) Demonstrate the utility of clinical decision support tools in reducing inappropriate medical imaging. 4) Compare and contrast the impact of radiology benefits managers vis a vis clinical decision support tools built upon the ACR appropriateness criteria in reducing imaging growth rates. 5) Review the purpose of the Medicare Imaging Demonstration project.

ABSTRACT

Increased imaging utilization rates have contributed significantly to the growth of health care expenditures in the United States, particularly over the last decade. In response, a series of legislative policies have been enacted to curb the growth of imaging but thus far none have focused specifically on reducing the inappropriate use of advanced imaging modalities, a major contributor to rising imaging costs. To date two major approaches have been employed to reduce inappropriate imaging utilization rates: 1) Incorporation of clinical decision support (CDS) tools into computerized physician order entry systems and 2) Use of external authorization bodies such as radiology benefit managers (RBMs). While both approaches have been shown to reduce imaging utilization rates,

clinical decision support tools are more transparent in their approach and have been shown to specifically address inappropriate use of advanced imaging modalities. Due to the lobbying efforts of the American College of Radiology and the growing body of literature demonstrating the effectiveness of CDS tools in reducing inappropriate imaging, language was included in the Medicare Improvements for Patient and Providers Act of 2008 (MIPPA) which mandated an appropriate use of imaging services demonstration project. The Medicare Imaging Demonstration project (MID) has been deployed at 5 institutions across the US to assess the impact that decision support systems have on the appropriateness and utilization of advanced imaging services ordered for the Medicare fee-for-service population. It is incumbent upon radiologists to be aware of current efforts at decreasing inappropriate imaging utilization so as to drive this progress moving forward.

RC430B • Legislative Impact of CT Radiation Dose Reporting Requirements

Jonathan Breslau MD (Presenter)

LEARNING OBJECTIVES

1) Understand the motivation for dose reduction legislation in California. 2) Understand the structure, benefits and limitations of required metrics. 3) Understand the processes for complying with new regulations in California.

ABSTRACT

RC430C • Informatics Solutions for Meaningful Use

Alberto F Goldszal PhD, MBA (Presenter) *

LEARNING OBJECTIVES

1) Learn what informatics and IT solutions can be used to help practices achieve meaningful use. 2) Understand real-world challenges and solutions faced by existing practices in deploying MU.

RC430D • Mobile Computing, Radiology, and the FDA

David S Hirschorn MD (Presenter)

LEARNING OBJECTIVES

1) Understand the FDA approval process for mobile computing applications in radiology. 2) Learn about new application available for mobile devices in radiology.

Value-Added Initiatives for a Healthcare System

Tuesday, 04:30 PM - 06:00 PM • S504AB



[Back to Top](#)

RC432 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC432A • Radiology Support for Major Centers of Excellence

Barry Stein MD (Presenter)

LEARNING OBJECTIVES

1) Recognize the opportunities for Radiology to contribute to healthcare systems in a value added fashion. 2) Provide framework for Radiology departments to illustrate their clinical value to the healthcare system. 3) Understand the importance and transformative potential of imaging informatics to the healthcare system and to the armamentarium of the Radiology department. 4) Appreciate the power of metric and analytic dashboards to the Radiology department and the healthcare system.

ABSTRACT

A. Clinical Integration & Innovation: 1. Critical role Radiology plays in supporting major clinical centers of excellence (stroke, cardiovascular, oncology, transplant, trauma, women's health, spine/joint etc), 2. Strategic multi-dimensional marketing within and for a healthcare system, B. Imaging Informatics: 1. Provide relevant imaging and reports anywhere and anytime, 2. Opportunity to change referring physician workflow with: a. powerful technology allowing easy effortless access to imaging, standardized reports, b. Zero foot print viewing solutions & mobile device technology, c. EMR & HIE integration, d. Multi modality & interdisciplinary common viewer, e. CPOE with appropriateness criteria 3. Patient access C. Improving the Bottom Line, 1. Discuss methods to derive meaningful financial & clinical metrics & analytics demonstrating how Radiology contributes to the bottom line (tangible added value), 2. Departmental dashboards supporting Healthcare system balanced score cards, 3. Improving imaging report turn around times to support initiatives to decrease hospital length of stays

RC432B • Imaging Informatics

Keith J Dreyer DO, PhD (Presenter) *

LEARNING OBJECTIVES

1) Develop an understanding of the essential Informatics skills required for a leader to be successful. 2) Develop an understanding of the common Informatics errors made by leaders in academic and private practices. 3) Acquire the skills of Informatics planning needed to ensure that the success of your organization is sustainable over time.

RC432C • Radiology's Impact on the Hospital's Bottom Line

Bernard F King MD (Presenter)

LEARNING OBJECTIVES

1) Identify methods to derive meaningful financial and clinical metrics and analytics demonstrating how Radiology contributes to the bottom line (tangible added value). 2) Developing departmental dashboards supporting HealthCare system balanced score cards etc. 3) Identify methods for improving imaging report turn around times to support initiatives to decrease hospital length of stays thus improving bottom line.

Vertebral Augmentation (How-to Workshop)

Tuesday, 04:30 PM - 06:00 PM • E260



[Back to Top](#)

RC450 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

A. Orlando Ortiz, MD, MBA *
Bassem A Georgy, MD, MSc *
John M Mathis, MD, MSc
Allan L Brook, MD *
Afshin Gangi, MD, PhD *

LEARNING OBJECTIVES

1) Discuss appropriate algorithms for patient selection. 2) Review anatomic and technical considerations for vertebral augmentation. 3) Present an update of the recent advances in vertebroplasty and kyphoplasty. 4) Emphasize safety issues and how to avoid complications. 5) Understand the applications of vertebral augmentation in osteoporotic and neoplastic spine pathology. 6) Update participants with respect to advances in equipment and biomaterials.

ABSTRACT

Imaging in Practice: DWI in the Abdomen and Pelvis (How-to Workshop)

Tuesday, 04:30 PM - 06:00 PM • E261



[Back to Top](#)

RC451 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC451A • How to Perform DWI - Principles and Protocol

Shreyas S Vasanaawala MD, PhD (Presenter) *

LEARNING OBJECTIVES

1) Understand basic principles of contrast formation in diffusion weighted MRI. 2) Understand sources of artifacts in diffusion weighted MRI. 3) Know techniques to reduce artifacts to produce diagnostic quality diffusion weighted images.

ABSTRACT

Diffusion-weighted imaging is being used with increasing frequency in body MRI. The basic mechanism of contrast generation is the use of large motion-sensitizing gradients such that water molecules undergoing random motion are dephased, resulting in signal loss. Tissues and lesions with high cellularity have reduced diffusive motion of water, which results in relatively high signal. However, a number of issues make diffusion-weighted imaging in the body challenging relative to neurological applications. First, the vast majority of clinical DWI is performed with an echo-planar technique, which suffers from image distortions due to field inhomogeneity. These become problematic particularly where there are gas-tissue interfaces, such as at the dome of the liver and near gas-filled bowel. The presentation will discuss methods to minimize these distortions. Second, the T2 relaxation rates of abdominal tissues are less than that of pelvic viscera and much less than that of the brain, whereas normal water diffusivity is higher; as the choice of diffusion sensitivity (b value) heavily influences the echo time, lower b values must be used. Third, motion from cardiac pulsations, respiration, and peristalsis produce artifacts, some of which are easily recognizable, and others which can subtly hide pathology. Techniques to minimize these pitfalls will be presented. Finally, issues of reproducibility that affect the practical clinical use of DWI for lesion characterization in body MRI will be discussed, along with approaches to improve reliability.

RC451B • Interpretation of DWI - How to Create and Use ADC Maps in Your Practice

Thomas A Hope MD (Presenter)

LEARNING OBJECTIVES

1) Understand the principles of calculating ADC. 2) Understand the effect of b-value selection and weighting on diffusion calculations. 3) Explore the value of IVIM and other parameters.

ABSTRACT

In order to incorporate diffusion weighted imaging into clinical practices, it is important to understand how diffusion data is evaluated. Qualitatively, one can simply say that lesions are bright on diffusion, but intensity on high b-value imaging is not always equate to a lesion that has reduced diffusion. The understanding and implementation of quantitative analysis is therefore critical for both research and everyday clinical practice. The first step is the calculation of the apparent diffusion coefficient (ADC) map, which is used to help tease out the differences in intrinsic T2 hyperintensity and diffusivity. The calculation of the ADC map is greatly affected by the methodology used as well as the selection of b-values acquired. The ADC of a tissue describes how quickly signal decreases as the b-value is increased. Those lesions with high diffusivity will have high ADC values, while those lesions with reduced diffusion will have lower ADC values. In addition to ADC, other parameters have been describe that affect the measured diffusivity. The most commonly discussed is intravoxel incoherent motion (IVIM) that is thought to represent the random movement of blood within the capillary system, often called pseudodiffusion. This parameter has its greatest effect on diffusion weighted images at low b-values.

RC451C • Applications of DWI in Clinical Practice - When It Does and Doesn't Help

Frank H Miller MD (Presenter)

LEARNING OBJECTIVES

1) Demonstrate the utility of diffusion weighted imaging in the abdomen. 2) Show advantages and limitations of diffusion weighted imaging in the abdomen.

ABSTRACT

Diffusion weighted imaging (DWI) has been used in neuroimaging for many years. It has only more recently become feasible in the abdomen. The objective of this talk is to emphasize the important role that diffusion-weighted imaging can have in your practice and that it can be used routinely without difficulty in the abdomen and pelvis. DWI potentially can detect additional lesions and direct the radiologist to lesions that are not as well seen on conventional imaging. DWI helps in characterization of lesions but does have limitations in specificity which will be discussed. Qualitative and quantitative evaluation can be performed and the applications of these techniques clinically will be described. The strengths and limitations of DWI in multiple organs including the liver, pancreas, adrenal gland, kidney, and evaluation for metastases and infections will be discussed. DWI is especially helpful for identify lymph node and peritoneal metastases. Emerging techniques include the use of diffusion weighted imaging to assess response to therapy following liver-directed therapy will also be discussed. In summary, DWI should be used routinely if not being used at your institution. This talk will show benefits and limitations of DWI in a number of organs in the body.

Real-time Interventional US (Hands-on Workshop)

Tuesday, 04:30 PM - 06:00 PM • E264

US IR

[Back to Top](#)

RC452 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Christopher A Molvar , MD
Kent T Sato , MD
Albert A Nemcek , MD *
Robert J Lewandowski , MD *
Ramona Gupta , MD
Terry D Wilkin , MD
Kevin L Keele , MD
Michael H Hamblin , MD
Terence A Matalon , MD

LEARNING OBJECTIVES

1) Acquire the skill to direct a needle to a target for diagnostic or therapeutic purposes with Real-time US-guidance.

ABSTRACT

Participants will have the opportunity to hone their skills in ultrasound guided interventions using phantoms. Experienced practitioners in ultrasound guided intervention will serve as faculty.

Hands-on DICOM Metadata Manipulation (Hands-on Workshop)

Tuesday, 04:30 PM - 06:00 PM • S401CD

IN

[Back to Top](#)

RC453 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Richard J Bruce , MD *
Walter W Peppler , PhD *

LEARNING OBJECTIVES

1) Get introduced to a variety of the available open source tools and have a chance to experiment and familiarize yourself with the software hand-on. 2) Understand how open source DICOM software can help solve common workflow issues. 3) Understand how open source DICOM software can be used in research and education. 4) Learn to use open source tools to address DICOM data management challenges.

Next-Generation Educational Content Creation: Screencasting and Video Editing (Hands-On)

Tuesday, 04:30 PM - 06:00 PM • S401AB

IN

[Back to Top](#)

RC454 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

George L Shih , MD, MS *
Richard S Ha , MD
Kurt T Teichman , BSC, MENG
Ian R Drexler , MD,MBA

LEARNING OBJECTIVES

1) Assess the potential of online and mobile e-learning innovations to augment your residents', medical students', and staff's educational curricula. 2) Acquire the

domain knowledge to use already available content (eg, PowerPoint presentations) to both create video content and deploy e-learning courses on modern web-based and mobile platforms. 3) Acquire the domain knowledge to use already available content (eg, PowerPoint presentations) to electronic books (e-books), with or without digital rights management (DRM), and obtain an ISBN number for publishing.

ABSTRACT

1. From OpenCourseWare to the Khan Academy, and now to Coursera, e-learning has been dramatically improved over the last decade, changing education from the normal classroom into learning done at convenience, and also allows for more creative and engaging content during the typical lecture. Stanford Med recently published positive initial findings in utilizing video-based lectures in an interactive class setting. Leveraging this new way of learning, requires knowledge about the types of technology and platforms for these courses. 2. The workflow required to host an e-learning course can be summarized in 3 steps: (a) creating the educational content, (b) hosting the materials, and (c) making the materials available to the intended audience. E-content today typically consists of lecture slides along with video recordings captured by technology like TechSmith Camtasia (non-free) and Apple Quicktime (free). Once the materials are created and edited, one must choose a suitable hosting platform realistic to the skills and goals of the instructor with options that include coursesites.com, iTunes U, and YouTube / Google Hangouts. Students can then be invited to view the material or the content can be made available to the public. 3. Creating and publishing e-books is a great way to share your teaching material as an engaging interactive tool. Publishing in e-book format solves many logistical problems of conventional publishing and the e-book format has interactive features that paper books can't match. We will review the process of creating your own e-book from assembling material to layout design to submitting for e-publication. Specifically Apple iBooks Author software will be used to demonstrate converting an existing Powerpoint presentation or journal publication into an e-book. In addition, the course will go over how to publish with or without DRM (copy-protection) and ways to obtain an ISBN for publishing for sale. Online resources will also be reviewed.

Chest Imaging: How Radiologic-Pathologic Correlation Informs Interpretation

Wednesday, 08:30 AM - 10:00 AM • N228



[Back to Top](#)

RC501 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

LEARNING OBJECTIVES

1) Understand the basic structures and systems that allow the respiratory system to function. 2) Utilize the knowledge of basic respiratory structures to improve their understanding of respiratory disease and therefore improve diagnostic accuracy. 3) Improve their understanding of disease that affects the lung interstitium, small airways, pulmonary vessels and lymphatics. 4) Learn an approach to the assessment of lung nodules including new information on small ground glass opacities.

RC501A • Interstitial Lung Disease

Jeffrey R Galvin MD (Presenter)

LEARNING OBJECTIVES

View learning objectives under main course title.

RC501B • Diseases of the Small Airways

Phillip M Boiselle MD (Presenter)

LEARNING OBJECTIVES

1) To understand the normal anatomy of the small airways and their relationship to the secondary pulmonary lobule. 2) To identify characteristic HRCT patterns of small airways diseases along with their clinical and pathological correlates.

RC501C • Vascular Disease

Aletta Ann Frazier MD (Presenter)

LEARNING OBJECTIVES

View learning objectives under main course title.

RC501D • Lymphoid Diseases

Tomas C Franquet MD (Presenter)

LEARNING OBJECTIVES

1) To illustrate the imaging findings of some pulmonary lymphoid diseases. 2) To correlate these findings with histopathologic features. 3) To present a differential diagnosis based on pathologic-radiologic correlation.

ABSTRACT

RC501E • Lung Nodules

Seth J Kligerman MD (Presenter) *

LEARNING OBJECTIVES

1) Recognize three basic patterns of micronodularity (centrilobular, perilymphatic, random). 2) Learn differential diagnosis for each pattern. 3) Recognize additional imaging findings that will help make the correct diagnosis. 4) Understand pathologic findings which lead to each pattern.

ABSTRACT

Micronodular lung disease has three recognizable patterns which are described based on their anatomic relation to the secondary pulmonary lobule. Centrilobular nodules are the most common pattern encountered in daily practice and in most instances are related to inflammation or impaction of the respiratory bronchioles which are located in the center of the secondary pulmonary lobule. Centrilobular nodules occur in numerous pathologic processes including infection, aspiration, toxic inhalation, hypersensitivity pneumonitis, respiratory bronchiolitis, follicular bronchiolitis, and panbronchiolitis. Less commonly, centrilobular nodules can be seen due to impaction of the small arterioles in the center of the secondary pulmonary lobular due to intravenous injection of foreign substances. In contrast to centrilobular nodules, perilymphatic nodules involve the peribronchovascular interstitium, subpleural interstitium, or interlobular septae as these are the locations of lymphatic draining in the lung. Although most commonly associated with sarcoidosis, certain pneumoconioses and lymphangitic spread of tumor can lead to perilymphatic nodules. In rare instances, this pattern can be encountered with amyloidosis and lymphoid interstitial pneumonia. Random nodularity is diagnosed when numerous micronodules have no identifiable location throughout the axial distribution of the lung. Although some of the nodules in this pattern may be perilymphatic or centrilobular in location, many of the nodules are scattered throughout the secondary lobular without respect to anatomic boundaries. This is most commonly seen with hematogenous spread of infection (miliary tuberculosis or fungal infection) or metastases.

What's New from the American Board of Radiology

Wednesday, 08:30 AM - 10:00 AM • E353A



[Back to Top](#)

RC502 • AMA PRA Category 1 Credit™:1.5

Moderator

Duane G Mezwa, MD

James P Borgstede, MD

Dennis M Balfe, MD

Milton J Guiberteau, MD

Kay H Vydareny, MD

LEARNING OBJECTIVES

1) Explain the Core and Certifying Exams; describe the relationship to/evolving impact of the new exams on training and practices. 2) Describe the ABR Board Eligibility policy and how a hospital credentials committee might apply it. 3) Describe recent ABR MOC program changes including: efforts to align MOC with practice requirements and incentives, self-assessment CME, and Continuous Certification. 4) Plan and execute a practice-relevant PQI project. 5) List the meaningful participation criteria for individual MOC Part IV credit when doing a group Part IV project. 6) Explain how IR/DR primary certification differs from VIR subspecialty certification; describe a likely sequence and timeline for its full implementation.

ABSTRACT

No Course RC503. See Series VSQA41 Cardiac Radiology Series: Transcatheter Aortic Valve Replacement (TAVR)

Wednesday, 08:30 AM - 10:00 AM

[Back to Top](#)

RC503

Bone and Cartilage Injury: Traumatic and Stress-related Chondral, Osteochondral and Subchondral Failure with Emphasis on Pathophysiology and Routine and Advanced MR Imaging

Wednesday, 08:30 AM - 10:00 AM • N227

[Back to Top](#)

ER MR MK

RC504 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Donald L Resnick, MD
Christine B Chung, MD
Mini N Pathria, MD
Yolanda Y Lee, MBChB *
Monica Tafur, MD

LEARNING OBJECTIVES

1) Discuss the structural anatomy of a. articular cartilage with emphasis on its collagen framework and b. the trabecular architecture in the subchondral bone. 2) Emphasize the manner in which the collagen and trabeculae respond to compressive, shear, and tensile forces applied to the joint surface and the resultant injuries as they are displayed in MR images. 3) Emphasize the anatomy and biomechanical implications of the osteochondral unit through novel MRI applications. 4) Discuss structure and biomechanics of bone tissue with regard to the pathogenesis of fatigue and insufficiency forms of stress injury. 5) Use case-based teaching methods to illustrate the imaging spectrum of traumatic and stress-related chondral, osteochondral, and subchondral injuries.

No Course RC505. See Series VSNR41 Neuroradiology Series: Stroke

Wednesday, 08:30 AM - 10:00 AM

[Back to Top](#)

RC505

Oral Cavity, Pharynx, Larynx

Wednesday, 08:30 AM - 10:00 AM • E353C

[Back to Top](#)

OI NR HN

RC506 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC506A • Nasopharynx

Suresh K Mukherji MD (Presenter)

LEARNING OBJECTIVES

1) Understand the normal anatomical landmarks and relations of the nasopharynx and in particular the relationship of the nasopharynx to the central skull base. 2) Recognize normal physiological variations and inflammatory processes of the nasopharynx that might be mistaken for more sinister pathology. 3) Understand the pathological behavior and important staging features of nasopharyngeal carcinoma and lymphoma, the two most common nasopharyngeal malignant processes.

ABSTRACT

The nasopharynx is the most superior portion of the pharynx, extending anteriorly to the posterior choanae and inferiorly to the level of the soft palate. The nasopharynx ;attaches; to the undersurface of the clivus via the pharyngobasilar fascia of the superior constrictor muscle. This fascia is in continuity with the buccopharyngeal fascia surrounding the pharynx. The foramen of Morgagni is a hiatus between the base of skull and constrictor muscle, through which the Eustachian tube, tensor veli palatini and levator veli pass. It is thus a potential ;weak spot; in the head and neck, through which pathological processes may reach the skull base and spread intracranially. Other important imaging landmarks include the lateral nasopharyngeal recess or fossa of Rosenm;ller and the midline nasopharyngeal tonsil, or adenoids. Nasopharyngeal carcinoma (NPC) is a distinct entity from pharyngeal squamous cell carcinoma (SCCa). NPC has a unique histological appearance, has different inciting factors to SCCa, and has unique familial, genetic, and geographic predispositions. Nasopharyngeal carcinoma also has a different pathological behavior to pharyngeal SCCa, with a tendency for clival invasion, intracranial spread, and early systemic metastasis. In keeping with this distinct pathological behavior, NPC has particular imaging manifestations and staging criteria that differ significantly from pharyngeal SCCa. In this session we will review the key anatomic landmarks and the key imaging features of the nasopharynx and of nasopharyngeal carcinoma, reviewing the 2010 TNM staging updates and changes to the WHO pathological classification. We will also review important differentials for masses in this region.

RC506B • Oral Cavity and Oropharynx

Kristine M Mosier DMD, PhD (Presenter) *

LEARNING OBJECTIVES

1) Review the anatomy of the oral cavity and oropharynx. 2) Review common neoplasms that may involve this region. 3) Review common infectious and inflammatory processes that may involve the oral cavity and oropharynx.

ABSTRACT

The intent of this presentation is to review the normal anatomy of the oral cavity and oropharynx. In addition, this presentation will review the common pathology including neoplasms, infections and developmental processes that you will encounter in your practice.

RC506C • Larynx-Hypopharynx

Hilda E Stambuk MD (Presenter)

LEARNING OBJECTIVES

1) Review the imaging anatomy of the larynx. 2) Understand the key landmarks for describing a tumor of the larynx. 3) Understand imaging strategies for following patients after treatment for larynx carcinoma.

Abdominal Incidentalomas: What to Report for Adrenal, Renal and Adnexal Incidental Findings

Wednesday, 08:30 AM - 10:00 AM • S406B

[Back to Top](#)

GU

RC507 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Coordinator
Lincoln L Berland, MD *
William W Mayo-Smith, MD *
Gary M Israel, MD
Genevieve L Bennett, MD

LEARNING OBJECTIVES

1) Appreciate the scope and nature of the problem of abdominal incidental findings and the implications of the results of a survey of ACR membership on this topic. 2) Better understand the complexities of managing small renal cystic and solid masses, including when and how long to follow suspicious lesions. 3) Be able to apply criteria for diagnosing and following incidental adrenal lesions, including when and how to reference the new guidelines. 4) Understand how to apply the new ACR recommendations for incidental ovarian findings seen on CT and MRI and their relationship to the Society of Radiologists in Ultrasound consensus criteria for such findings.

ABSTRACT

Gastrointestinal: Abdominal Masses (An Interactive Session)

Wednesday, 08:30 AM - 10:00 AM • E450B

[Back to Top](#)

GI

RC509 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Jay P Heiken, MD *
Erik K Paulson, MD
Zhen J Wang, MD
David J Disantis, MD

LEARNING OBJECTIVES

1) Learn the characteristic features of some common and atypical abdominal masses. 2) Understand how newer techniques, such as gadopentate-enhanced MRI and diffusion-weighted imaging, help to identify and characterize abdominal masses. 3) Identify the key imaging findings that assist surgeons or oncologists treating specific abdominal masses.

Advances in Gynecologic Ultrasound

Wednesday, 08:30 AM - 10:00 AM • S405AB

[Back to Top](#)

US OB GU

RC510 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC510A • 3D Ultrasound in Gynecology

Beryl R Benacerraf MD (Presenter) *

LEARNING OBJECTIVES

1) To learn about the multiplanar reconstruction technique in scanning the pelvis, including its usefulness of looking at the coronal view of the uterus to evaluate the endometrium for polyps, fibroids and mullerian duct anomalies. 2) To learn to use 3D to determine the position of an IUD in the uterus. 3) To learn how 3D can help on detecting the causes of pelvic pain.

ABSTRACT

Three-dimensional (3D) ultrasound allows us to acquire a volume and display any plane of section within that volume regardless of the scanning orientation. The ability to display a 3D image of any type or plane has been one of the most powerful recent advances in sonography, particularly in the field of obstetrics and gynecology. In gynecology, 3D has allowed visualization of coronal view of the uterus, enabling us to diagnose mullerian duct anomalies without using MRI. We can also easily diagnose malpositioned IUDs (a common cause of pelvic pain and bleeding), polyps, submucous fibroids and other abnormalities related to the uterine cavity. 3D ultrasound also greatly facilitates the correct diagnosis of hydrosalpinges because of the infinite planes in which the tubal areas can be displayed.

RC510B • Ovarian Masses and Cysts

Phyllis Glanc MD (Presenter)

LEARNING OBJECTIVES

1) Analyze ultrasound imaging features of ovarian masses and apply this knowledge to discriminate benign from malignant lesions. 2) Demonstrate some practical tips and hints for problem solving. 3) Apply appropriateness criteria to determine when additional imaging techniques, such as MRI or CT, are indicated.

ABSTRACT

The first line of imaging when an ovarian lesion is suspected is ultrasound. In this session we will review classical imaging features on ultrasound, demonstrate some tips and pitfalls and evaluate some less common findings. We will utilize this information to triage patients into different management strategies. We will incorporate current consensus and appropriateness criteria guidelines into our critical thinking. The role of additional imaging techniques such as MRI, CT and PET will also be discussed.

RC510C • Uterus and Endometrium

Ruth B Goldstein MD (Presenter)

LEARNING OBJECTIVES

1) Be able to state the acceptable standards for endometrial assessment in women with abnormal vaginal bleeding. 2) Be able to recognize a uterine abnormality in a postmenopausal woman that warrants further evaluation including tissue sampling or MRI. 3) Be able to recognize and diagnose adenomyosis. 4) Be able to diagnose a Mullerian Duct Anomaly of the uterus.

High-Resolution Radionuclide Breast Imaging (An Interactive Session)

Wednesday, 08:30 AM - 10:00 AM • S505AB

[Back to Top](#)

NM BR

RC511 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC511A • Breast-specific Gamma Imaging: A Novel Approach to Breast Cancer Diagnosis

Rachel F Brem MD (Presenter) *

LEARNING OBJECTIVES

1) To understand the principles of Breast Specific Gamma Imaging. 2) To understand the literature supporting the use of BSGI. 3) Understand the clinical uses of BSGI. 4) Understand how to integrate BSGI into a clinical breast imaging practice. 5) Understand how to biopsy lesions visualized with BSGI. 6) To review some of the ongoing developments in BSGI.

RC511B • Positron Emission Mammography and Molecular Breast Imaging

Wendie A Berg MD, PhD (Presenter) *

LEARNING OBJECTIVES

1) Understand currently approved uses of dedicated positron emission tomographic breast imaging ('positron emission mammography (PEM)'), including local staging, response to primary chemotherapy, and evaluation of possible recurrence. 2) Discuss areas for future research in high-resolution radionuclide breast imaging.

RC511C • Algorithms in Breast Imaging

Amy L Conners MD (Presenter)

LEARNING OBJECTIVES

1) Identify strengths and weaknesses of breast MR, breast specific gamma imaging (BSGI)/molecular breast imaging (MBI) and positron emission mammography (PEM) in common diagnostic and screening settings. 2) Apply knowledge of MR and nuclear breast imaging techniques to determine appropriate use for specific indications including staging of known breast cancer, neoadjuvant chemotherapy response, evaluation of possible recurrence post-breast conservation therapy, and screening of patients at increased risk of breast cancer.

ABSTRACT

Non-Atherosclerotic Vascular Diseases (An Interactive Session)



RC512 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC512A • Vasculitis**Phillip M Young** MD (Presenter)

LEARNING OBJECTIVES

1) To review clinical and imaging manifestations of vasculitis. 2) To discuss imaging protocols for assessment of vasculitis.

ABSTRACT

RC512B • Genetic Disorders**Elliot K Fishman** MD (Presenter) *

ABSTRACT

The rapid developments in CT angiography have provided unparalleled capabilities for evaluation of the vascular tree in studies that combine rapid data acquisition, isotropic data and 3 dimensional mapping. At the same time an ever increasing domain of knowledge is developing around a range of vascular pathologies including Marfans Syndrome, Loeys Dietz Syndrome and Ehlers Danlos Syndrome to name a few entities where knowledge is expanding at break neck speed. In this presentation I will review many of the key imaging findings of a range of genetic vascular pathologies and define the unique findings of specific entities. The role of imaging in lesion detection, monitoring and guiding therapy is addressed. The role of the radiologist as part of the Vascular team is discussed as well. Finally specific protocols including how to optimize dose is addressed.

RC512C • Vascular Malformations**Klaus D Hagspiel** MD (Presenter) *

LEARNING OBJECTIVES

1) To review the classification of vascular malformations and tumors and their clinical and MRI features. 2) To review appropriate MR imaging protocols for the assessment and treatment follow up of these lesions.

ABSTRACT

Vascular malformations and tumors comprise a wide, heterogeneous spectrum of lesions that often represent a diagnostic and therapeutic challenge. Frequent use of an inaccurate nomenclature has led to considerable confusion. Since the treatment strategy depends on the type of vascular anomaly, correct diagnosis and classification are crucial. Magnetic resonance (MR) imaging is the most valuable modality for classification of vascular anomalies because it accurately demonstrates their extension and their anatomic relationship to adjacent structures. This presentation will review the clinical and MR imaging features that aid in diagnosis of vascular anomalies and their proper classification. MR imaging protocols suitable for comprehensive assessment of vascular anomalies including functional analysis of the involved vessels will be discussed.

Child Abuse (An Interactive Session)

Wednesday, 08:30 AM - 10:00 AM • S103AB



RC513 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC513A • Parenchymal Brain Injury in the Setting of Child Abuse**Ellen Grant** MD (Presenter)

LEARNING OBJECTIVES

1) To review the unique properties of the infant brain that influence patterns of brain injury. 2) To review the common patterns of brain injury associated with abuse and discuss potential etiologies. 3) To increase awareness of white matter tears and delayed appearance of brain injuries. 4) To discuss optimal imaging protocols.

ABSTRACT

The Neuroradiologist plays a critical role in raising concern for abusive head trauma. However, to be effective in this role, it is important to be up to date on the patterns often associated with abusive head injury and their temporal evolution. In this lecture, recent literature and current controversies in parenchymal brain injury in the setting of child abuse will be reviewed.

RC513B • Musculoskeletal Injuries and Common Mimickers**Jeannette M Perez-Rossello** MD (Presenter)

LEARNING OBJECTIVES

1) Describe the skeletal injury patterns seen with physical child abuse. 2) Be familiar with the mechanism of injury of inflicted injuries. 3) Know the type and specificity of abusive injuries. 4) Differentiate metabolic bone disease, skeletal dysplasias, accidental injuries and normal variants that can mimic abuse. 5) Recommend imaging and medical workup for the evaluation of suspected abuse.

ABSTRACT

Skeletal injuries are the most common findings noted on imaging studies in cases of child abuse. In contrast to central nervous system and other visceral injuries, they are rarely life threatening. In infants, certain lesions, like posterior rib fractures and classic metaphyseal lesions, have high specificity for abuse. Posterior rib fractures at the costovertebral articulations occur with anteroposterior compression of the thorax that may be associated with shaking. The classic metaphyseal lesion (CML) results from torsional and tractional forces applied to the extremities, and may occur with acceleration forces associated with infant shaking. Other less specific injuries when correlated with other imaging findings and clinical history may add support for the diagnosis of abuse. The detection of skeletal injuries depends on the technical quality and thoroughness of the skeletal survey. Failure to perform an adequate skeletal survey may result in the return of a child to a potentially dangerous environment. Diagnostic imaging can identify a variety of conditions that can be confused with child abuse. Fractures and/or metaphyseal irregularities simulating CMLs can be seen in osteogenesis imperfecta, rickets, syphilis, certain bone dysplasias, and as a result of traumatic delivery. Subperiosteal new bone formation (SPNBF) can be seen with Caffey's disease, sickle cell anemia, leukemia and osteomyelitis. Developmental variants, such as physiologic SPNBF can be easily confused with skeletal injury. These entities can generally be distinguished from abuse by the history, physical exam, laboratory data and careful imaging evaluation.

RC513C • Imaging of Spinal Injuries in Abused Children**Michelle Silvera** MD (Presenter)

LEARNING OBJECTIVES

1) Become familiar with the incidence and imaging appearance of spinal injuries in children with abusive trauma. 2) Better understand imaging strategies for detection of spinal injury in children with non-accidental trauma. 3) Be aware of the role of MRI in assessing spinal injury.

ABSTRACT

Spinal injuries in young children with abusive trauma are difficult to diagnose clinically and easily overlooked. Therefore, careful imaging attention to the spine is warranted. The practicing radiologist plays an important role in recommending appropriate imaging tests in order to identify these injuries. Radiographic images provided by the skeletal survey have a low yield in detecting spinal injury and are insensitive for subtle compression fractures, intraspinal hematomas and paraspinal soft tissue disruptions. These lesions are best identified by spinal MRI. Diagnosing an unexpected spinal injury will result in management interventions designed to protect the spine, while missing a spinal injury may result in ongoing spinal instability. Furthermore, identifying a traumatic spinal lesion in a complex case may add additional support to a diagnosis of trauma.

No Course RC514. See Series VSIR41 Interventional Radiology Series: Embolotherapy

Wednesday, 08:30 AM - 10:00 AM

BI-RADS® Update and Challenge (An Interactive Session)**Wednesday, 08:30 AM - 10:00 AM • E450A**[Back to Top](#)**BR****RC515 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5**

Stamatia V Destounis, MD
Edward A Sickles, MD
Ellen B Mendelson, MD *
Constance D Lehman, MD, PhD *

LEARNING OBJECTIVES

1) Understand the use of the BI-RADS lexicon in describing lesions found on mammography, ultrasound, and MR imaging. 2) Utilize the appropriate BI-RADS assessment categories for mammography, ultrasound, and MR imaging. 3) To use the BI-RADS lexicon in everyday practice and issue meaningful, unambiguous breast imaging reports.

ABSTRACT

The subjective interpretation of breast lesions with mammography, ultrasound, and MR-imaging is difficult to evaluate and therefore difficult to improve. The medical audit is the only way to measure breast imaging performance in a manner that includes not only technical, but also interpretive capabilities of the system. The 'Breast Imaging Reporting and Data System' (BI-RADS) is a quality assurance tool, designed to standardize breast imaging reporting, reduce confusion in breast imaging interpretations, and facilitate outcome monitoring. Through a medical audit and outcome monitoring, the system provides important peer review and quality assurance data to improve the quality of patient care. The BI-RADS is the product of a cooperative effort between members of various committees of the American College of Radiology. The BI-RADS was first introduced in 1992 and has become a widely accepted tool all over the world. However, there is a need for continuous teaching of the BI-RADS classification because it is intended for use in everyday practice and should make it possible to issue meaningful, unambiguous breast imaging reports. This BI-RADS session has been organized to provide participants with an introduction to the most important sections of this system. These are the breast imaging lexicon for mammography, ultrasound, and MR imaging. Beside the theoretical background, participants will be trained and tested on how to apply the BI-RADS.

Women and Cardiovascular Disease (In Conjunction with the American Association for Women Radiologists)**Wednesday, 08:30 AM - 10:00 AM • S104A**[Back to Top](#)**CT VA CA****RC516 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5**

Moderator
Yoshimi Anzai, MD

RC516A • The Utility of Coronary CTA for the Evaluation of Coronary Artery Disease**Jill E Jacobs** MD (Presenter)**LEARNING OBJECTIVES**

1) To understand the benefits and limitations of coronary CTA for the assessment of coronary artery disease.

RC516B • Cardiac CT Perfusion for Coronary Artery Disease**U. Joseph Schoepf** MD (Presenter) ***LEARNING OBJECTIVES**

1) To describe the various image acquisition protocols that are available for measuring myocardial perfusion with CT. 2) To recognize findings of normal and pathologic myocardial perfusion patterns at CT. 3) To discuss specific advantages of CT based assessment of myocardial perfusion in women. 4) To identify potential future clinical applications involving CT myocardial perfusion imaging.

RC516C • Cardiac MR for Myocardial Infarction**Gisela C Mueller** MD (Presenter) ***LEARNING OBJECTIVES**

1) To understand technique, imaging findings, and clinical application of MR for myocardial infarct.

ABSTRACT

1) To describe the MR technique for myocardial infarct
 2) To discuss segmental anatomy, MR appearances, and appropriate reporting of myocardial infarction
 3) To discuss differential diagnoses of myocardial infarct on MR images and diagnostic pitfalls
 4) To discuss clinical indications, alternative diagnostic methods, and impact on patient management of MR for myocardial infarction

Novel Applications of Dual Energy CT**Wednesday, 08:30 AM - 10:00 AM • S504CD**[Back to Top](#)**CT****RC517 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5**

Moderator
Myrna C Godoy, MD, PhD

RC517A • Dual-Energy CT: Thoracic Applications**Myrna C Godoy** MD, PhD (Presenter)**LEARNING OBJECTIVES**

1) To comprehend the basic physical principles of dual-energy CT (DECT). 2) To review the current clinical potential applications of DECT in thoracic imaging.

ABSTRACT

There are different methods by which dual-energy CT images can be generated. The advantages of DECT technique are twofold: 1) Low kilovoltage imaging with increased iodine conspicuity (based on increased photoelectric interactions) is especially useful for evaluation of vascular structures. 2) Material specific post-processing allows material differentiation (based on the differential CT attenuation of selected substances at two different energies), which can be tailored for each particular clinical indication, for example to evaluate for contrast enhancement in pulmonary nodules. The current potential clinical applications of DECT in thoracic imaging include evaluation of pulmonary arteries, aorta, pulmonary nodules, pleural masses and airways disease.

RC517B • New Insights on Dual Energy CT in Oncology**Carlo Nicola De Cecco** MD (Presenter)**LEARNING OBJECTIVES**

1) To describe the basic principles of DECT imaging. 2) To explain how post-processing is practised. 3) To discuss radiation exposure issues. 4) To critically appraise the strengths and weaknesses of the technique in oncologic imaging. 5) To comment on the contribution of DECT imaging in oncologic patients management.

ABSTRACT

Dual Energy CT (DECT) is an innovative imaging technique, whose basic principle is the application of two distinct energy settings making able to distinguish materials with different molecular composition on the basis of their attenuation profiles and thus operating a transition from density based image to spectral imaging. DECT applications are based on two distinct capabilities: 1) material differentiation, which means achieving material-specific imaging with separation of distinct materials, for example iodine, calcium, and uric acid, within an image obtained during a single examination and 2) material identification and quantification, which means accurate assessment of the presence and amount of iodine within a target lesion. In particular, with DECT acquisition multiple

data-sets such as elemental decomposition analysis, iodinated density map, monochromatic images or virtual unenhanced images can be obtained simultaneously making the Radiologist able to address different diagnostic problems and improving lesion detection and characterization. These technical characteristics make DECT an innovative imaging modality particularly useful in oncologic imaging, having clear advantages in tumor detection, lesion characterization, evaluation of response to therapy, and detection of oncologic-related disease. In conclusion, DECT represents an innovative imaging technique, which can significantly impact on the management of oncologic patients.

RC517C • Musculoskeletal Imaging with DECT

Savvas Nicolaou MD (Presenter)

LEARNING OBJECTIVES

1) Review the technique and principles of DECT and spectral imaging as it pertains to the musculoskeletal application. 2) Demonstrate the musculoskeletal applications of DECT/spectral imaging in musculoskeletal imaging with an emphasis on the ability to diagnose and monitor progression of gout. 3) Display additional abilities and demonstrate imaging examples of DECT/spectral imaging for identification of bone marrow edema, soft tissue (tendon and ligamentous) injuries, and reduction of metal artifacts. 4) Review the advantages and limitations of DECT compared to other imaging modalities for musculoskeletal imaging.

ABSTRACT

Dual energy CT and Spectral imaging are useful tools for musculoskeletal imaging. We will focus on the utility of this in the setting of musculoskeletal imaging of gout by demonstrating its ability to aid in diagnosis in challenging cases, delineate anatomy of crystal deposition disease, and monitor disease progression and treatment of the monosodium urate crystals. The audience will learn the utility of DECT/Spectral imaging for additional musculoskeletal applications such as characterization of acute bone marrow edema, identification of tendon and ligamentous injuries and reduction of metal artifacts using monoenergetic imaging.

Imaging of Tumor Syndromes

Wednesday, 08:30 AM - 10:00 AM • E350



[Back to Top](#)

RC518 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC518A • Von Hippel Lindau and Other Hereditary Renal Cancer Syndromes

Peter L Choyke MD (Presenter) *

LEARNING OBJECTIVES

1) To identify the key genetic aspects of von Hippel Lindau (VHL) disease and their relevance to treatment. 2) To distinguish radiologic features of VHL from other hereditary renal cancers. 3) To explain the implications of hereditary renal cancers for sporadic renal cancers.

ABSTRACT

Hereditary renal cancers include clear cell carcinomas associated with von Hippel Lindau Disease (VHL), chromophobe carcinomas associated with Birt Hogg Dube, papillary carcinomas associated with hereditary papillary cancer syndrome and type II papillary carcinomas associated with Hereditary Leiomyoma-Renal Carcinoma (HLRC) syndrome. Additional rare syndromes exist. This talk will focus on the distinguishing features of each entity from a radiologic perspective but also will describe the lexicon underlying the description of the genetics of these entities. This should enable the participant to understand the 'language' of genetics when describing hereditary entities in general, including terms such as tumor suppressor gene, oncogene, hypoxia inducible factor and metabolomics. The participant should come away with a fuller understanding of these hereditary entities and their implications for more common, sporadically occurring renal cancers.

RC518B • Neurocutaneous Syndromes

Petra Vajtai MD (Presenter)

LEARNING OBJECTIVES

1) To identify the key distinguishing radiologic and clinical features of each of the most common phakomatoses: neurofibromatosis types I and II, tuberous sclerosis, and Sturge-Weber syndrome. 2) To provide guidance on the appropriate use of surveillance imaging in affected individuals.

ABSTRACT

The phakomatoses are a group of hereditary neuroectodermal diseases, each characterized by its unique cutaneous manifestations. The most common phakomatoses are neurofibromatosis (types I and II,) tuberous sclerosis, and Sturge-Weber syndrome, whose respective characteristic neuroradiological finding is the neurogenic tumor, the tuber and angiomas. The talk should enable the participant to distinguish the addressed phakomatoses based on radiologic and clinical characteristics, to describe the presentation, diagnosis and prognosis of each, and to provide guidance on the appropriate use of surveillance imaging in affected individuals.

RC518C • Multiple Endocrine Neoplasia

James G Smirniotopoulos MD (Presenter)

LEARNING OBJECTIVES

1) Distinguish between MEN 1 (Wermer) and MEN 2a (Sipple) syndromes. 2) Describe which syndromes have significant gastrointestinal features. 3) Identify syndromes associated with pheochromocytoma.

RC518D • Lynch and Other Hereditary Colonic Cancer Syndromes

Richard Kinh Gian Do MD, PhD (Presenter)

LEARNING OBJECTIVES

1) Describe the advances in genetics for Lynch and other hereditary colonic cancer syndromes. 2) Identify the gastrointestinal and non-GI malignancies of Lynch and other polyposis syndromes. 3) Examine the role of imaging for monitoring hereditary colonic cancer syndromes.

New Paradigms for the Treatment of Hodgkins and non-Hodgkins Lymphomas: The Crucial Role of Imaging

Wednesday, 08:30 AM - 10:00 AM • S504AB



[Back to Top](#)

RC520 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

David C Hodgson, MD, MPH
Steve Cho, MD *

LEARNING OBJECTIVES

1) To understand the role of computed tomography and positron emission tomography-CT in the management of patients with Hodgkin and non-Hodgkin lymphoma. 2) To become familiar with the International Working Group Criteria, which integrate PET findings into lymphoma response assessment. 3) To become familiar with limitations of PET-CT in assessing lymphoma response by PET-CT. 4) To become aware of pitfalls (false positives) of PET-CT in the response assessment of patients with lymphoma.

ABSTRACT

Although computed tomography remains the gold standard for assessment of lymphoma response to therapy, PET-CT plays an important role for both staging and response evaluation. In this session we will review the role of imaging in lymphoma and demonstrate how it guides therapy in this patient population. The limitations of PET imaging as well as pitfalls and false positives of PET imaging will be addressed.

Medical Physics 2.0: Fluoroscopy

Wednesday, 08:30 AM - 10:00 AM • E451A



[Back to Top](#)

RC521 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1

Co-Director

RC521A • Fluoroscopy Perspective

Ehsan Samei PhD (Presenter) *

LEARNING OBJECTIVES

1) To become familiar with major trends in fluoroscopy technology. 2) To understand transitions in technology that requires new and advanced evaluations. 3) To appreciate how a medical physicist is to effectively engage with clinical practice.

ABSTRACT

Just like other medical imaging modalities, fluoroscopy has been undergoing a number of technological transitions. Those include transitions from II to flat panel detectors and from 2D to 3D imaging. While these advances offer improvements and new possibilities, they challenge the conventional way a system is to be tested. In addition, given the interventional nature of the modality, there is an increasing need for the medical physicist to be more operationally engaged with the use and optimization of the technology. This lecture aims to offer a historical perspective on these topics and an outline of major priorities for fluoroscopic physics service.

RC521B • Fluoroscopy 1.0

Beth A Schueler PhD (Presenter)

LEARNING OBJECTIVES

1) Review basic fluoroscopy imaging system performance evaluation tests. 2) Compare measurement procedures for fluoroscopic exposure assessment. 3) Become familiar with test procedures designed to assess fluoroscopic image quality. 4) Learn about implementation of patient dose management processes for fluoroscopic procedures.

ABSTRACT

This segment will provide a review of customary medical physics support activities for fluoroscopic imaging systems. Quality control testing procedures for image quality evaluation, radiation dose measurement and other mechanical performance characteristics are essential for optimizing equipment performance and ensuring patient and staff safety. Test equipment, phantoms, measurement methods and recommended performance criteria for these tests will be summarized as they apply to different types of fluoroscopic equipment, from angiographic imaging systems to radiographic-fluoroscopic (RF) tables and mobile C-arms. In addition, the medical physicist's role in clinical implementation of fluoroscopic systems will be discussed, including ensuring appropriate configuration of anatomical program settings, recommendations for patient dose management and methods for patient dose estimation.

RC521C • Fluoroscopy 2.0

Keith J Strauss MS (Presenter)

LEARNING OBJECTIVES

1) Understand need for and advantages of quantitative (as opposed to qualitative) analysis of image quality. 2) Identify and understand new tools becoming available for evaluating fluoroscopic equipment performance. 3) Identify appropriate configuration of acquisition parameters as a function of patient size. 4) Be able to configure the radiation dose to the detector to ensure diagnostic image quality at properly managed patient dose.

ABSTRACT

Abstract Steps that are required to turn physics support of fluoroscopy from a compliance focused to operationally focused program will be discussed. New metrics and analytics to better quantify high contrast resolution, low contrast resolution, temporal resolution, and 3D imaging will be examined. Changes in testing protocols necessary to address new hardware technologies, new acquisition methods, state-of-the-art image processing and analysis will be reviewed. A recently developed "physics testing mode" that the vendors will provide in the near future will be described. Proper management of patient dose metrics will be reviewed. The presentation concludes with clinical implementation of these new strategies. Proper training and communication is critical. Proper configuration of acquisition parameters (focal spot size, voltage and added filter, tube current, pulse width, pulse rate, scatter removal) as a function of patient size from the smallest neonate to the largest bariatric patient is key to providing diagnostic image quality at properly managed radiation doses. In addition, one must ensure that the detector dose as a function of filter type and thickness, pulse rate, field of view, and complexity of the examination is properly configured.

Uncertainties in Imaging for Radiation Oncology: Sources and Mitigation Techniques-Site-specific IGRT Applications: Impact of Different Approaches on Uncertainties

Wednesday, 08:30 AM - 10:00 AM • N229

[Back to Top](#)



RC522 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Co-Director, Moderator
Laurence E Court , PhD

LEARNING OBJECTIVES

1) Impact of different approaches on uncertainties for specific sites, including pelvis, HandN, thorax, and abdominal sites.

RC522A • Pelvis

Emilie Soisson PhD (Presenter)

LEARNING OBJECTIVES

1) Be able to describe the sources and magnitude of positional uncertainty in irradiation of the pelvis. 2) Understand the role of image guidance in localizing pelvic targets. 3) Be able to compare the imaging strategies employed in the pelvis and understand residual uncertainties associated with each system. 4) Be able to compare published results with their own clinical practice.

ABSTRACT

Detection of organ motion is required for accurate targeting in radiation therapy of the pelvis. It is well known that pelvic targets change size, shape, and location as a result of changes in bladder and rectal filling and the size and location of these organs on the planning CT cannot be easily reproduced at treatment. While organ filling can be partially controlled through dietary regulation, complete immobilization is not possible. Image guidance (IGRT) provides the opportunity to monitor inter- and intra-fraction anatomical changes to better ensure plan delivery accuracy. In turn, IGRT has allowed for margin reduction and dose escalation, especially in the case of the prostate. The potential reduction in margin is then dependent on several factors including the ability to visualize the target and the frequency of imaging. Since target anatomy is generally not rigid with respect to boney landmarks, images used for localization must provide adequate soft tissue contrast or be used in combination with implanted surrogates. Due to the variety of IGRT approaches available and the possibility of having more than one imaging system in each treatment vault, it is now possible to inter-compare different localization methods to determine the uncertainty of a particular approach. Results of these studies are surprising and suggest that even though we think we can see the prostate with our chosen image guidance strategy, back-to-back imaging with different modalities will likely reveal that the prostate not only a different size but also often in a different place. In addition, intra-fraction motion is considerable in the prostate indicating that significant margins are might be required in the absence of intra-fraction tracking.

RC522B • Head and Neck

Laurence E Court PhD (Presenter)

LEARNING OBJECTIVES

1) Be able to describe the uncertainties in head and neck radiation therapy. 2) Appreciate the different approaches used. 3) Have an understanding of the range of margins used for head and neck treatments clinically, and the rationale for these. 4) Be able to logically compare published margins with their own clinical practice.

ABSTRACT

Head and neck cancer is a difficult site for radiation therapy because of the complexity in target delineation, normal tissue sparing and treatment planning. Typically, head and neck patients are immobilized using thermoplastic masks, which are custom-made to fit the individual patient. Generic, or patient-specific neck supports may be used. In many institutions IGRT is considered standard of care for these patients. Thus, many of the uncertainties in head and neck treatments are minimized. However, it is important to understand the residual uncertainties. The immobilization devices are good at minimizing intrafraction movement, but the complex motions of the head and neck region mean that there can be day-to-day variations in the relative positions of different regions, such as between the neck and head. The extent of these variations has been well studied, and will be described in this presentation. There are also different approaches to the IGRT process, including the use of 2D or 3D imaging. This session will explore the uncertainties in head and neck radiation therapy,

including inter-fraction variations and also variability in contouring. Mitigation strategies will be discussed. We will describe the treatment margins used by different including their respective rationale.

RC522C • Thorax and Abdomen

Sonja Dieterich PhD (Presenter)

LEARNING OBJECTIVES

1) Be able to describe the sources of uncertainties in the thorax and abdomen. 2) Learn how different respiratory motion management influence margins. 3) Gain an understanding what typical ranges of margins are for the respective methods. 4) Be able to determine appropriate margins for their respective clinical practice.

ABSTRACT

The uncertainties thorax and abdominal regions in the human body consists of overall patient setup uncertainty, respiratory motion, and organ deformation. Depending on the location of the target, a site-specific combination of these three components make up the total uncertainty. Respiratory motion compensation methods are increasingly used in clinical practice to minimize uncertainties. The most commonly used respiratory motion compensation methods are: breath-hold, abdominal compression, gating, and real-time tracking. Each method has a different impact on uncertainties. The simulation imaging also contributes to variations in uncertainties. CT artifacts which may change the contouring margins used depend on the data acquisition technology used during simulation. Free breathing, deep inspiration or expiration breath-hold, gated 4D-CT (both phase-gated and amplitude gated), scanner speed, pitch, and number of slices per revolution all influence the uncertainties. In addition to uncertainties in the position of the target, the relative position of organs at risk (OAR) to the target area may also change intra- or inter-fractionally. The concept of using OAR margins in the planning phase to anticipate potential relative shifts of OAR to target position will be discussed. Assessing OAR dose during daily image-guided patient setup can help identify setup variations exceeding OAR safe margins. Strategies to address setup variations exceeding uncertainty limits based on clinical experience will be discussed.

Minicourse: Recording and Reporting Radiation Dose: National and International Perspectives and Activities

Wednesday, 08:30 AM - 10:00 AM • N226

QA PH

[Back to Top](#)

RC523 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Director

J. Anthony Seibert, PhD

URL's

www.imp.uni-erlangen.de/RSNA2012

RC523A • The American College of Radiology Dose Index Registry

Richard L Morin PhD (Presenter)

LEARNING OBJECTIVES

1) Understand how registries perform. 2) Understand the way in which registries have altered physician behavior and improve patient care. 3) Identify the parameters involved in optimizing radiation dose in clinical practice. 4) Apply this knowledge by participating in a dose index registry and utilizing these techniques in Maintenance of Certification.

ABSTRACT

RC523B • The European Perspective

Willi A Kalender PhD (Presenter) *

LEARNING OBJECTIVES

1) Understand that CTDI is merely a technical concept for scanner acceptance and constancy testing, but not a measure for patient dose. 2) Learn about concepts for patient- and scanner-specific patient dose estimates. 3) Learn about the concept of diagnostic reference levels and its strengths and weaknesses.

ABSTRACT

There is no major debate regarding the validity of the computed tomography dose index (CTDI) in Europe because it is considered as a tool for scanner acceptance and constancy testing. Its use for that purpose is undisputed.

Measures for patient dose have been a major topic for decades. There are no common regulations valid for all of Europe, but there are a number of initiatives and concepts in place already which originated here. Among these are primarily the generation of conversion coefficients k for estimating values of the effective dose E from the dose length product (DLP) by $E = k \times DLP$ and the concept of dose reference levels (DRL). DRLs for radiological examinations in the European Union were demanded by law already in 2000.

Patient dose assessment relies predominantly on pre-tabulated values generated for anthropomorphic and voxel phantoms. Efforts are underway to provide more patient-specific dose estimates (PSDE) independent of CTDI phantom measurements.

The lecture will review the above concepts and will point to both strengths and weaknesses.

RC523C • Informatics Tools for Recording/Tracking Dose

Kevin O'Donnell (Presenter) *

LEARNING OBJECTIVES

1) Understand how DICOM Radiation Dose SR (RDSR) captures procedure dose information, the modalities and details covered. 2) Understand how the IHE Radiation Exposure Monitoring Profile (REM) coordinates the capture and management of RDSR objects and how it can be applied in a radiology practice. 3) Understand how 'CT dose screens' from legacy scanners can be ported into RDSR. 4) Understand how to apply the pre-scan dose pop-ups on the CT console specified in the MITA CT Dose Check (XR-25) standard. 5) Understand how to specify the above standards and features when purchasing and integrating radiology systems.

Reviewing Manuscripts for the RSNA Journals (Sponsored by the RSNA Publications Council)

Wednesday, 08:30 AM - 10:00 AM • S102D

PR OT

[Back to Top](#)

RC524 • AMA PRA Category 1 Credit™:1.5

Moderator

Herbert Y Kressel, MD *

Jeffrey S Klein, MD

LEARNING OBJECTIVES

1) Discuss the similarities and differences in the peer review process for the RSNA journals. 2) Discuss the functions of the reviewer in the peer review process. 3) Enumerate the desired elements for peer review of a manuscript.

ABSTRACT

Peer review is, in a major way, responsible for the quality of the manuscripts published in a given journal. In this refresher course, the Editors of both of the peer-reviewed journals published by the RSNA will discuss the peer review processes of their respective journals. The Editors will also emphasize the important functions served by the peer reviewers and will indicate the types of information which they would like the peer reviewers to consider when the peer reviewers review a given manuscript. There will be ample time for questions and answers.

Quantitative Imaging: Quantitative Imaging in FDG-PET

Wednesday, 08:30 AM - 10:00 AM • S102AB

PH NM BQ

[Back to Top](#)

RC525 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Director

Michael F McNitt-Gray, PhD *

RC525A • Lessons Learned from Drug Development Trials Using Molecular Imaging

Jeffrey L Evelhoch PhD (Presenter) *

LEARNING OBJECTIVES

1) Understand how pharma uses the information provided by FDG-PET. 2) Become familiar with site qualification and quality control methods used in clinical trial of an investigational therapeutic agent. 3) Understand why specific clinical trial imaging protocols may differ from clinical practice and importance of adhering to the clinical trial imaging protocol. 4) Realize which issues confound attempts to achieve more quantitative FDG-PET in the context of a clinical trial of an investigational therapeutic agent.

RC525B • Examples of Multi-Center Molecular Imaging Trials: Trial Design and Quantitative Approaches

David A Mankoff MD, PhD (Presenter)

LEARNING OBJECTIVES

1) Describe applications of molecular imaging as a biomarker for cancer drug therapy. 2) Discuss elements of clinical study design for molecular imaging. 3) Contrast molecular imaging versus conventional imaging and therapy trials.

RC525C • Understanding and Controlling Sources of Variability in Multi-Center PET Imaging

Paul E Kinahan PhD (Presenter) *

LEARNING OBJECTIVES

1) Identify the importance of quantitative imaging principles in the setting of clinical trials. 2) Identify the role of standards, including DICOM and others, in the successful application of quantitative imaging principles. 3) Analyze quantitative imaging techniques and apply this knowledge to protocol development in the setting of clinical trials.

Cool Technologies for Radiologists

Wednesday, 08:30 AM - 10:00 AM • E351



[Back to Top](#)

RC526 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator

Mahesh M Thapa, MD

RC526A • Photoshop Ninja Techniques

Mahesh M Thapa MD (Presenter)

LEARNING OBJECTIVES

1) Use Adobe PhotoShop to create and enhance images for publication. 2) Create podcasts and screencasts.

RC526B • OsiriX and File-sharing Technologies

Jonelle M Petscavage-Thomas MD, MPH (Presenter) *

LEARNING OBJECTIVES

1) Identify the applications of Osirix for image processing and formatting in publications, clinical consults, resident instruction, and scientific and educational exhibits. 2) Identify the educational applications of 3D Slicer as interactive visualization of images, triangulation of 3D surface models, and fusion and co-registering of data using rigid and non-rigid algorithms. 3) Recognize the current transition from print textbook to electronic publication. 4) Demonstrate understanding of the basics of ePub for creation of online radiology textbooks. 5) Perform basic functions of the technology for use in one's own practice.

RC526C • Cool Research and Education Tools

Michael L Richardson MD (Presenter)

LEARNING OBJECTIVES

1) Tools for work (e.g. real-time consultations, note-taking technology). 2) Tools for teaching (e-publication and audience response technology). 3) Tools for health (exercise tracking and workplace exercise technology). 4) Tools for surviving RSNA (transportation, communication, weather and decision-making technology).

Critical Issues Facing the Profession of Radiology: An ACR Leadership Perspective (In Conjunction with the American College of Radiology)

Wednesday, 08:30 AM - 10:00 AM • S404CD



[Back to Top](#)

RC527 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Paul H Ellenbogen, MD

Bibb Allen, MD

Geraldine B McGinty, MD

Howard B Fleishon, MD

LEARNING OBJECTIVES

1) Major issues facing radiology today. 2) What steps the American College of Radiology is taking to address these issues. 3) The process of political advocacy and how organizations work with Congress and federal agencies.

ABSTRACT

Abdominal MRA Update

Wednesday, 08:30 AM - 10:00 AM • N230



[Back to Top](#)

RC529 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC529A • Non-contrast MRA of the Abdomen

Scott B Reeder MD, PhD (Presenter)

LEARNING OBJECTIVES

1) Understand the underlying principles of non-contrast MRA. 2) Be familiar with the currently available methods for non-contrast MRA. 3) Be familiar with important applications and examples of non-contrast MRA. 4) Understand current limitations and pitfalls associated with non-contrast MRA.

RC529B • Blood Pool MR Contrast Agents: Clinical Applications and Caveats

Mellena D Bridges MD (Presenter)

LEARNING OBJECTIVES

1) Describe the differences between the in vivo behavior of blood pool and conventional MRI contrast agents. 2) Match the clinical indication with the appropriate contrast agent. 3) Determine the best imaging protocol. 4) Describe potential pitfalls and methods for dealing with them.

ABSTRACT

RC529C • Deep Inferior Epigastric Perforator MRA for Planning Breast Reconstruction

Nanda Deepa Thimmappa MD, MBBS (Presenter)

LEARNING OBJECTIVES

1) Learn how to image perforator vessels for autologous breast reconstruction. 2) Understand anatomic and surgical considerations for determining the optimum vessel/ donor sites for microsurgical breast reconstruction. 3) Review the perforator findings from a spectrum of cases. 4) See a systematic approach to post-processing and reporting perforator studies.

ABSTRACT

Managing Radiology IT in the EHR World

Wednesday, 08:30 AM - 10:00 AM • S404AB

IN

[Back to Top](#)

RC530 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator

J. Raymond Geis, MD *

LEARNING OBJECTIVES

1) Identify EHR components relevant to radiology. 2) Understand how to assess and use those components to your advantage. 3) Discover potential and pitfalls of EHRs.

ABSTRACT

RC530A • Radiology in the EHR World: What You'll Need to Know

Keith J Dreyer DO, PhD (Presenter) *

LEARNING OBJECTIVES

1) Learn what challenges are faced by radiology departments and practices as hospital systems continue to make the move towards enterprise EHR deployment. 2) Understand how radiology IT and informatics solutions can interface with EHR solutions and manage the gaps and overlaps in EHR deployment.

RC530B • EHR/RIS Optimization of Imaging Workflow for the Enterprise

Peter B Sachs MD (Presenter)

LEARNING OBJECTIVES

1) Review the typical radiology department work flow in an EMR environment. 2) Identify the key work flow items that may require optimization. 3) Identify the key components necessary to carry out optimization. 4) Review examples of optimizations carried out at the author's institution. 5) Discuss the impact these optimizations have had on radiology workflow/efficiency and patient care.

ABSTRACT

The development and usage of electronic medical records has resulted had significant impact on radiology work flow both positive and negative. Moving from a paper driven to an electronic process allows for creative design and implementation of a variety of methods to improve radiologist efficiency and quality of patient care. The initial impact at our institution was felt most intensely in the areas of physician order entry of imaging studies and imaging study protocol selection. Although there are a number of off-the-shelf products available to support these functions, we chose to build our own systems within our RIS/EMR. The project required that we thoroughly understand the multiple components of our work flow in the EMR environment, something we had not paid sufficient attention to previously. The first step was to put together of a team with expertise in all aspects of this work flow. Utilizing the specific skills of team members, we were able to develop a template for improved data acquisition at the time of physician order entry and study protocol selection. A number of other quality and workflow enhancements spun out of these efforts. This presentation will review this process in order to provide current/future RIS/EMR users with guidance on optimizing their workflow and improving the quality of patient care.

RC530C • EHR Driven Workflow for Diagnostic Radiologists - You Might Actually Want This

Cree M Gaskin MD (Presenter) *

LEARNING OBJECTIVES

1) Review differences between RIS driven, PACS driven, and EHR (RIS-EMR) driven workflow for diagnostic radiologists. 2) Discuss radiologist engagement in EHR implementation for radiology-centric optimization. 3) Present EHR driven workflow for the diagnostic radiologist at the speaker's institution. 4) Discuss impacts of EHR driven workflow on diagnostic radiologists' efficiency and quality of care delivery as well as user satisfaction.

ABSTRACT

Electronic Health Records (EHRs) are touted to improve the quality and efficiency of clinical care. As a result, EHR-meaningful use legislation has been passed in the U.S. to financially incentivize adoption of this technology. Still, some radiologists remain skeptical that the benefits of EHRs are applicable to their practice and some fear that the technology could even unnecessarily complicate their workflow. One newer model for integrating EHRs into radiologists' practice is to use an EHR to drive diagnostic radiologist workflow, rather than the more traditional or widespread models of PACS driven or third-party RIS driven workflow. This newer model provides opportunity to leverage EHR technology and data for the benefit of radiology-related care delivery. This presentation shares a radiologist-centric viewpoint from one institution which has successfully adopted EHR-driven workflow for diagnostic radiologists. Though the process of implementation is touched upon, the presentation focuses on the resultant clinical workflow and the impacts on quality, efficiency, and radiologist satisfaction.

RC530D • PACS and Radiologist Workflow in a Multi-Enterprise Environment

Gary J Wendt MD,MBA (Presenter) *

LEARNING OBJECTIVES

1) Understand workflow challenges for a radiologist operating a multi-enterprise environment. 2) Understanding requirements for environments with a single versus multiple medical record numbers a. PACS b. Dictation systems c. EHR. 3) Using a master patient index to link patient's across sites.

ABSTRACT

As a radiology department expands across multiple organizations there are several challenges that are created. Among these is the capability of the PACS, dictation systems and electronic medical record to operate in a single versus a multiple medical record number environment. These challenges are complicated further if there is no master patient index to link patient's across the multiple sites. All of these need to be taken into consideration prior to attempting to deploy a single workflow solution in multiple environments. Some possibilities that are discussed include using systems that function in a multiple medical record number environment, making changes to the demographic information in an interface engine or simply guaranteeing that each site uses unique identifiers. The benefits of having a single workflow solution across multiple environments is significant and helps to justify the cost of implementing in maintaining this type of environment.

Small Parts Interventional Ultrasound (Hands-on Workshop)

Wednesday, 08:30 AM - 10:00 AM • E263

US

IR

[Back to Top](#)

RC531 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

William E Shiels, DO *

Peter L Cooperberg, MD

Veronica J Rooks, MD

Alda F Cossi, MD

Nathalie J Bureau, MD

Nicholas A Zumberge, MD *

James W Murakami, MD

Paolo Minafra, MD

Paula B Gordon, MD *

Mary M Chiavaras, MD, PhD

Hollins P Clark , MD,MS
Carmen Gallego , MD
Mabel Garcia-Hidalgo Alonso , MD
Michael A Mahlon , DO
Michael A Dipietro , MD
Horacio M Padua , MD
Andrew J Rabe , DO
Robert D Lyon , MD
Stephen C O'Connor , MD

LEARNING OBJECTIVES

1) Identify basic skills, techniques, and pitfalls of freehand invasive sonography, with specific focus on small part applications. 2) Define and discuss technical aspects, rationale, and pitfalls involved in musculoskeletal, breast, head and neck, and pediatric interventional sonographic care procedures. 3) Successfully perform basic portions of hands-on US-guided procedures in a tissue simulation learning model, to include core biopsy, small abscess coaxial catheter drainage, cyst and ganglion aspiration, lymphatic malformation macrocyst access, soft tissue foreign body removal, and intraarticular steroid injection. 4) Incorporate these component skill sets into further life-long learning for expansion of competency and preparation for more advanced interventional sonographic learning op.
ABSTRACT

Managing Conflicts of Interest

Wednesday, 08:30 AM - 10:00 AM • S403B

LM

[Back to Top](#)

RC532 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC532A • Managing Multiple Accountabilities

Carolyn C Meltzer MD (Presenter) *

LEARNING OBJECTIVES

1) To provide a framework for understanding trends and variation in change of conflict of interest regulations guiding research and educational activities within academic medical centers, and how these have affected departments of radiology. 2) To compare and contrast processes of compliance, and discuss cost implications. 3) To examine how the academic-industry partnerships may proceed in this new, more restrictive environment.

RC532B • Industrial-Academic Collaborations: Managing Research Relationships

Jonathan S Lewin MD (Presenter)

LEARNING OBJECTIVES

1) Construct a framework for understanding industrial-academic relationships. 2) Describe common pitfalls in research partnerships. 3) Identify methods to mitigate conflicts of interest in research with industrial collaborators.

RC532C • Entrepreneurship and Commercial Venturing by Physicians: Appropriate or Not?

Richard L Ehman MD (Presenter) *

LEARNING OBJECTIVES

1) Discuss entrepreneurship and how commercialization of intellectual property may serve the mission of academic medical centers. 2) Examine the purpose of the Bayh-Dole act and its historic effect on commercialization activity by academic medical centers. 3) Review potential concerns about entrepreneurship at academic medical centers, including effects on academic freedom, delayed publication, IP congestion and conflict of interest.

Fallopian Tube Catheterization (Hands-on Workshop)

Wednesday, 08:30 AM - 10:00 AM • E260

OB GU

[Back to Top](#)

RC550 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Amy S Thurmond , MD *
Ronald J Zagoria , MD
Lindsay S Machan , MD *
Antoine J Maubon , MD
Arl Van Moore , MD
Anne C Roberts , MD *
David M Hovsepian , MD *

LEARNING OBJECTIVES

1) Obtain hands-on experience with fallopian tube catheterization using uterine models and commercially available catheters and guidewires. 2) Review the evolution of interventions in the fallopian tubes. 3) Learn safe techniques for fallopian tube recanalization for promoting fertility, and fallopian tube occlusion for preventing pregnancy. 4) Discuss the outcomes regarding pregnancy rate and complications. 5) Appreciate ways to improve referrals from the fertility specialists and expand your practice.

ABSTRACT

Fallopian tube catheterization using fluoroscopic guidance is a relatively easy, inexpensive technique within the capabilities of residency trained radiologists. Fallopian tube catheterization can be used to dislodge debris from the tube in women with infertility, or to place FDA-approved tubal occlusion devices in women who do not desire fertility. The fallopian tube is the 1 mm gateway between the egg and the sperm. Noninvasive access to this structure for promoting, and preventing, pregnancy has been sought for over 160 years. This hands-on course allows participants use commercially available catheters and devices in plastic models for fallopian tube catheterization, and to speak directly to world experts about this exciting procedure.

Imaging in Practice: MRI of the GIT (How-to Workshop)

Wednesday, 08:30 AM - 10:00 AM • E261

MR GI

[Back to Top](#)

RC551 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC551A • MR Enterography Technique and Application in Inflammatory Bowel Disease

Flavius F Guglielmo MD (Presenter)

LEARNING OBJECTIVES

1) To learn the clinical indications for MR Enterography (MRE) and an optimized MRE protocol. 2) To learn how to diagnose inflammatory bowel disease with MRE. 3) To learn the role of cine balanced steady state free precession series and diffusion weighted imaging series in MRE. 4) To understand if decreasing small bowel peristalsis is necessary when performing MRE.

ABSTRACT

RC551B • Imaging of the Anus: Anatomy, Fistulas and Incontinence

Joel G Fletcher MD (Presenter) *

LEARNING OBJECTIVES

1) To review the anatomy of the anal sphincter complex and pelvic floor. 2) To discuss how imaging acquisition methods are tailored to patient indication (e.g., perianal Crohn's disease, incontinence, ileoanal pouch). 3) To review the justification and rationale for MR anal imaging in patients with perianal Crohn's disease and fecal incontinence. 4) To describe time-efficient detection and classification of perianal fistulas. 5) To show how the appearance of perianal fistulas changes with treatment. 6) To review the appearance of traumatic sphincter tears, in addition to diffuse abnormalities of the internal and external sphincter.

ABSTRACT

RC551C • How to Use MRI for Rectal Cancer Staging

Gina Brown MD, MBBS (Presenter)

LEARNING OBJECTIVES

1) To appreciate optimal MRI techniques for accurate staging of Rectal Cancer. 2) To understand the implications for patient care from optimised staging. 3) To follow minimum reporting standards for reporting Rectal Cancers at baseline and after preoperative therapy.

ABSTRACT

Nerve Ultrasound Based on a Regional Approach: Shoulder and Neck (Hands-on Workshop)

Wednesday, 08:30 AM - 10:00 AM • E264

US **NR** **MK**

[Back to Top](#)

RC552 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Carlo Martinoli, MD
Rachel B Hulen, MD
Humberto G Rosas, MD
J. A Bouffard, MD
Catherine J Brandon, MD *
Etienne Cardinal, MD
Joseph G Craig, MD
David P Fessell, MD
Ghiyath Habra, MD
Marina Kislyakova, MD
Joseph H Introcaso, MD
Matthieu Rutten, MD
Marnix T Van Holsbeeck, MD *
Ximena L Wortsman, MD
Andrea Klauser, MD
Alberto S Tagliafico, MD
Michael A Dipietro, MD
Jon A Jacobson, MD *
Viviane Khoury, BSC,MD
Kenneth S Lee, MD *
Courtney E Scher, DO

LEARNING OBJECTIVES

1) Describe the ultrasound anatomy and scanning technique for examination of neck (i.e. brachial plexus, spinal accessory, long thoracic, phrenic, vagus) and shoulder (i.e. suprascapular, axillary, musculocutaneous) nerves. 2) Illustrate the main anatomic landmarks to identify these nerves. 3) Master technical approaches to nerve ultrasound including the recognition of pitfalls.

ABSTRACT

In recent years, ultrasound of the musculoskeletal and peripheral nervous systems is becoming an increasingly imaging tool with an expanding evidence base to support its use. However, the operator dependent nature and level of technical expertise required to perform an adequate ultrasound assessment means that appropriate training is required. For this purpose, the present course will demonstrate the basic principles of musculoskeletal ultrasound with a special focus on the examination of small (

Hands-on DICOM Metadata Manipulation (Hands-on Workshop)

Wednesday, 08:30 AM - 10:00 AM • S401CD

IN

[Back to Top](#)

RC553 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Richard J Bruce, MD *
Walter W Peppler, PhD *

LEARNING OBJECTIVES

1) Get introduced to a variety of the available open source tools and have a chance to experiment and familiarize yourself with the software hand-on. 2) Understand how open source DICOM software can help solve common workflow issues. 3) Understand how open source DICOM software can be used in research and education. 4) Learn to use open source tools to address DICOM data management challenges.

Using RADIANCE for Dose Monitoring and Quality Assurance: A Hands-on Course

Wednesday, 08:30 AM - 10:00 AM • S401AB

QA **IN**

[Back to Top](#)

RC554 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Tessa S Cook, MD, PhD
Adam H Kaye, MD
William W Boonn, MD *

LEARNING OBJECTIVES

1) Download and install RADIANCE. 2) Configure RADIANCE for their facility. 3) Set up RADIANCE to query and retrieve dose sheets automatically from PACS or another archive. 4) Use the RADIANCE reporting tools to review their institutional dose data. 5) Export dose data from RADIANCE for custom analysis using a spreadsheet or database.

ABSTRACT

RADIANCE is a freely-available, open source software packaged designed to facilitate dose monitoring, dose reporting and quality assurance for computed tomography (CT) examinations. It uses optical character recognition (OCR) to extract structured data from the image-based dose sheets that have been and continue to be produced by CT scanners worldwide. The structured data is parsed and useful dose-related parameters are extracted, including the x-ray tube voltage (kV), x-ray tube current (mA), volumetric CT dose index (CTDIvol) and dose-length product (DLP). In addition, information about the patient, type of study, scanner and performing institution are obtained from the DICOM study header. This aggregate of dose and exam data is stored in a relational database which can be used to perform quality assurance measures. Using the RADIANCE dashboard and scorecards, facilities can closely monitor their dose data, generate monthly reports for individuals and administrators, identify and investigate outliers and evaluate dose reduction and protocol optimization measures. With the development of radiation dose structured reports (RDSRs or Dose SRs), which are generated by newer scanners, facilities can participate in the American College of Radiology's Dose Index Registry (DIR). However, sites without the newest scanners or latest firmware, or those whose scanners will not be updated, can use RADIANCE to generate an RDSR from legacy (i.e., image-based) dose sheets and automatically send it to the DIR. Participants in this hands-on course will learn how to install and configure RADIANCE for optimal use at their facilities.

URL's

<http://www.radiancedose.com>

Open Access Imaging Data Resources: NIH Cancer Imaging Archive: Hands-on Workshop

Wednesday, 10:30 AM - 12:00 PM • S401CD

IN

[Back to Top](#)

ICIA41 • AMA PRA Category 1 Credit™:1.5

C. Carl Jaffe, MD
John B Freymann, BS
Justin Kirby

Fred W Prior , PhD *
Lawrence R Tarbox , PhD *

LEARNING OBJECTIVES

1) Learn how to find and download collections of clinical images from the multi-terabyte NIH/NCI Cancer Image Archive (TCIA). 2) Understand the index structure of the TCIA DICOM database. 3) Comprehend how the image archive is linked to the open access genomic data portal (The Cancer Genome Atlas - TCGA). 4) Use this tutored hands-on session to initiate institutionally independent leading edge bioinformatics research.

ABSTRACT

To accelerate clinical imaging research consistent with the principle of open-access "big data," the NIH/NCI provides an Web-downloadable massive DICOM clinical image archive entitled The Cancer Imaging Archive (TCIA). It contains a rich breadth of easily retrievable pre-indexed, but privacy compliant, cancer image collections from an intuitive interface. Of special significance, the TCIA archive acts as a repository of case collections that serve the increasingly important research frontier of "radiogenomics." Collections in TCIA designated "TCGA-xxxx" are diagnostic images obtained from individuals whose tissues were genetically profiled in the NHGRI/NCI cancer genome atlas project, TCGA. This tutored hands-on session will teach the basic skills needed to navigate the massive "Big Data" open-access downloadable image archive provided by the NCI Cancer Imaging Program. With this knowledge, interested cross-disciplinary researchers and radiologists can conduct their own leading-edge research to link clinical imaging to the genomics of various cancer tissue types.

URL's

<http://cancergenome.nih.gov> <http://www.cancerimagingarchive.net>

Next Generation IT Requirements for Improving Quality and Safety for Radiology

Wednesday, 10:30 AM - 12:00 PM • S501ABC



[Back to Top](#)

ICII41 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

LEARNING OBJECTIVES

1) Broadly describe the role of IT in helping improve quality and safety for radiology. 2) Describe some of the next generation IT requirements for quality and safety improvement. 3) Use case examples to demonstrate the use of IT to improve access, appropriateness, report quality and results communication. Demonstrate how IT tools can help quantify measurable improvements in each function/process. 4) Use case examples to describe system integration requirements and strategies to enable quality and safety improvement.

ABSTRACT

Improving quality and safety in healthcare and reducing medical errors has become an important element of the national dialogue. A series of ground breaking reports from the Institute of Medicine, including Crossing the quality chasm published in 2001 have helped frame the national debate. It has become apparent that working harder or smarter is not the answer. Broad system changes are sorely needed to enable the transformation of our healthcare system and creating a patient-centered, evidence-based care model. Information technology (IT) solutions are a critical element for this transformation.

In this session we will present some of the next generation IT requirements for improving quality and safety in radiology. Our speakers will use case examples to demonstrate how information technology tools can be used to improve appropriateness, access, 'value' of the radiology report, and results communication. Where relevant, our speakers will describe how metrics (e.g. with the use of dashboards, scorecards, or analytics tools) can be used to measure the improvements enabled with IT described in each presentation. Speakers will address the importance of system integration and suggest strategies to use existing IT standards to enable quality and safety improvements in our practices.

ICII41A • Using IT to Improve Appropriateness and Access

Keith D Hentel MD, MS (Presenter)

LEARNING OBJECTIVES

View learning objectives under main course title.

ABSTRACT

ICII41B • Using IT to Improve the 'Value' of Radiology Reports

Ramin Khorasani MD (Presenter) *

LEARNING OBJECTIVES

1) Describe some of the key attributes of a 'high value' radiology report. 2) Describe some of the existing performance gaps for creation of an optimal radiology report. 3) Using case examples, illustrate how health IT tools could improve the 'value' of radiology reports.

ICII41C • Using IT to Improve Results Communication, Including Critical Results

Luciano M Prevedello MD,MPH (Presenter)

LEARNING OBJECTIVES

View learning objectives under main course title.

Creating Radiology eBooks for the iPad: A Hands-on Introduction to iBooks Author

Wednesday, 10:30 AM - 12:00 PM • S401AB



[Back to Top](#)

ICIW41 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Henry J Baskin , MD
Justin LaPlante , MD
Justin Cramer , MD

LEARNING OBJECTIVES

1) Become familiar with Apple's free ebook authoring tool, iBooks Author. 2) Create a sample radiology ebook during the course. 3) Learn how to freely share your ebook with others.

ABSTRACT

The iPad is rapidly becoming the de facto learning tool used by radiology residents and fellows. iBooks Author, a free authoring tool from Apple, enables the creation of ebooks with a near-limitless number of high-resolution images, movies, and other interactive elements. Unfortunately, most radiologists lack the expertise to leverage the advantages of this application. This hands-on workshop will cover the basics of iBooks Author. During the course, attendees will create their own interactive radiology ebook and learn how to freely share it with anyone who has an iPad. iBooks author is only available for Mac OS and bringing your own Mac is required for the hands-on portion of the course. Attendees are encouraged to download iBooks Author prior to attending; the link is provided below. Attendees are also encouraged to come with an idea for their own iBook, ideally with a text file and folder of images they would like to turn into an ebook during the course. Sample text and images will be provided for those who do not bring their own material.

URL's

<https://itunes.apple.com/us/app/ibooks-author/id490152466?mt=12>

Correlating Imaging with Human Genomics

Wednesday, 12:30 PM - 02:00 PM • S401CD



[Back to Top](#)

ICIA42 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Sandy Napel , PhD *
Daniel L Rubin , MD,MS *
Olivier Gevaert , PhD

LEARNING OBJECTIVES

1) Understand the methods for and the potential value of correlating radiological images with genomic data for research and clinical care. 2) Learn how to access genomic and imaging data from The Cancer Genome Atlas (TCGA) and The Cancer Imaging Archive (TCIA) databases, respectively. 3) Learn about methods and tools for annotating regions within images with semantic and computational features. 4) Learn about methods and tools for analyzing molecular data, generating

molecular features and associating them with imaging features.

ABSTRACT

Radiogenomics is an emerging field that integrates medical images and genomic data for the purposes of improved clinical decision making and advancing discovery of critical disease processes. In cancer, both imaging and genomic data are becoming publicly available through The Cancer Imaging Archive (TCIA) and The Cancer Genome Atlas (TCGA) databases, respectively. The TCIA/TCGA provide examples of matched molecular and image data for five cancer types, namely breast, lung, brain, prostate and kidney. The data in TCGA includes various omics data such as gene expression, microRNA expression, DNA methylation and mutation data. The community is beginning to extract image features from the MRI, CT and/or PET images in TCIA, including tumor volume, shape, margin sharpness, voxel-value histogram statistics, image textures, and specialized features developed for particular acquisition modes. They are also annotating the images with semantic descriptors using controlled terminologies to record the visual characteristics of the diseases. The availability of these linked imaging-genomic data provides exciting new opportunities to recognize imaging phenotypes that emerge from molecular characteristics of disease and that can potentially serve as biomarkers of disease and its response to treatment. They also provide an opportunity to discover key molecular processes associated with distinct image features, within one cancer type and across different cancer types. This workshop will describe datasets and tools that enable research at the intersection of imaging and genomics, and that point to opportunities to develop future applications that leverage this knowledge for diagnostic decision support and treatment planning.

Meaningful Use: Experience from Radiology Practices in Hospitals and Health Systems

Wednesday, 12:30 PM - 02:00 PM • S501ABC



[Back to Top](#)

ICII42 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator

Ramin Khorasani, MD *
Curtis P Langlotz, MD, PhD *

LEARNING OBJECTIVES

1) Understand the meaningful use program. 2) Learn how hospitals and health systems have achieved meaningful use for their radiologists. 3) Decide how your practice should respond to the program.

Optimizing PowerPoint Slides

Wednesday, 12:30 PM - 02:00 PM • S401AB



[Back to Top](#)

ICIW42 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

William J Weadock, MD *
Sarah C Abate, BS

LEARNING OBJECTIVES

1) Review the components of an optimal slide presentation. 2) Learn about common errors made in slide preparation and how they can be avoided. 3) Learn about how to improve the quality of a presentation by using optimal different slide backgrounds, font size and color, and image sizes. 4) Learn tips to ensure a smooth presentation.

ABSTRACT

Electronic presentations are very common in radiology practice. This hands-on demonstration and questions and answer session will show attendees how to optimize their presentations. The focus will be on the use of slide templates, color selection (font and background), font and image size, and animations. Additional review of image and video display and management will be covered. Demonstrations will include tips to decrease time creating and modifying presentations. Bring your questions!

Using myRSNA®: Hands-on Workshop

Wednesday, 02:30 PM - 04:00 PM • S401CD



[Back to Top](#)

ICIA43 • AMA PRA Category 1 Credit™:1.5

John W Basco, MS

LEARNING OBJECTIVES

1) Understand the different tools and applications within myRSNA. 2) Log in to myRSNA and set up a personal profile. 3) Using the tools within myRSNA, highlight different use case scenarios.

RadLex®: Overview of a New Lexicon for Radiology

Wednesday, 02:30 PM - 04:00 PM • S501ABC



[Back to Top](#)

ICII43 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

LEARNING OBJECTIVES

1) Review the rationale for developing a new lexicon for medical imaging. 2) See how an imaging lexicon can be used for education, research, and clinical reporting. 3) Understand the key technical decision that were necessary to create a complete and organized vocabulary for medical imaging. 4) Learn about the formats in which RadLex is distributed and the tools that are available for maintaining and using terminology systems. 5) Discover how you can take advantage of RadLex in the development of radiology applications.

ABSTRACT

The purpose of the RadLex lexicon is to provide a uniform framework for indexing and retrieval of a variety of radiology information sources, including teaching files, research data, and radiology reports. The RadLex lexicon is unifying and supplementing radiology terms from other medical lexicons, such as the ACR Index from the American College of Radiology, the Unified Medical Language System (UMLS) from the National Library of Medicine, SNOMED-CT from the College of American Pathology, and the DICOM Content Mapping Resource. This session will explain the motivations for the creation of the RadLex imaging lexicon and describe new applications being created that leverage its rich knowledge resources, such as structured reporting, radiology information retrieval, image annotation, decision support, and computerized order entry. RadLex technical experts will describe the formats in which RadLex is distributed, and will demonstrate some of the tools available to incorporate RadLex into the development of useful software applications. An update on the recently developed RadLex will be provided, with an overview of RadLex methods to describe radiology orderables and procedure steps.

ICII43A • Background, Motivations, and Overview of Applications

Daniel L Rubin MD,MS (Presenter) *

LEARNING OBJECTIVES

View learning objectives under main course title.

ICII43B • 'RadLex Inside': Information Retrieval, Radiology Reporting, and Beyond

Charles E Kahn MD, MS (Presenter) *

LEARNING OBJECTIVES

View learning objectives under main course title.

ICII43C • Practical Use of the RadLex® Playbook: Beyond Chargemasters

David S Channin MD (Presenter) *

LEARNING OBJECTIVES

View learning objectives under main course title.



ICIW43 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Holly A Burt
Chezire Acimandos
Annabelle Nunez, MA
Wendy Wu, MS

LEARNING OBJECTIVES

1) Understand how PubMed constructs a query and how to develop and refine effective search strategies in radiology. 2) Use PubMed tools including Clinical Queries, Related Articles, Single Citation Matcher and Loansome Doc. 3) Build focused searches using the Medical Subject Headings (MeSH) vocabulary for radiology and limit searches to radiology-oriented journals. 4) Understand how to save and download citations.

ABSTRACT

This hands-on workshop covers key searching techniques, changes to PubMed, and how to develop effective search strategies for PubMed and MEDLINE. Topics covered include: why keywords don't always give the results you expect, how to limit to specific journals, quick searches to find evidence-based citations, how to access full-text articles, and downloading citations to reference manager programs. The National Library of Medicine (NLM) provides free web access to nearly 24 million citations for biomedical and clinical medical articles through PubMed (available online at PubMed.gov). MEDLINE is a subset of PubMed which includes links to sites providing full text articles and to other related databases and resources.

Rapid Application Development with XIP™ - the eXtensible Imaging Platform



ICIA44 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Lawrence R Tarbox, PhD *
Patric Ljung, PhD *
Gianluca Paladini, BEng *

LEARNING OBJECTIVES

1) Learn the basic architecture of an XIP Application and how it interacts with the XIP Host and with the GUI system. 2) Become familiar with the capabilities available in the XIP Libraries. 3) Describe how to use the XIP Builder and GUI engine to create XIP Applications from modules in the XIP Libraries. 4) Understand the concepts of DICOM Application Hosting and its impact.

ABSTRACT

The eXtensible Imaging Platform (XIP) is an open source framework supporting rapid development of imaging and visualization applications. In this hands-on tutorial participants will dissect a fully functional XIP application to see firsthand how developers utilize XIP's visual drag-and-drop programming tool (the XIP Builder) and associated libraries (the XIP Libraries) in creating applications. In addition to functions from the popular ITK and VTK libraries, the XIP Libraries include modules tailored for medical imaging, many of which are hardware accelerated via GPU programming (e.g., OpenGL GLSL or OpenCL or CUDA C). Applications created with XIP can either run standalone, or as DICOM Hosted Applications. Through the DICOM Application Hosting interfaces (DICOM WG-23), a Hosting System, such as the XIP Host, relieves the application developer from the need to re-implement infrastructure common to all applications (e.g. DICOM network connectivity, database, etc.). We will demonstrate how users execute Hosted Applications, such as those created with the XIP Libraries, via the XIP Host.

URL's
http://www.OpenXIP.org

IHE Workflow Efficiency from Acquisition to the Report Attendees



ICII44 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator
Bradley J Erickson, MD, PhD *
Lawrence R Tarbox, PhD *
Bradley J Erickson, MD, PhD *
Curtis P Langlotz, MD, PhD *
Harry Solomon *

LEARNING OBJECTIVES

1) Understand how report templates can improve productivity. 2) Examine how IHE profiles facilitate system interoperability. 3) Learn about the features of the new IHE profile for management of radiology report templates. 4) Review proposed new features for radiology reporting systems.

ABSTRACT

The purpose of this session is to demonstrate how existing and planned IHE profiles can help improve the workflow in a medical imaging department, and help those responsible for its operation, monitor what is happening. Prior IHE profiles focused heavily on traditional RIS and PACS. Newer projects are focused on exchange of images and reports between medical facilities. We will also describe future possible profiles for utilizing RadLex to improve radiologist efficiency. We will also describe workflow terminology in RadLex and describe how that can help manage and improve departmental workflow.

National Library of Medicine PubMed: Free Online Databases: Images and More



ICIW44 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Holly A Burt

LEARNING OBJECTIVES

1) Identify freely available online image databases and data archives and know their contents and value. 2) Identify freely available online case studies and educational materials. 3) Become familiar with online drug, contrast agents, and other substance databases. 4) Understand basic searching skills across a variety of databases.

ABSTRACT

The National Library of Medicine (NLM) is only one of many agencies which support freely available online databases and data archives. In this hands-on workshop, explore the richness of the online resources for radiographic images and data, imaging tools, drugs and contrast agents, and education (e.g. case studies). Databases covered include PubMed/MEDLINE, the National Cancer Institute's Cancer Imaging Archive, MedlinePlus.gov and RadiologyInfo for patients and families, plus search engines and portals offering a radiology option. Learn which databases may be the best starting point for your research.

No Course RC601. See Series VSCH51 Chest Series: Hot Topics in Chest Imaging: Emerging Technologies and Clinical Applications

RC601

How To Evaluate Resident Milestones Effectively and Efficiently: Practical Ideas Will Help Program Directors and Residents To Know What Is Expected



RC602 • AMA PRA Category 1 Credit™:1.5

Angelisa M Paladin, MD
Mary H Scanlon, MD, FACR
Todd S Miller, MD

LEARNING OBJECTIVES

1) Become familiar with each main milestone category. 2) Learn the constituent parts of each main milestone category and how they are structured into graduated sections organized by level of training. 3) Learn methods of gathering data for each milestone category, section, and level within each using the resources provided by the milestone committee. 4) Learn how to apply proven assessment strategies via review of lessons learned during successful and unsuccessful implementations undertaken by the milestone committee members.

No Course RC603. See Series VSCA51 Cardiac Radiology Series: Cardiac Dual Energy CT

Thursday, 08:30 AM - 10:00 AM

[Back to Top](#)

RC603

No Course RC604. See Series VSMK51 Musculoskeletal Radiology Series: Hip Imaging: Challenges and Solutions

Thursday, 08:30 AM - 10:00 AM

[Back to Top](#)

RC604

Alzheimer's Disease

Thursday, 08:30 AM - 10:00 AM • S405AB

[Back to Top](#)

NR

RC605 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1

RC605A • Neurobiology and Imaging Research in Alzheimer's Disease
Sterling Johnson PhD (Presenter)

RC605B • Multimodal Amyloid Imaging

Mykol Larvie MD, PhD (Presenter)

LEARNING OBJECTIVES

1) Understand current evidence regarding the amyloid hypothesis with respect to Alzheimer's disease. 2) Understand the major Alzheimer's disease syndromes, including early onset AD, late onset AD and AD related to specific mutations. 3) Understand the concept and development of amyloid PET imaging radiotracers. 4) Understand the application of amyloid PET imaging in the evaluation of neurodegenerative disease. 5) Understand the principles of interpretation of amyloid PET imaging. 6) Understand the correlation of amyloid PET imaging with multi-modal MRI and FDG PET imaging.

RC605C • Perspectives and Directions in Dementia Imaging

Jeffrey R Petrella MD (Presenter) *

LEARNING OBJECTIVES

1) To review the current role of CT and MR in the workup of the patient with dementia. 2) To understand how a recently revised definition of Alzheimer's disease is leading to a new paradigm in the workup of patients with dementia, and those at risk. 3) To describe the role of biomarkers, including advanced imaging, in early diagnosis and development of the next generation of therapeutics for Alzheimer's disease and related disorders.

Neck Imaging

Thursday, 08:30 AM - 10:00 AM • S402AB

[Back to Top](#)

NR

HN

RC606 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC606A • Cystic Lesions of the Neck

Wendy R Smoker MD (Presenter)

LEARNING OBJECTIVES

1) Identify branchial cleft cysts (Types II-IV) and their mimics. 2) Recognize common and uncommon locations of simple and complicated thyroglossal duct cysts. 3) Identify a variety of less common cystic neck lesions such as thymic cysts, obstructed laryngoceles, necrotic SCCa lymph nodes.

ABSTRACT

Second branchial cleft cysts and fistulae account for 92%-99% of branchial cleft anomalies. They are thought to be remnants of the cervical sinus of HIs with no internal or external communication. They are usually lined by stratified squamous epithelium of ectodermal origin and lie lateral to the post-styloid carotid sheath structures, posterior to the submandibular gland, and anterior to the sternocleidomastoid muscle. They are unilocular and do not enhance unless infected. Third and fourth branchial cleft anomalies are extremely rare. Thyroglossal duct cysts are the most common congenital cystic lesions. Suprahyoid cysts are typically midline which infrahyoid cysts (50%-65%) are frequently off-midline deep to, or embedded within, the infrahyoid strap muscles. They are found anywhere along the course of the thyroglossal duct from the foramen cecum to the thyroid gland. These cysts are usually unilocular and do not enhance. 'Complicated-appearing' cysts should be viewed with suspicion as thyroid carcinomas (typically papillary carcinoma) may occur within these cysts. A variety of relatively uncommon 'cystic' neck lesions are occasionally encountered including thymic cysts, thyroid cysts, complicated laryngoceles, completely necrotic lymph nodes, lymphatic malformations, etc. A number of these lesions will be presented and discussed as time permits.

RC606B • Neck Tumors

Deborah L Reede MD (Presenter)

LEARNING OBJECTIVES

1) Learn the CT and MR appearance of common non cystic neck masses in the infrahyoid neck. 2) Learn to develop a differential diagnosis for lesions based on location and imaging appearance. 3) Review the anatomy in the region of the thoracic Inlet and location of major nerves in the infrahyoid neck to improve the detection of tumor spread and prediction of potential nerve involvement.

ABSTRACT

Common non cystic neck masses are discussed with an emphasis on differential diagnosis bases on lesion location and imaging appearance. Anatomy in the region of the thoracic inlet and the location of major nerves in the infrahyoid neck are reviewed. Knowledge of this anatomy will enhance your ability to detect tumor spread beyond the confines of the neck and help identify lesions originating in or potentially involving major nerves. Information presented is important for surgical planning and may improve patient outcomes.

RC606C • Lymph Nodes

Peter M Som MD (Presenter)

LEARNING OBJECTIVES

1) The attendee will learn the function and anatomy of the cervical lymph nodes. 2) The attendee will be able to understand the differences between nodal staging and classification. 3) The attendee will know the criteria for assessing metastatic adenopathy.

ABSTRACT

The anatomy and function of the cervical nodes will be discussed and special attention will be given as to how cancer enters these nodes. The classification and

staging of the cervical nodes will be discussed and the differences between them noted. How this information is then utilized in treatment planning will be highlighted. Criteria for the imaging assessment of the presence of nodal metastases will be discussed and examples will be given. Both morphologic and functional criteria will be presented.

GU Ultrasound 2013: The Expert's Update on Kidney, Gynecologic and Testicular US

Thursday, 08:30 AM - 10:00 AM • N228

[Back to Top](#)

[US](#) [OB](#) [GU](#)

RC607 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Coordinator

John J Cronan, MD

Mindy M Horrow, MD *

Paula J Woodward, MD *

LEARNING OBJECTIVES

1) The learner will be made aware of the importance of acute kidney injury (AKI) and associated ultrasound findings. 2) Ultrasound criteria of cystic adnexal masses will be reviewed. 3) Testicular and scrotal pathology and the importance of ultrasound will be explained.

ABSTRACT

Ultrasound has taken on new importance in the evaluation of the kidney, female pelvis and the scrotum/ testicles.

We will explain the ultrasound findings of acute kidney injury (AKI), the evaluation of pelvic masses and the necessary follow-up. Finally, a review of the testicle and ultrasound findings will complete the course.

The Acute Abdomen and Pelvis (An Interactive Session)

Thursday, 08:30 AM - 10:00 AM • E450A

[Back to Top](#)

[ER](#) [CT](#) [OB](#) [GU](#) [GI](#)

RC608 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC608A • Imaging of Acute Pancreatitis: Current Concepts

Jorge A Soto MD (Presenter) *

LEARNING OBJECTIVES

1) To review the appropriate terminology that should be implemented when describing glandular and peri-glandular findings in acute pancreatitis, following the revision of the Atlanta classification. 2) To identify the importance of glandular necrosis in defining the prognosis of acute pancreatitis. 3) To describe the technical aspects that are necessary for acquiring good quality CT examinations in acute pancreatitis. 4) Illustrate specific situations where MR can be a valuable tool in the evaluation of acute pancreatitis.

RC608B • Non-contrast CT of the Acute Abdomen

Douglas S Katz MD (Presenter)

LEARNING OBJECTIVES

1) To review the current indications for performing non-contrast CT of the acute abdomen and pelvis. 2) To demonstrate examples of non-contrast CT of the acute abdomen and pelvis. 3) To highlight the advantages and potential limitations of non-contrast CT of the acute abdomen and pelvis, compared with other CT protocols/other cross-sectional imaging examinations. 4) To briefly review areas of controversy with CT protocols (e.g. appendicitis).

ABSTRACT

RC608C • CT of the Acute Female Pelvis

Anjali Agrawal MD (Presenter)

LEARNING OBJECTIVES

1) Highlight the importance of recognition of acute gynecologic conditions on CT. 2) Outline the physiologic processes that may present as acute pelvic pain and their CT findings. 3) Describe the CT features of common pathologic causes of acute female pelvis. 4) Illustrative case examples with correlative imaging findings on sonography or MRI to improve the understanding of the anatomy and pathology on CT.

ABSTRACT

Gastrointestinal: CT Colonography Update (An Interactive Session)

Thursday, 08:30 AM - 10:00 AM • E353C

[Back to Top](#)

[CT](#) [GI](#)

RC609 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC609A • CT Colonography: Techniques

Seong Ho Park MD (Presenter) *

LEARNING OBJECTIVES

1) Understand the basic bowel preparation steps for CT colonography and related knowledge updates. 2) Design and modify their bowel preparation procedures for CT colonography practice. 3) Explain the procedures during the scanning of CT colonography. 4) Understand the radiation dose of CT colonography and how to reduce it. 5) Identify common pitfalls related to CT colonography techniques and how to avoid them.

ABSTRACT

RC609B • CT Colonography: Interpretation Workflow

Abraham H Dachman MD (Presenter) *

LEARNING OBJECTIVES

1) Improve knowledge of CTC interpretation workflow. 2) Apply principles to utilize 2D, 3D and novel presentations of CTC data. 3) Avoid some common pitfalls in CTC interpretation.

ABSTRACT

This portion of the session will cover CTC workflow and explain:

- ◆ The environment for interpretation.
- ◆ How to perform quality assurance of CTC images
- ◆ Review common strategies of interpretation
- ◆ Discuss generating a CTC report.
- ◆ Interpretation workflow:
 1. Confirm segmentation and map out colon
 2. 3D transparency view or coronals
 3. Quality assurance
 4. Distention, stool, fluid, tagging
 5. Search for polyps using both 3D and 2D
 6. Characterize and measure polyp candidates
 7. Secondary CAD-assisted evaluation
 8. Report (follow C-RADS guidelines)
 9. Search for extracolonic findings

10. Q.A. CHECKLIST
 Location of segments
 Tortuosity, mobility when comparing supine to prone
 Identify ileocecal valve
 Quality of distention
 Retained stool: Size, tagging
 Retained fluid: Quantity, location, tagging, change supine ♦ prone
 Artifacts (e.g., metal, breathing)
 METHODS OF INTERPRETATION:
 3D with 2D problem solving
 2D with 3D problem solving
 Soft tissue windows for flat lesions
 Bone windows for dense oral contrast tagged fluid and stool
 Virtual Pathology (open views)
 Computer-aided diagnosis (CAD) APPROACH TO POLYP CANDIDATE ANALYSIS:
 Polyp vs. fold > use > 3D or MPRs
 Polyp vs. stool > use > texture (W/L or color map)
 If solid . . . Compare supine / prone for mobility
 If mobile, check for long stalk, colonic rotation / flip
 PRIMARY 3D READ STRATEGIES:
 Forward and backward
 Supine and prone
 Special software features (e.g., color map for polyp characterization, show blind areas)
 Problem solve in 2D as needed as you read
 Bookmark and defer difficult problem solving (e.g., difficult supine/prone comparison)
 STRUCTURED REPORT:
 History
 Prep
 Informed of exam limitations
 Technique
 Colon findings
 Extracolonic findings
 C-RADS scores / Recommendations
 Footnote qualifier / reference C-RADS

RC609C • CT Colonography: Errors to Avoid

Judy Yee MD (Presenter) *

LEARNING OBJECTIVES

1) To understand the most common causes of false positives on CT Colonography. 2) To learn problem solving strategies to avoid missed lesions and false positives. 3) To streamline time -efficient interpretation methodology with high accuracy for lesion detection.

ABSTRACT

Accurate interpretation of CT Colonography requires specific education. Readers must learn the appearance of normal structures and pitfalls in order to avoid errors of interpretation. There are different learning paradigms depending upon the technique employed such as with the use of tagging and computer aided detection. Maintenance of competency in this area requires continued learning and experience.

RC609D • CT Colonography: Summary of Results

David H Kim MD (Presenter) *

LEARNING OBJECTIVES

1) Be knowledgeable of the major trials establishing CTC performance. 2) Understand the strengths and weaknesses of CTC- and OC- based screening. 3) Be aware of the likely risk estimates from radiation in CTC-based screening.

Abdominal Vasculature: Ultrasound and Doppler

Thursday, 08:30 AM - 10:00 AM • S103CD

[US](#) [VA](#) [GI](#)

[Back to Top](#)

RC610 • AMA PRA Category 1 Credit™: 1.5 • ARRT Category A+ Credit: 1.5

RC610A • Liver Doppler

Kathryn A Robinson MD (Presenter)

LEARNING OBJECTIVES

1) Identify normal hepatic hemodynamics. 2) Identify hemodynamic alterations in portal hypertension. 3) Identify portal and hepatic vein thrombosis. 4) Identify normal sonographic and Doppler findings as well as complications of Transjugular Intrahepatic Portosystemic Shunt (TIPS).

ABSTRACT

RC610B • Contrast Ultrasound in the Abdomen

Hans-Peter Weskott MD (Presenter) *

LEARNING OBJECTIVES

1) Understanding the indications of contrast enhanced ultrasound (CEUS) in different abdominal organs. 2) Learning about the importance of the three contrast phases and how CEUS performs in detecting and characterizing focal liver lesions. 3) Learning the potential value as well as the limitations of CEUS in renal disorders. 4) Learning how CEUS performs in diseases of other solid organs including the intestine and major abdominal vessels.

ABSTRACT

Liver: In patients with favorable scanning conditions CEUS is at least as sensitive as contrast enhanced CT (CECT) in detecting malignant liver lesions. Due to a high temporal resolution, even a short hyper-enhancement of a few seconds can reliably be detected, thus improving the characterization of focal liver lesions. A majority of malignant lesions can therefore be characterized as iso- or hyper-enhancing. During the arterial phase the tumor's vessel architecture and direction of contrast filling is important for characterizing a lesion's character. Due to a high spatial resolution, novel contrast imaging techniques allow detection of washed out lesions down to 3mm in size. CEUS characterizes focal liver lesions with a much higher diagnostic confidence than conventional US and is comparable to CT and MRI. CEUS also improves intraoperative tumor detection and characterization. Using time intensity analysis a change in contrast enhancement and kinetics helps in estimating tumor response to chemotherapy. CEUS is also used to monitor local ablation therapy and is a useful imaging tool to detect early tumor recurrence. Gallbladder: CEUS can be used to better visualize ulceration, perforation, and tumors of its wall. Pancreas: CEUS can be used to reliably image necrosis in acute pancreatitis. It helps to differentiate neuroendocrine tumors from ductal adenocarcinoma. Kidney: CEUS adds great value in detecting and characterizing complicated cysts and is believed to be more accurate than CECT. However, its value in differentiating solid renal tumors is limited. Parenchymal changes due to infectious diseases can be diagnosed by using CEUS. It is highly sensitive in detecting organ infarctions as well. Intestine: CEUS is of great value in characterizing inflammatory diseases and especially in imaging complications. CEUS improves visualization of abdominal vascular disorders

RC610C • Aorta and Its Branches

Mary C Frates MD (Presenter)

LEARNING OBJECTIVES

1) Understand the gray scale and Doppler techniques useful for evaluating the aorta and its branches. 2) Recognize the presence of vascular stenosis, aneurysm and malformations. 3) Understand the challenges in the sonographic evaluation of aortic stent grafts.

ABSTRACT

**RC611** • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5**LEARNING OBJECTIVES**

1) Understand the technical advancements associated with new scintillation cameras and SPECT-CT and PET-CT cameras. 2) Appreciate the benefits of CT attenuation correction. 3) Appreciate the adjunctive benefits of anatomic definition provided with CT and physiologic/function information provided by SPECT and PET. 4) Improve interpretive skills related to SPECT and PET-CT.

ABSTRACT

Camera and software technology recently has rapidly advanced, providing improved SPECT image resolution and increased counting statistics. These advancements in turn have provided the possibility of reduced-time and reduced radiopharmaceutical dose image acquisitions. Moreover, increased flexibility in imaging protocols has been realized. Future development of these methods hold promise in increasing diagnostic accuracy and expanding diagnostic applications. The addition of CT to SPECT and PET has afforded the ability to perform attenuation correction, thereby minimizing attenuation artifacts and increasing diagnostic specificity. With CT acquisitions of sufficient resolution, complementary anatomic diagnostic information is provided. In addition, more precise anatomic localization of SPECT and PET abnormalities significantly increases clinical applicability.

RC611A • Advances in Cardiac SPECT**E. Gordon Depuey MD (Presenter) *****LEARNING OBJECTIVES**

1) Understand software methods to cope with lower SPECT counting statistics in order to reduce scan acquisition time and/or radiopharmaceutical injected activity and their clinical impact. 2) Understand instrumentation advances that allow new cameras to perform SPECT with markedly reduced acquisition times and/or less radiopharmaceutical activity and their clinical impact. 3) Implement protocols that facilitate patient-centered imaging and that reduce patient radiation exposure. 4) Recognize new software methods to select appropriate patients for cardiac resynchronization therapy (CRT).

ABSTRACT

A long-standing limitation of radionuclide myocardial perfusion SPECT is its relatively lengthy acquisition time, as compared to stress echocardiography and cardiac CT. New software methods and new innovative hardware, however, now allow for significantly shortened SPECT acquisition times without a decrease in image quality. Advancements include iterative reconstruction, resolution recovery, and noise reduction software, and focused collimation and solid state detectors incorporated into new camera designs.

More recently the media, the public, and the medical community have drawn attention to patient radiation exposure associated with radiographic, nuclear medicine, and nuclear cardiology procedures and the potential associated patient risk. The radiology and nuclear imaging communities have responded rapidly and definitively by implementing a variety of guidelines to decrease patient radiation exposure and to avoid exposure in higher risk patient populations. The American society of Nuclear Cardiology has set a goal to decrease patient radiation exposure associated with myocardial perfusion SPECT to less than 9 mSv per entire study in 50% of patients by 2014, and the ACR Image Wisely Guidelines encourage reduced radiation doses. New software and hardware methods described in this presentation will help us achieve this goal by providing the ability to maintain or improve SPECT image quality with the lower image counting statistics associated with significantly decreased injected radiopharmaceutical doses. There has been an intersocietal effort to promote patient-centered imaging with a focus on appropriateness guidelines, cost-containment, radiation dose reduction, and the selection of the most appropriate imaging test and protocol to suit particular patient needs. The technical advancements described above facilitate implementation of patient-centered imaging.

RC611B • Advances in Cardiac PET**Sharmila Dorbala MBBS (Presenter) *****LEARNING OBJECTIVES**

1) Review the advantages and disadvantages of myocardial perfusion PET compared to SPECT for evaluation of coronary artery disease. 2) Learn the added value of absolute quantitative parameters derived from PET for assessment of cardiovascular disease. 3) Update of current and future clinical applications of cardiac PET imaging in cardiovascular medicine.

ABSTRACT**No Course RC612. See Series VSVA51 Vascular Imaging Series: CT Angiography-New Techniques and Their Application****Thursday, 08:30 AM - 10:00 AM****RC612****Vascular Lesions in Children: Diagnostic Dilemmas and Treatment Options****Thursday, 08:30 AM - 10:00 AM • S102AB****RC613** • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5**RC613A • Hemangiomas and Vascular Syndromes****Patricia E Burrows MD (Presenter) *****LEARNING OBJECTIVES**

1) Participants will become familiar with the current classification of vascular anomalies, including subtypes of hemangioma and vascular overgrowth syndromes. 2) They will be familiar with imaging findings associated with different subtypes of hemangiomas, simple vascular malformations and vascular overgrowth syndromes. 3) They will be able to prescribe appropriate imaging studies, based on the clinical findings.

ABSTRACT

This presentation will review a classification of vascular anomalies and associated imaging findings. Hemangiomas are proliferative tumors of infancy. Infantile hemangioma (glut1 positive) is the most common and consists of a soft tissue mass composed of capillaries with dilated feeding and draining vessels. Congenital hemangiomas (glut1 negative) (RICH and NICH) are fully formed at birth and behave differently from infantile hemangiomas. Imaging may also be different. Vascular malformations are usually composed of channels without a soft tissue mass. Combined malformations are the exception, as they are often associated with soft tissue overgrowth. Venous malformations are classified as focal, multifocal or diffuse types. Familial forms include blue rubber bleb nevus syndrome, glomuvenous malformation and cutaneomucosal venous malformations. Sporadic and cutaneomucosal venous malformations are caused by TIE2 mutations. Venous malformations are hyperintense on T2 weighted images and usually show slow and partial enhancement. Lymphatic malformations can be cystic [macrocystic, microcystic] or composed of dysfunctional channels. These generally appear hyperintense on T2 weighted imaging and do not enhance. AVM and AV fistula appear as dilated channels, usually within normal or hypertrophied tissue. Angiography shows early venous drainage. Angioarchitecture varies. Associated mutations include ALK1, endoglin, SMAD4, RASA-1, PTEN. Combined malformations can be associated with low flow or fast flow channels and often have associated soft tissue overgrowth. Syndromic forms include Klippel-Trenaunay syndrome (CLVM), CLOVES syndrome, CM macrocephaly syndrome, and PTEN hamartoma syndrome. These patients require careful and extensive imaging to identify the vascular anomalies present, limb length discrepancy and soft tissue anomalies. In summary, vascular anomalies vary in their extent and severity of symptoms. Ultrasonography is useful to determine flow characterist

RC613B • Treatment of High-Flow Lesions - Manage or Cure?**David M Hovsepian MD (Presenter) *****LEARNING OBJECTIVES**

1) Participants will learn about treatment planning for arteriovenous malformation, about challenging cases that require multiple approaches in staged procedures, and possible complications from IR intervention.

ABSTRACT**RC613C • Low-flow Lesions-Basic and Advanced Treatment Options****Leah E Braswell MD (Presenter)**

LEARNING OBJECTIVES

Participants will learn about needle sclerotherapy techniques for venous malformation and drain sclerotherapy techniques for macrocystic lymphatic malformation. Complimentary treatment techniques, peri-procedural management, and long term follow-up will be discussed.

No Course RC614. See Series VSIR51 Interventional Radiology Series: Non-Vascular Interventions

Thursday, 08:30 AM - 10:00 AM

[Back to Top](#)

RC614

Breast US

Thursday, 08:30 AM - 10:00 AM • N227

[Back to Top](#)



RC615 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC615A • High-Quality Breast US

Janice S Sung MD (Presenter)

LEARNING OBJECTIVES

1) To review basic ultrasound principles used to create high quality images. 2) To understand appropriate breast ultrasound technique and documentation. 3) To improve knowledge regarding breast ultrasound accreditation, including image evaluation and biopsy case assessment.

RC615B • Whole Breast US Screening

Stuart S Kaplan MD (Presenter) *

LEARNING OBJECTIVES

1) To understand the rationale for the use of breast ultrasound as a supplementary screening modality for women with dense breasts. 2) To review results of screening ultrasound studies such as cancer detection rates, stage at detection, and false positive biopsy rates. 3) To discuss implementation issues such as performance and interpretation time, reimbursement, and automated whole breast ultrasound.

ABSTRACT

RC615C • US Evaluation of Lymph Nodes

Robert A Schmidt MD (Presenter) *

LEARNING OBJECTIVES

1) How the anatomy of a lymph node affects its sonographic appearance. 2) How metastases alter the sonographic appearance of a lymph node. 3) Several methods of distinguishing whether an abnormal node is more likely metastatic or a benign reactive lymph node. 4) The landmarks that define the axillary lymph node levels, how to assess axillary lymph node levels, and breast cancer metastases spread from level to level in most cases. 5) How to assess a lymph node for peri-nodal invasion and how to perform a biopsy to prove its presence. 6) The various methods of performing biopsy of axillary lymph nodes and how ultrasound guided biopsy of axillary lymph nodes affect management of the breast cancer patient. 7) How ultrasound contrast agents could help assess axillary nodes.

Service Excellence in Radiology (Sponsored by the RSNA Professionalism Committee) (An Interactive Session)

Thursday, 08:30 AM - 10:00 AM • E450B

[Back to Top](#)



RC616 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator

Kenneth A Buckwalter, MD

Ella A Kazerooni, MD

Brent J Wagner, MD

Ingrid M Burger, MD, PhD

Bruce J Barron, MD *

LEARNING OBJECTIVES

1) Understand who the customer is in Radiology and why customer satisfaction scores are important. 2) Review how Radiology can document the added value role it plays in the enterprise. 3) Discuss how to manage workplace interruptions.

ABSTRACT

ServiceExcellence in healthcare is used generally to refer to patient or customer satisfaction, and our ability to consistently meet if not exceed the expectations of patients, their families and visitors. It can be more widely expanded to include interactions among staff within a group, across groups or job descriptions or across departments. Inherently it is the concept that healthcare is more than just the technical act of delivering service, in radiology that would be the performance of a diagnostic test for example that hit high marks for classic quality metrics like image quality, radiation dose optimization and clarity and accuracy of the interpretation. Service excellence embraces the notion that healthcare must address the psyche, emotions and worries of those we care for, who come to us for service because they are ill and concerned about their health, the impact of disease on themselves and their families. It is about HOW we deliver the care too. From looking people in the eyes at check in, asking if there is anything else we can do for them, letting them know how they will get their test results, acknowledging when we can do better without blame, and knowing when and how to say thank you. On a more tangible level, high marks for Service Excellence also translates into higher employee engagement, retention of staff and a drop in time and resources spent doing service recovery. Hiring for Service Excellence is important to having the right people in your organization, and sometimes letting those go who cannot live up to those expectations may be necessary to move forward. In the end, a commitment to Service Excellence is not about an expensive program delivered by others to you to train to, it is about treating everyone with respect and both setting and often exceeding expectations. With higher patient satisfaction scores comes retention of patients/customers, and word of mouth marketing that your program is THE destination for care now and in future.

Emerging Breast Imaging Strategies

Thursday, 08:30 AM - 10:00 AM • S504CD

[Back to Top](#)



RC617 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator

Jafi A Lipson, MD

RC617A • Diffuse Optical Spectroscopic Imaging

Bruce Tromberg MD (Presenter)

LEARNING OBJECTIVES

1) To understand principles of light transport in tissue and the biological origins of DOSI functional contrast. 2) To review applications of DOSI in breast cancer and evaluate its utility in the context of conventional imaging.

RC617B • Contrast Enhanced Mammography

John M Lewin MD (Presenter) *

LEARNING OBJECTIVES

1) To discuss the indications and utility of contrast-enhanced mammography (CEM) and contrast-enhanced tomosynthesis (CET). 2) To understand the

feasibility, limitations, and technical issues of CEM / CET. 3) To compare the utility of CEM and CET against non-contrast techniques and discuss future directions.

RC617C • High Resolution Dynamic Contrast Enhanced Breast MRI

Brian A Hargreaves PhD (Presenter)

LEARNING OBJECTIVES

1) Be able to select appropriate spatial and temporal resolution parameters to run a dynamic contrast-enhanced (DCE) breast MRI sequence. 2) Explain to colleagues the difference between temporal resolution and temporal footprint for fast DCE scans. 3) List 3 different approaches to fat suppression, and be able to set up a scan protocol using at least one of these on the learner's scanner.

Interactive Game: Interactive Quiz Cases in Body Oncologic Imaging

Thursday, 08:30 AM - 10:00 AM • E353A

01

[Back to Top](#)

RC618 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

LEARNING OBJECTIVES

This interactive session will use RSNA Diagnosis Live♦. Please bring your charged mobile wireless device (phone, tablet or laptop) to participate.

RC618A • Chest Masses

Cristina Fuss MD (Presenter)

LEARNING OBJECTIVES

1) Describe characteristic imaging features of malignant chest masses. 2) Characterize benign pulmonary masses that may mimic malignancies. 3) Describe common imaging pitfalls in differentiating benign from malignant masses. 4) Determine the need for further imaging vs. invasive procedures of pulmonary masses depending on their imaging appearance.

ABSTRACT

Two common descriptors are used in describing pulmonary lesions: nodules and masses. A nodule is small and measures less than 3 cm. Masses by definition are larger than 3 cm. Given their larger size, masses are usually not as difficult to detect as are the smaller nodules. But once detected the differential diagnosis entails more than just primary pulmonary malignancy, although the majority may end up being diagnosed as cancer. Tissue sampling of large masses is usually one of the first steps, but several imaging criteria may help guide and sometimes even obviate invasive procedures. The chronicity, location of the mass and associated symptoms are important factors that should always be taken into consideration when evaluating pulmonary masses, only to name a few.

RC618B • Abdominal Masses

Chandana G Lall MD (Presenter)

LEARNING OBJECTIVES

1) Learn typical and atypical features of some benign and malignant abdominal masses on CT and MRI. 2) Characterize features on CT and MRI that may mimic malignancy in benign lesions and vice versa. 3) Discuss logical work-up of lesions, further imaging, need for intervention and follow-up guidelines.

ABSTRACT

1. Describe characteristic imaging features of a few benign and malignant abdominal masses on CT and MRI
2. Illustrate benign masses that may mimic malignancy and imaging pitfalls in differentiating benign and malignant lesions
4. Logical work up of lesions; further imaging and need for intervention

RC618C • MSK/Soft Tissue Masses

Sandra Schmahmann MD (Presenter)

LEARNING OBJECTIVES

1) Recognize common benign soft tissue masses with characteristic MRI features, that do not require follow up or biopsy. 2) Evaluate soft tissue masses by location, signal intensity characteristics, size and relationship to certain anatomic structures in order to develop a differential diagnosis. 3) Suggest appropriate management of the soft tissue mass based on MRI features.

ABSTRACT

Several common benign soft tissue masses, such as lipoma, hemangioma, ganglion, peripheral nerve sheath tumor, myositis ossificans and hematoma, have characteristic MRI features that allow the radiologist to make the diagnosis, and do not require follow up or biopsy. Lesions that arise from specific structures (e.g. giant cell tumor of the tendon sheath and peripheral nerve sheath tumor) or in certain anatomic locations (e.g. elastofibroma deep to the scapula) can further aid characterization. Size and signal intensity characteristics are additional criteria that help develop an appropriate differential diagnosis. Based on MRI features, the radiologist can suggest appropriate management and advise whether a biopsy is necessary.

Medical Physics 2.0: Ultrasonography

Thursday, 08:30 AM - 10:00 AM • S102C

PH US

[Back to Top](#)

RC621 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Co-Director

Ehsan Samei, PhD *

Co-Director

Douglas E Pfeiffer, MS *

RC621A • Ultrasonography Perspective

Paul L Carson PhD (Presenter) *

LEARNING OBJECTIVES

1) Understand the roles of medical physicists and other providers of ultrasound system QC, performance evaluation and user education. 2) Gain an understanding of the longer term potential of medical ultrasound to aid in medical physics planning and training.

ABSTRACT

A very brief overview is given of the innovations that have led to current medical ultrasound systems and QC thereof. A clear connection to clinical performance/cost effectiveness has not been established, but the ratio is improving. To aid in medical physics planning and training, more distant (beyond 10 years) and less robust predictions are ventured than in Dr. Hangiandreous' talk. The reduction in artifacts and improvement in resolution will be surprisingly large. It is posed that ultrasound will be headed toward almost ubiquitous use in personal hands as well as those of medical personnel, for monitoring and control of chronic conditions, for direct treatment and for precisely localized drug delivery and enhancement of radiation therapy. Medical physicists who can help keep the computer controls integrated, the systems properly calibrated and the users properly trained will find a substantial role in society.

RC621B • Ultrasonography 1.0

Zheng Feng Lu PhD (Presenter)

LEARNING OBJECTIVES

1) Describe the current role of ultrasound medical physics in clinical practice. 2) Explain the ultrasound image quality metrics utilized in current ultrasound QA/QC testing. 3) Outline the methods and tools available for ultrasound system QA/QC in current clinical practices. 4) Survey the available standards and voluntary accreditation guidelines for medical ultrasound imaging systems. 5) Understand the need for QC at different levels of time and financial investment.

ABSTRACT

This talk will focus on the present role of ultrasound medical physics in clinical practices. It will review the ultrasound image quality metrics currently utilized in ultrasound QA/QC testing. It will describe testing procedures required and/or recommended by accreditation programs and advisory organizations. General

guidelines and available standards will be discussed regarding tolerances for acceptance testing and commissioning of these devices, as well as periodic quality control tests, as applicable to diagnostic B-mode imagers. A brief review of ultrasound phantoms used in these testing procedures will be presented.

RC621C • Ultrasonography 2.0

Nicholas J Hangiandreou PhD (Presenter)

LEARNING OBJECTIVES

1) Identify the roles expected for medical physics to play in future clinical ultrasound practices. 2) Demonstrate understanding of emerging ultrasound imaging performance metrics that are expected to be in routine practice in the future. 3) Demonstrate understanding of emerging ultrasound imaging technologies that are expected to be in routine practice in the future. 4) Identify approaches for implementing comprehensive medical physics services in future clinical ultrasound practices.

ABSTRACT

Ultrasound imaging is evolving at a rapid pace, adding new imaging functions and modes that continue to enhance its clinical utility and benefits to patients. This talk will look ahead 10-15 years and consider how medical physicists can bring maximal value to the clinical ultrasound practices of the future. The roles of physics in accreditation and regulatory compliance, image quality and exam optimization, clinical innovation, and education of staff and trainees will all be considered. A detailed examination of expected technology evolution and impact on image quality metrics will be presented. Clinical implementation of comprehensive physics services will also be discussed.

Uncertainties in Imaging for Radiation Oncology: Sources and Mitigation Techniques-Imaging Moving Targets

Thursday, 08:30 AM - 10:00 AM • S102D

PH **RO**

[Back to Top](#)

RC622 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Co-Director, Moderator
Kristy K Brock, PhD *

LEARNING OBJECTIVES

1) Describe techniques for imaging moving targets. 2) Propose methods to account for uncertainties. 3) Highlight clinical integration.

RC622A • Uncertainties in Moving Targets

Jasper Nijkamp PhD (Presenter)

LEARNING OBJECTIVES

View learning objectives under main course title.

RC622B • Clinical Practice

Laura A Dawson MD (Presenter) *

LEARNING OBJECTIVES

View learning objectives under main course title.

Minicourse: Recording and Reporting Radiation Dose: Interventional/Angiography/Fluoroscopy

Thursday, 08:30 AM - 10:00 AM • N229

QA **PH** **IR**

[Back to Top](#)

RC623 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Director
J. Anthony Seibert, PhD

RC623A • Issues in Interventional Fluoroscopy Procedures

Stephen Balter PhD (Presenter)

LEARNING OBJECTIVES

1) Be able to describe effects on patient's skin, hair, eyes, and other tissues resulting from fluoroscopically-guided interventional procedures. 2) Be able to adequately communicate FGI radiation risk as part of the informed consent process. 3) Understand the use of real-time displays of radiation quantities and their relation to radiation risks.

ABSTRACT

Some fluoroscopically-guided interventional procedures (FGI) require the use of a substantial amount of radiation for their completion. Radiation can be regarded as a toxic agent in the same sense that contrast-media and drugs can be toxic if inappropriately used. The interventional radiologist should have reasonable knowledge of the toxic effects of radiation on patients at dose levels that may occur during IR procedures. These include short-term tissue reactions on the skin, hair loss, and radiogenic cataracts. Longer term effects such as cancer induction are of importance for some patients. Because radiation is potentially toxic, its risks should be appropriately discussed during the informed consent process. The display of reference air kerma and kerma area product provide risk information to the radiologist while performing a procedure. This is intended to provide ongoing inputs into a continuous evaluation of benefit-risk.

RC623B • Measurements and Dose Calculations

Beth A Schueler PhD (Presenter)

LEARNING OBJECTIVES

1) Review methods of measuring patient radiation dose during fluoroscopically-guided interventional procedures. 2) Compare the advantages and limitations of dose measurement methods. 3) Understand parameters that are used to describe patient entrance dose. 4) Learn about new methods for skin dose calculation and recording.

ABSTRACT

The measurement of patient dose during fluoroscopically-guided interventional procedures is an important tool for assessment of individual patient radiation risk. Moreover, the display of patient dose is valuable as feedback to the operator to aid in optimization of radiation exposure. Many different methods of measuring fluoroscopy dose have been developed, including direct methods (dosimeters and film) and indirect methods (fluoroscopy time, dose-area-product meters and reference point air kerma estimation). This presentation will review the advantages and limitations of each of these methods, along with common dose metrics that fluoroscopy operators, medical physicists and technologists should be familiar with. In addition, we will discuss skin dose mapping methods that are currently being developed.

RC623C • Establishing an Interventional Radiology Patient Radiation Safety Program

Aaron K Jones PhD (Presenter)

LEARNING OBJECTIVES

1) List the radiation dose descriptors that should be recorded at the conclusion of a fluoroscopy-guided procedure. 2) Describe the actions that may be taken during the three phases of a fluoroscopy-guided procedure to enhance patient safety. 3) Discuss how to recognize cases that are outside the normal control limits of an interventional radiology practice.

ABSTRACT

An interventional radiology patient safety program is essential to better educate patients who are scheduled to undergo fluoroscopically guided interventional radiology procedures; monitor radiation doses delivered during procedures and reduce the risk of tissue effects; ensure appropriate medical management of patients experiencing significant peak skin doses; and for practice quality improvement through analysis of procedural data and exceptional cases. The program combines preprocedure evaluation and counseling, intraprocedure monitoring, and postprocedure documentation and counseling consistent with guidelines from the National Cancer Institute and the Society of Interventional Radiology. Implementation of a patient safety program is straightforward, requires little infrastructure and few resources, and can be applied in most interventional radiology practices.



RC624 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Coordinator
Elmar M Merkle, MD ***RC624A • Whole Body MRI-Non-oncologic Applications**

Stefan O Schoenberg MD, PhD (Presenter) *

LEARNING OBJECTIVES

1) To understand the indications for whole-body MRI in non-oncologic applications. 2) To optimize the protocols with regard to the type of disease, acquisition speed and standardized reporting. 3) To show the additional diagnostic value of whole-body MRI in comparison to routine diagnostic tests.

ABSTRACT

For many disease entities, magnetic resonance imaging (MRI) is the technique of choice for assessment of focal organ involvement including vascular occlusive disease as well as rheumatic and pediatric diseases. Many of these, however, affect multiple sites within the entire body with different types of disease manifestations, favoring a systemic whole-body (wb) imaging approach. A wb-MRI protocol has to be tailored to the individual type of disease by including high-resolution imaging of bony structures, time-resolved display of inflammatory changes, assessment of the vascular status by angiography and information on cellular density for detection of infiltrative diseases. Therefore, techniques such as contrast-enhanced MR angiography, sequences for cardiac function and delayed contrast enhancement, diffusion weighted imaging and fat-suppressed T1 and T2 weighted studies before and after contrast media injection have to be integrated into the wb-MRI protocol. For robust and time-efficient implementation, innovative approaches such as parallel acquisition techniques, continuous table movement and multi-contrast imaging sequences are required. Clinically established indications include screening for macro-vascular complications in vasculitis, detection and therapy monitoring of joint and ligamentous affection in rheumatic diseases and screening for malignant features in hereditary multifocal exostoses. Arising applications are e.g. cardiovascular risk assessment including whole-body fat quantification, detection of micro- and macro-vascular complications in diabetes and screening for inflammatory foci in immunocompromised patients with fever of unknown origin. For a reliable clinical application, standardized reporting schemes and severity scores are being developed and the results have to be compared to currently applied diagnostic reference standards.

RC624B • Whole Body MRI-Oncologic Applications

Tobias Heye MD (Presenter)

LEARNING OBJECTIVES

1) To learn about the possibilities and challenges of whole body MRI in oncologic imaging. 2) To identify clinical scenarios and oncologic disease entities in which whole body MRI is applicable and offers added value. 3) To be able to create a disease specific whole body MRI protocol which balances acquisition time and the amount of acquired information. 4) To understand how whole body MRI performs in diagnostic accuracy, acquisition time, and cost compared to competing staging modalities.

ABSTRACT

Detection and characterization of local disease in conjunction with identification of distant metastases is the main goal in oncologic imaging. Certain oncologic disease entities are per se affecting the body in a diffuse pattern for example multiple myeloma or lymphoma. In both scenarios, local disease with possible distant metastases or diffuse, multifocal disease, imaging protocols using different modalities are incorporated to screen the entire body. The continuous development of MRI technology led to improvements in acquisition time and volume coverage allowing for whole body imaging in a practical time period. However, MRI remains a more challenging imaging method in terms of protocol preparation, actual scanning, providing diagnostic images, patient comfort and acquisition time compared to other imaging modalities which offer whole body coverage such as CT or PET-CT. On the other hand there are abundant MRI specific imaging characteristics available such as different contrasts, diffusion and perfusion imaging, which may provide additional information for a given oncologic disease compared with other modalities. The challenge in whole body MRI is to balance the multitude of available MRI sequences with the amount of information needed to answer the clinical question thus providing a robust imaging protocol tailored to the clinical indication.

RC624C • Whole Body MR in Children: Applications

Prakash M Masand MD (Presenter)

LEARNING OBJECTIVES

1) To learn the technique and principles that revolve around the performance of whole body MRI in children. 2) To understand present day whole body MR applications in pediatrics. 3) Future developments and research avenues linked to whole body MR imaging in children.

ABSTRACT

The applications of whole body Magnetic resonance imaging (MRI) in children continue to evolve and expand and include both oncologic and non oncologic multisystem disorders. Whole body MRI promises to be a "one stop shop" for disease surveillance without the use of ionizing radiation. The present day protocols vary across institutions and in general include fluid sensitive sequences (STIR) at the least. The images are displayed in a coronal plane, after the acquisition over multiple stations as the table moves through the scanner. This technique will be integrated with positron emission tomography in the future which opens an exciting avenue for research endeavors. The current course delves into the technique and clinical applications of whole body MR imaging in pediatrics

Quantitative Imaging: Volumetric CT as a Biomarker for Disease

Thursday, 08:30 AM - 10:00 AM • N226



RC625 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Director
Michael F McNitt-Gray, PhD ***RC625A • Why is Quantitative Imaging (Tumor Volumes) Needed in Oncologic Imaging**

Lawrence H Schwartz MD (Presenter)

LEARNING OBJECTIVES

1) To understand the role and value of quantitative volumes in oncology. 2) To understand the challenges associated with quantitative volume calculations in oncology.

RC625B • Understanding Measurement Variation: Lessons Learned from Phantom Studies

Nicholas Petrick PhD (Presenter)

LEARNING OBJECTIVES

1) To review how changes in CT acquisition parameters and nodule characteristics affect measurement error. 2) To review how phantom studies can be used to systematically probe, identify and potentially minimize measurement error and improve our ability to perform quantitative CT imaging. 3) To understand which CT and analysis parameters should be held constant across multiple CT scans, if at all possible, to optimize the evaluation of a patient's response to therapy.

ABSTRACT

In this refresher course, we will update the audience on the methods and results obtained from various phantom studies developed to assess both absolute lesion size measurements and change over time measurements involving both automated and semi-automated lesion sizing tools.

RC625C • Variability in CT Measurement of Tumor Volumes and Its Impact on Response Assessment

Binsheng Zhao DSc (Presenter)

LEARNING OBJECTIVES

1) Demonstrate the feasibility of computer-aided (tumor) volume measurement and explain its potential to improve conventional response assessment in oncology. 2) Familiarize the audience with sources of variation in measuring tumor volume and tumor volume change. 3) Discuss the need for standardizing both imaging and measurement techniques in the interpretation of tumor measurement and thus in response assessment.

ABSTRACT
Volumetric CT (VoICT) shows potential as a better method to assess tumor response, especially early response, to therapy than the conventional diameter methods. This refresher course will first show how the volumes of solid tumors can be accurately and practically obtained with the help of computer software, then discuss the factors that can affect measurement reproducibility of in vivo tumors during image acquisition and tumor measurement. By becoming acquainted with a well-designed series of (clinical) variability studies, the audience will learn the magnitudes of variability that can occur in the measurement of tumor volumes, as well as in tumor diameter(s).

Latest Developments in Meaningful Use: Ask the Experts

Thursday, 08:30 AM - 10:00 AM • E451A



[Back to Top](#)

RC626 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator

Curtis P Langlotz, MD, PhD *

Keith J Dreyer, DO, PhD *

Michael Peters

LEARNING OBJECTIVES

1) Understand the meaningful use program. 2) Learn how hospitals and health systems have achieved meaningful use for their radiologists. 3) Gain insight into recent and upcoming regulatory changes, and 4) Decide how your practice should respond to the program.

Health Policy Initiatives in Medical Imaging: Promoting Value and Relevancy in Evolving Healthcare Delivery and Payment Systems

Thursday, 08:30 AM - 10:00 AM • S504AB



[Back to Top](#)

RC627 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator

Richard Duszak, MD

Bibb Allen, MD

Richard Duszak, MD

Danny Hughes, PhD

LEARNING OBJECTIVES

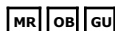
1) Articulate trends in healthcare delivery system evolution which warrant evidence based policy making founded in credible research. 2) Describe current and future physician payment models as healthcare reform moves compensation from one based on volume to one based on value. 3) Discuss how imaging services can be appropriately considered under future value-based purchasing models. 4) Identify opportunities for health services researchers and those interested in health services research to pursue projects focusing on medical imaging.

ABSTRACT

Medical imaging has played an increasingly important and valuable role in patient care, but has captured the attention of payers and policy makers alike. In order to study the role and value of radiology and radiologists in current and evolving healthcare payment and delivery systems, the Harvey L. Neiman Health Policy Institute was founded. Leadership will discuss the need for health services and policy research as they pertain to medical imaging, review projects completed and underway, and describe opportunities for those interested in health services research to collaborate and advance their interests.

Increasing Your Gynecological MRI Referral Base: Reaching Out to the Gynecologists (An Interactive Session)

Thursday, 08:30 AM - 10:00 AM • E353B



[Back to Top](#)

RC629 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC629A • Mullerian Anomalies - Guiding Management

Julia R Fielding MD (Presenter)

LEARNING OBJECTIVES

1) Review the MR appearance of the septate and bicornuate uterine anomalies. 2) Define a routine MR protocol to accurately characterize anomalies. 3) Outline the necessary components in the radiology report that are of the most value to the referring physician.

ABSTRACT

RC629B • Pelvic Floor Dysfunction and Other Postpartum Sequelae

Amy S Thurmond MD (Presenter) *

LEARNING OBJECTIVES

1) Review the complex anatomy of the female pelvic floor. 2) Understand the effect of childbirth on the muscles, ligaments, and organs of the pelvis. 3) Learn the appropriate use of fluoroscopic procedures, ultrasound, CT and MRI for diagnosis of long-term sequelae of obstetric trauma. 4) Appreciate the pre-operative considerations for treatment of pelvic prolapse and vaginal fistulas.

ABSTRACT

Anatomy of the female pelvic floor is complex, and divided into three compartments. The anterior compartment contains the urinary bladder and the urethra; the middle compartment contains the uterus, cervix, and vagina; and the posterior compartment contains the rectum. Pregnancy and childbirth, by nature of the process, result in trauma to the tissues and over time lead to weakness of the tissues and pelvic floor dysfunction including stress urinary incontinence, as well as fistula formation between the organs in the three compartments.

RC629C • Endometriosis: What the Gynecologist Wants to Know

Antoine J Maubon MD (Presenter)

LEARNING OBJECTIVES

1) Review clinical indications that should lead to imaging for the detection of endometriosis. 2) Technique of US and MRI for the detection of endometriosis. 3) Review classic and unusual locations of endometriosis, that must be assessed when imaging. 4) Assess the contribution of Imaging in the work up and treatment planning of endometriosis, either painful or for infertility probably linked with endometriosis.

ABSTRACT

Does my patient with pelvic pain have endometriosis?

Does my infertile patient have endometriosis?

What type of endometriosis is it, ovarian, peritoneal, infra peritoneal, uterine, digestive, elsewhere?

What is the fertility prognosis for my infertile patient with endometriosis?

Can Imaging help me in the decision making for treatment of this endometriosis?

These are the FAQ that gynecologists keep asking for their patients, in the gynecology or in the infertility clinic. This course will give answers to these questions through examples of real life cases using the best adapted techniques US and MRI.

Cloud Computing for Radiologists: A Primer

Thursday, 08:30 AM - 10:00 AM • S403B



[Back to Top](#)

RC630 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator

LEARNING OBJECTIVES

1) Using virtualized systems to improve access to advanced image processing tools. 2) Using cloud based systems to provide access to advanced imaging tools. 3) Getting hands on experience using 2D / 3D / 4D tools to process data in near realtime in a virtual environment. 4) Introduce the basic virtual systems and cloud based systems that are available and how they can be used both within radiology as well as how they apply to referring clinicians from both a image interpretation standpoint as well as their use for teaching.

ABSTRACT

This course will focus on using virtualized systems and cloud based systems to improve access to advanced image processing tools. In addition a focus will be on getting hands on experience using 2D / 3D / 4D tools to process data in near realtime in a virtual environment. It will also introduce the basic virtual systems and cloud based systems that are available and how they can be used both within radiology as well as how they apply to referring clinicians from both a image interpretation standpoint as well as their use for teaching.

RC630A • What is Cloud Computing and What Can It Do For Me?

Fred W Prior PhD (Presenter) *

LEARNING OBJECTIVES

1) Comprehend the basic principles of cloud computing and how this technology might apply to Radiology Information Management. 2) Assess the potential advantages of cloud computing for clinical radiology. 3) Compare the advantages and disadvantages of public, private and hybrid cloud computing environments. 4) Assess the costs, challenges, regulatory issues and security concerns that must be dealt with before this technology can be effectively applied. 5) Be prepared to critically assess the potential applications of cloud computing in your institution.

ABSTRACT

Cloud computing refers to a technology suite that features virtualized processing and storage capacity and a business model where computing resources and software applications are centrally managed and scheduled with the end user renting capacity on demand. Under this model, virtual machines are outfit with requested software packages that are accessed via the Internet. Cloud computing may also be described in terms of privacy and exclusivity along a continuum from widely shared Public Clouds to restricted access Private Clouds. Several critical challenges must be overcome for Public Clouds to be used to support radiology imaging, essentially in place of on-site PACS. Performance, particularly for image visualization and analysis by a radiologist, is a critical requirement. While the data centers that support Cloud computing services have high bandwidth networks internally, the network bandwidth between a radiologist and that data center will not normally be sufficient to support required visualization performance. Simply put, most hospitals focus on internal network performance not connectivity to the Internet. Each covered entity is responsible for ensuring patient privacy and information security. This responsibility would be shared with the Cloud service provider. A Cloud service provider that supports multiple covered entities would be faced, therefore, with a substantial financial risk. Network bandwidth issues would be exacerbated by the additional complexity of ensuring secure data communication with the Cloud provider. These technical challenges essentially disappear if one considers a Private Cloud managed by the hospital system itself. However, Private Clouds also do away with the advantages of outsourcing computing infrastructure and letting a vendor worry about hardware obsolescence and system maintenance. Thus there are trade-offs that must be weighed in a careful cost-benefit analysis of Cloud computing for radiology.

RC630B • Virtualization and Remote Rendering: Enterprise Imaging in the Cloud

Gary J Wendt MD,MBA (Presenter) *

LEARNING OBJECTIVES

1) Using virtualized systems to improve access to advanced image processing tools. 2) Provide an overview of the benefits of using 3D / 4D tools to process data in near realtime in a virtual environment.

ABSTRACT

Introduce the basic virtual systems that are available and how they can be used both within radiology as well as how they apply to referring clinicians from both a image interpretation standpoint as well as their use for teaching

RC630C • Cloud-based Archiving: Opportunities and Challenges

James F Philbin PhD (Presenter) *

LEARNING OBJECTIVES

1) Understand the various definitions in play for the term 'cloud' including its compute and storage aspects. 2) Understand the pricing model of at least one cloud storage vendor. 3) Consider the trade-offs of local storage versus cloud storage in terms of: reliability, latency, costs, and scalability.

ABSTRACT

'Cloud Computing' is a highly overloaded and nebulous term in the sense that different people have very different ideas of what it means. To some, it means running applications in someone else's data center, either across town or across the country. To others it means -storing- data in someone else's data center. And in both of the preceding examples, the turnaround time for an expansion of services can be measured in days or minutes, depending upon the underlying technology suite used by that 'cloud' vendor. A conventional storage vendor may require days to honor a request for more storage, whereas vendors relying on logical volume management and virtualization could honor the request in minutes. A well established model of the latter is the approach used by Amazon in its Simple Storage Service (S3) offering. Amazon was an early adopter of virtualization in cloud methodologies and offers two main lines of products. The Elastic Compute Cloud (EC2) relies on creating made to order virtual machines loaded with the applications the customer requires, and this concept was discussed by an earlier presenter. S3 on the other hand, relies on both virtual storage and logical volume management to grow and shrink storage as a customer requires. This presentation will go into some detail on the pricing model used by Amazon, and describe some metrics to look out for beyond mere cost, including: uptime, latency, security, turn-around-time and hidden costs. The analysis will draw on an earlier work (Langer SG. 'Challenges for Data Storage in Medical Imaging Research', JDI 2011;24(2):203-7. DOI:10.1007/s10278-010-9311-8) to create an evaluation grid useful for comparing across cloud storage vendors - including one's own data center.

Tumor Ablation beyond the Liver: How-to and Preliminary Results

Thursday, 08:30 AM - 10:00 AM • S403A



[Back to Top](#)

RC631 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Debra A Gervais , MD *
Terrance T Healey , MD
Anil N Kurup , MD
Muneeb Ahmed , MD

LEARNING OBJECTIVES

1) Gain knowledge as to how to approach tumor ablation in extrahepatic sites. 2) How to avoid and manage organ specific complications. 3) Review results of tumor ablation in the lung, kidney, and bone.

ABSTRACT

Pulmonary malignancies, and specifically lung cancer, are a leading cause of death worldwide. Utilization of best current therapies results in an overall five-year relative survival rate for all stages combined to be only 15%, necessitating the use of alternative therapies. Image-guided ablation of lung malignancies is a revolutionary concept whose clinical applications are just beginning to be developed. It has some advantages over traditional radiotherapy and chemotherapy. Its safety profile is similar to percutaneous image guided lung biopsy. Almost all image-guided ablative procedures can be performed in an outpatient setting, mostly with conscious sedation. Multiple applications can be performed without any additional risks. Contraindications are few and include uncontrollable bleeding diathesis and recent use of anticoagulants. Image-guided ablation of lung malignancies is performed with two basic rationales. In the first group it is used with an intention of achieving definitive therapy. These are patients who are not candidates for surgery because of co-morbid medical contraindications to surgery, like poor cardiopulmonary reserve or patients refusing to undergo operation. This cohort could potentially derive significant benefit from a minimally invasive alternative therapy. In the second group it is used as a palliative measure as follows: (a) to achieve tumor reduction before chemotherapy (b) to palliate local symptoms related to aggressive tumor growth, such as chest pain, chest wall pain or dyspnea (c) hematogenous painful bony metastatic disease (d) tumor recurrence in patients who are not suitable for repeat radiation therapy or surgery Image-guided ablation is expanding treatment options for the local control of non-small cell lung cancer and metastatic disease.

How to Avoid Failure: Qualities of a Successful Leader

Thursday, 08:30 AM - 10:00 AM • S103AB



[Back to Top](#)

RC632 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

LEARNING OBJECTIVES

ABSTRACT

Developing or continuing success within an organization is very dependent on the efforts and skills of leadership at all levels. Leadership is critical for all aspects of operational activities, including mission and goal setting, operational activities, outcome assessments, and communications within and external to the organization. The training to obtain these skill sets is inadequate in medical school and radiology residency, and most leaders, particularly at early levels of responsibility, develop these traits through either observing others or through trial and error experiences. This course will present an overview of the 'traits and states' that one needs to be aware in managing organizations, followed by specific key points to avoid failure whether one is in a university or community setting. The emphasis will be on helpful practical tips to avoid states or traits that frequently are associated with bad outcomes for an organization and/or the involved leaders. Lastly, a commonly overlooked component of effective leadership is succession planning. A top priority, it will insure that the strong organization the leader works hard to create will stand the test of time.

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RC632A • Traits and States: Management versus Leadership

Alexander R Margulis MD (Presenter)

LEARNING OBJECTIVES

1) To learn that inspired leadership is dedication to team success not self aggrandizement. 2) There is no job that is too big. There are only people lesser than the job. 3) Learn that without resources even well outlined goals cannot be achieved. 4) Absolute transparency is a must. 5) Be a role model.

RC632B • Keys to Avoid Failure: Key Qualities of a Successful Leader

Norman J Beauchamp MD (Presenter) *

LEARNING OBJECTIVES

View learning objectives under main course title.

RC632C • Seamless Transitions: The Importance of Leadership Succession Planning

Kathleen D Eggli MD (Presenter)

LEARNING OBJECTIVES

View learning objectives under main course title.

Image-guided Biopsy of the Spine (Hands-on Workshop)

Thursday, 08:30 AM - 10:00 AM • E260

IR **NR** **MK**

[Back to Top](#)

RC650 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator

John L Go, MD

LEARNING OBJECTIVES

1) Discuss and demonstrate spine biopsy techniques including CT and fluoroscopic approaches, anatomic landmarks, needle selection, special technical considerations for dealing with soft tissue masses, and fluid accumulations, lytic and blastic lesions, and hypervascular conditions. 2) Hands on exposure will be provided in order to familiarize participants with the vast number of biopsy devices that are clinically available. 3) Training models will also be used in order to teach technical skills with respect to approach and technique. 4) Advantages and disadvantages of various biopsy devices and techniques, and improve their understanding of how to maximize the reliability and safety of these spine biopsy procedures.

ABSTRACT

RC650A • Pre- and Postbiopsy Assessment

Richard Silbergleit MD (Presenter)

LEARNING OBJECTIVES

1) Be familiar with all required aspects of the pre-biopsy work-up, including medications, laboratory values, and review of relevant prior imaging. 2) Be familiar with solutions to address to complications or other unexpected events which may arise during the course of spine biopsy. 3) Be comfortable in performing the post procedure assessment of the patient after spinal biopsy.

RC650B • Equipment Used for Image-guided Biopsies of the Spine

Michele H Johnson MD (Presenter) *

LEARNING OBJECTIVES

1) Demonstrate the types of needles used for spine biopsy. 2) Selecting the proper types of needles used for spine biopsy. 3) Case demonstration of the proper use of single or coaxial needle sets for spine biopsy and the advantages or disadvantages of each.

RC650C • Thoracic and Lumbar Biopsies

John L Go MD (Presenter)

LEARNING OBJECTIVES

1) Review the anatomy of the thoracic and lumbar spine relevant to spine biopsy. 2) Describe the approaches used to approach various anatomical regions within the thoracic and lumbar spine. 3) Provide case examples of various approaches used to biopsy the thoracic and lumbar spine.

ABSTRACT

RC650D • Cervical Biopsies

A. Orlando Ortiz MD, MBA (Presenter) *

LEARNING OBJECTIVES

1) Demonstrate the various approaches used to biopsy lesions of the cervical spine. 2) Determine the selection of the proper needles to use to biopsy the spine. 3) Provide case examples of cervical biopsies and the thought process used to perform these procedures.

RC650E • Disk Biopsies

Chi-Shing Zee MD (Presenter)

LEARNING OBJECTIVES

1) Demonstrate the various approaches used to biopsy the disc. 2) Determine the selection of the proper needles to use to biopsy the disc. 3) Provide case examples of disc biopsies and the thought process used to perform these procedures.

ABSTRACT

Emergency Body MRI: Vascular Emergencies, Abdominal Emergencies and the Pregnant Patient (How-to Workshop)

Thursday, 08:30 AM - 10:00 AM • E261

ER **MR** **VA** **OB** **GI**

[Back to Top](#)

RC651 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Christine O Menias, MD

Constantine A Raptis, MD

Vamsi R Narra, MD,FRCR *

LEARNING OBJECTIVES

1) Review the role of MRI as a primary diagnostic modality for evaluation of acute abdominal and pelvic pathologies. 2) Describe the various clinical scenarios as it pertains to vascular emergencies, abdominal emergencies and the evaluation of an acute abdomen in a pregnant patient. 3) Case examples of pertinent entities of Acute abdomen on MRI will be reviewed.

ABSTRACT

Magnetic resonance imaging (MRI) is now more readily available in the emergency room setting and is becoming the primary modality used to diagnose acute abdominal pathologies in situations where there may be relative contraindications to computed tomography (CT). A review by MRI of various acute abdomen conditions is presented. The future directions of MRI in evaluating patients with abdominal emergencies are also briefly discussed.

Review the MRI features of Acute Hepatic and Biliary entities such as Cholelithiasis, cholecystitis, cholangitis, Hepatic abscess and Mirizzi syndrome MRI features of acute pancreatitis and complications such as necrotizing, hemorrhagic and pseudoaneurysm

Review the MRI imaging features of acute Genitourinary entities such as renal abscess, pyelonephrosis and obstructing ureteral stone Acute Gyn entities include MRI imaging of PID, ovarian torsion, hematocolpos, and ruptured hemorrhagic cyst Review the Acute gastrointestinal disorders on MRI such as SBO, mesenteric arterial and venous ischemia Crohn's, colitis, and Peptic ulcer disease

Dynamic Musculoskeletal US of the Lower Extremity (Hands-on Workshop)

Thursday, 08:30 AM - 10:00 AM • E264

US MK

[Back to Top](#)

RC652 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Viviane Khoury, BSC, MD
Etienne Cardinal, MD
Jon A Jacobson, MD *
Carlo Martinoli, MD
J. A Bouffard, MD
Ruth Y Ceulemans, MD
Joseph G Craig, MD
David P Fessell, MD
Ghiyath Habra, MD
Joseph H Introcaso, MD
Marnix T Van Holsbeeck, MD *
Ximena L Wortsman, MD
Kenneth S Lee, MD *
Thomas Moser, MD *
Humberto G Rosas, MD

LEARNING OBJECTIVES

1) Identify anatomic structures which can impinge or move abnormally in the hip and ankle causing pain during normal range of motion. 2) Describe the ultrasound anatomy and scanning technique for a dynamic examination of these lesions. 3) Position patients optimally for the dynamic evaluation of the hip and ankle respecting ergonomics.

ABSTRACT

This course will demonstrate standardized techniques of performing the dynamic examination of hip and ankle lesions that are only or best demonstrated dynamically. These include the snapping hip, peroneal tendon subluxation/dislocation, flexor hallucis longus impingement, and ankle ligament instability. In the first portion of the course, probe positioning will be demonstrated on a model patient with overhead projection during live scanning. In the second portion of the course, an international group of expert radiologists will assist participants in learning positioning and scanning of hip and ankle joint lesions described. An emphasis on dynamic maneuvers and ergonomic documentation of tissue dynamics will be taught. Participants will be encouraged to directly scan model patients.

Hands-on HL7 Data Manipulation (Hands-on Workshop)

Thursday, 08:30 AM - 10:00 AM • S401CD

IN

[Back to Top](#)

RC653 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Richard J Bruce, MD *
Walter W Pepler, PhD *

LEARNING OBJECTIVES

1) Understand where radiology ordering, scheduling, and reporting workflows utilize HL7. 2) Develop a basic understanding of HL7 messaging principles. 3) Gain introductory hand-on experience with HL7 data manipulation. 4) Understand how HL7 can be used to build functionality in a variety of radiology workflows.

ABSTRACT

HL7 messaging is the foundation upon which many healthcare systems rely for interaction and data exchange. Many common radiology functions including order and report transmission are often dependent on HL7 to function. The goal of this hand-on refresher course is to introduce the attendee to HL7 workflows and some of the tools used to build HL7 interfaces and manipulate HL7 data. More importantly we hope to show why understanding HL7 can be helpful to radiology practices and show where HL7 can be used to build better radiology workflows.

Advanced Data Analysis with Excel for Research and for Practicing Quality Improvement (Hands-on Workshop)

Thursday, 08:30 AM - 10:00 AM • S401AB

RS IN

[Back to Top](#)

RC654 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Andrea J Frangos, MPH
Jaydev K Dave, PhD, MS

LEARNING OBJECTIVES

1) Describe techniques for creating a spreadsheet to allow trouble-free data analysis. 2) Describe tools for performing basic descriptive statistics. 3) Identify how to perform simple statistical tests. 4) Identify statistical tasks that require more sophisticated software.

ABSTRACT

A spreadsheet program is commonly employed to collect and organize data for practicing quality improvement, for research, and for other purposes. In this refresher course, we will demonstrate how to create a spreadsheet to allow trouble-free data analysis. We will then review an efficient approach for data collection. With a sample dataset, we will demonstrate how basic descriptive statistics and statistical tests can be performed e.g., t-test, chi-square test, correlation analysis, etc. We will also provide information on other sophisticated software best suited to perform advanced statistical tests and analysis.

This course will accomplish its learning objective through hands-on tutorial demonstrations with Microsoft Excel, a spreadsheet program. Familiarity with Microsoft Windows and Microsoft Excel environment will be assumed.

Breast Imaging: Interoperability Challenges and Solutions

Thursday, 10:30 AM - 12:00 PM • S501ABC

IN DM BR

[Back to Top](#)

ICII51 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Judith A Wolfman, MD *
Julian Marshall *
Paul Morgan *

LEARNING OBJECTIVES

1) Review the clinical problems once common in the interpretation of digital screening and diagnostic mammograms on vendor-independent and general purpose PACS workstations. 2) Understand the technical solutions provided in the IHE Mammography Image integration profile to those problems. 3) Explore the similar challenges now being faced in the secondary review of Stereotactic Mammography images sets acquired during breast biopsy, while clearly understanding the differences in interpretation requirements. 4) Learn how the new IHE Stereotactic Mammography Image integration profile provides a complete set of solutions

to address those challenges. 5) Explore new interoperability challenges presented as Breast Tomosynthesis is adopted. 6) Understand the technical solutions currently available within the DICOM standard that address those challenges, if properly implemented in commercial equipment.
ABSTRACT
The purpose of this session is to review the once prevalent interoperability challenges in Full-Field Digital Mammography acquisition and display that were successfully addressed using the IHE Mammography Image integration profile, and to explore new challenges and solutions in the areas of Digital Stereotactic Mammography (used in breast biopsy) and Breast Tomosynthesis.

Creating, Storing, and Sharing Teaching Files Using RSNA's MIRC@: A Hands On Course

Thursday, 10:30 AM - 12:00 PM • S401AB

[Back to Top](#)

IN **ED**

ICIW51 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator
Frederick E Weiss, MD
Krishna Juluru, MD
Mary R Wyers, MD

LEARNING OBJECTIVES

1) Learn how easy it is to install the new and improved RSNA teaching file software with the one-click installer. 2) Learn how to create, organize, and share teaching files, create conference documents and save interesting cases for yourself, your group or your department.

Using myRSNA@: Hands-on Workshop

Thursday, 12:30 PM - 02:00 PM • S401CD

[Back to Top](#)

IN

ICIA52 • AMA PRA Category 1 Credit™:1.5

John W Basco, MS

LEARNING OBJECTIVES

1) Understand the different tools and applications within myRSNA. 2) Log in to myRSNA and set up a personal profile. 3) Using the tools within myRSNA, highlight different use case scenarios.

National Library of Medicine PubMed: There's More to PubMed/MEDLINE: The Free My NCBI Tool

Thursday, 12:30 PM - 02:00 PM • S401AB

[Back to Top](#)

IN

ICIW52 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Holly A Burt
Chris Childs, MS
Susan M Anderson, MS

LEARNING OBJECTIVES

1) Use My NCBI to personalize PubMed. 2) Understand how to save search strategies and create email alerts. 3) Use filters to link to library full-text articles and to focus PubMed searches. 4) Understand how to save collections of citations including a personal bibliography.

ABSTRACT

In this hands-on workshop session, explore the free My NCBI tool in PubMed. Discover how to save search strategies, create email alerts to keep up with the latest publications, create instant links to library full-text resources, and build permanent online bibliographies. Topics covered include creating a free My NCBI account, adding search and library filters to PubMed, using My Bibliography to create an online list of personal publications, and the link between the NIH Manuscript Submission System and PubMed. Important highlights on effectively searching will also be included. The National Library of Medicine (NLM) provides free web access to nearly 24 million citations for biomedical and clinical medical articles through PubMed (available online at PubMed.gov MEDLINE is a subset of PubMed).

RadioGraphics' Publication Information for Potential Authors

Thursday, 01:30 PM - 02:45 PM • E350

[Back to Top](#)

IN

ICIX51 • AMA PRA Category 1 Credit™:1.25 • ARRT Category A+ Credit:1.5

Jeffrey S Klein, MD
Kimberly L Franks
Theresa M Hahn, BA
Lucinda Foulke

LEARNING OBJECTIVES

1) Prepare a format- and content-compliant manuscript for possible publication. 2) Use ScholarOne Manuscripts to submit a manuscript for possible publication. 3) Become familiar with the RadioGraphics publication process.

ABSTRACT

Many hours are spent writing and organizing the manuscripts, and their accompanying images, submitted to RadioGraphics. This workshop is designed to assist potential authors in the preparation and submission of manuscripts for possible publication. This year, authors will be navigated through ScholarOne Manuscripts, our new online manuscript submission and processing site.

Proper attention to content elements, figure preparation, and format compliance not only reduces delays in processing, but also provides optimal opportunity for favorable reviews and less revision. This course will include a PowerPoint™ presentation that provides an overview of the publication process and the guidelines for submitting print-quality images, as well as a live demonstration of the ScholarOne Manuscripts site. It will conclude with a question and answer session.

URL's
<http://dl.dropbox.com/u/81611/Radiology/Journals/RadioGraphics/RadioGraphics%20presentations/RG%20presentation%20RSNA%202012%20PIA%20course.ppt>

Pulmonary Thromboembolism: Concepts and Controversies 2013

Thursday, 04:30 PM - 06:00 PM • S406B

[Back to Top](#)

CT **CH**

RC701 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC701A • Overdiagnosis: Fact or Fiction?

Linda B Haramati MD, MS (Presenter) *

LEARNING OBJECTIVES

1) To describe the meaning of 'overdiagnosis' in the context of pulmonary embolism. 2) To develop an overview of the different types of evidence for overdiagnosis of pulmonary embolism on CT. 3) To understand why small pulmonary emboli may be physiologic. 4) To incorporate a more nuanced understanding of pulmonary embolism into the clinical practice of CT interpretation.

ABSTRACT

In 2001 CT became the most common imaging modality for suspected PE in the USA. It is unsurpassed in depicting pulmonary artery anatomy and pathology and is useful in demonstrating alternative diagnoses that explain the patients symptoms. CT is also quick and easy. However, overdiagnosis is increasingly recognized as a potential risk of CT. This is especially true when the pre test probability is low (indication creep). Overdiagnosis is defined as diagnosis of clinically unimportant disease and represents real, but clinically insignificant pathology. There is an abundance of evidence supporting the overdiagnosis of PE

on CT. Since treatment for PE is based on diagnostic algorithms that preceded CT and CT demonstrates a less severe disease spectrum, randomized outcomes-based clinical trials are necessary. We anticipate that these trials may lead to revised treatment guidelines for patients with good cardiopulmonary reserve and small PE on CT

RC701B • CTPA: 10 Ways to Do It Better

Lawrence R Goodman MD (Presenter)

LEARNING OBJECTIVES

1) To better understand the capabilities of newer equipment in optimizing CT protocols. 2) To emphasize ways that radiation can be reduced. 3) To discuss tailored approaches to difficult to scan patients. 4) To emphasize alternative viewing strategies CTPA.

ABSTRACT

CTPA: Ten Ways to Do it Better Learning objectives:

1. To understand optimizing technique for the individual patient.
2. To review techniques for dealing with difficult patients.
3. To discuss ways to minimize radiation. Abstract:

Technique: Optimum scans are obtained by individualizing the technique for each patient. Scan parameters such as modified injection protocols, and low kV techniques provide denser vessel enhancement and diminished radiation. SVC artifacts can be minimized. Dual energy techniques provide the opportunity to visualize areas of decreased perfusion that may be the indicator of a small overlooked embolus. Difficult patient: Breathing artifacts are the most frequent cause of suboptimal scans. Numerous strategies exist to minimize the problem. Obese patients provide challenges, some of which can be overcome by adjusting contrast volume, slice thickness, and use of noise suppression software. Pregnant patients require special attention in both obtaining optimal images and minimizing radiation to both the mother and the fetus. Radiation: Dose modulation, z-axis reduction, and iterative reconstructions all lead to sizeable reductions in radiation without sacrificing image quality. The latter is particularly powerful. It allows one to reduce the radiation delivered by suppressing much of the noise during image reconstruction. Interpretation:

The use of multi-planar reconstructions and various new reading options add efficiency and certainty to the process

RC701C • Pulmonary MRA: How I Do It

Mark L Schiebler MD (Presenter) *

LEARNING OBJECTIVES

1) Introduction to Magnetic Resonance Angiography to the Pulmonary Arteries (MRA-PE): Over 20 years of translational research with no breakthroughs in efficacy; Medical radiation risk remains for younger individuals; Nice to have an option besides CTA-PE. 2) Identify common artifacts of Pulmonary MRA and their solution to improve quality and efficacy while minimizing patient risk: Maki artifact; Gibbs artifact (ringing); Wrap; Motion. 3) Overcoming barriers to clinical implementation: Evidence from PLOPED III for efficacy; Effectiveness data showing high negative predictive value for MRA-PE; Treating sub segmental PE, in patients without procoagulant conditions, does not prolong life expectancy.

ABSTRACT

Pulmonary MRA (MRA-PE) has been recently shown by the PLOPED III study; to be less sensitive than CTA for the diagnosis of Pulmonary Embolism (PE); However, it has also been shown that if performed in a technically adequate fashion, MRA-PE is highly diagnostic for this condition. Radiation dose from CTA is an ongoing concern, especially in young patients. There are many issues that need to be addressed technically and during scan acquisition to ensure high quality MRA-PE exams: 1. Repeat if there is respiratory motion, 2. Reduce spatial resolution to achieve shorter breath hold times, 3. Dilute contrast and deliver dose over the entire acquisition to limit, 4. Included entire AP chest to prevent wrap, 5. Cardiac motion through the lingula and middle lobes, 5. Gibbs ringing artifact, 6. Bronchial proximity susceptibility adjacent to pulmonary artery branches, 7. Respiratory motion, 8. Parallel imaging G factor artifact. We have reviewed all of our symptomatic patients studied with MRA-PE (used as the first line test for PE). There were 579 consecutive symptomatic patients who underwent pulmonary MRA as their primary examination for the determination of PE; Four hundred and Thirty patients were found to be negative by MRA-PE and also had three months of EMR follow up (420/579= 72.5%) negative for VTE. We found 96.2% (557/579) of the MRA-PE exams to be of diagnostic quality- 22 cases of motion. There were 50 patients (50/579=8.6%) with at least one PE diagnosed and treated based on MRA-PE findings alone. There were 77 patients were lost to follow-up (77/579= 13.3 %). Of the 430 patients with a negative MRA-PE exam, only ten patients were found to have a subsequent VTE in the 3 month EMR period of follow up (10/430= 2.3%). The negative predictive value for MRA-PE in this series was 97.7%. Beginning a clinical MRA-PE program at major institutions, using parallel imaging with physics support, is now imminently feasible and justified for use in vulnerable patients.

RC701D • Imaging Right Heart Dysfunction and Prognostication

U. Joseph Schoepf MD (Presenter) *

LEARNING OBJECTIVES

1) To identify suitable image acquisition strategies for right heart assessment. 2) To discuss image post-processing for quantitative imaging of right heart strain. 3) To compare the clinical usefulness of various imaging markers for patient prognostication in acute pulmonary embolism.

RC701E • Differentiating Chronic from Acute PE

Sanjeev Bhalla MD (Presenter)

LEARNING OBJECTIVES

This portion of the course will focus on the imaging of pulmonary embolism (PE) so that the participant will leave with findings that allow the distinction of acute from subacute from chronic PE. Three types of findings will be discussed (pulmonary artery features; cardiac features and lung parenchymal features).

ABSTRACT

RC701F • Cases: What Would You Do?

Danielle Seaman MD (Presenter)

LEARNING OBJECTIVES

1) Amplify and illustrate areas of diagnostic difficulty, controversy, and confusion in the diagnosis and interpretation of pulmonary embolism utilizing difficult case material in an unknown case format.

Mind Your Own Business! Required Business Skills for Your First Job

Thursday, 04:30 PM - 06:00 PM • S404AB



RC702 • AMA PRA Category 1 Credit™: 1.5

Jonathan R Medverd, MD

William P Shuman, MD *

Lukasz Babiarz, MD, MBA

LEARNING OBJECTIVES

1) Define for the applicant to an academic and private practice radiology job, the parameters critical to assessing the advantages and disadvantages of the potential employment opportunity. 2) Understand the value of creating a business strategic plan and its components. 3) Understand the importance and techniques of repetitive surveying of the various customer groups. 4) Understand the difference between marketing and advertising and how each is accomplished with high impact.

ABSTRACT

There are many factors that must be addressed prior to committing to an employment contract. The applicant must be skilled in assessing the health of the practice, identifying potential red flags in contracts and exclusion clauses, understanding the mission and vision of the practice and determining if goals and objectives are aligned, and determining if the practice has a high chance of satisfying the applicant. In some cases this requires a rudimentary understanding of legal, financial, strategic planning, and socioeconomic principles. These issues will be addressed. Once you become an employee, the strategic plan of your business is critical to its future. If there is no plan, how do you go about creating one? What are the key components of a good strategic plan? Data is critical in understanding your service, your market and your future business directions. Key data components are obtained from surveying - of patients, of referring physicians, and even of staff. The elements of a good survey and how you target each of these groups to produce useful data are discussed in depth. Once you have data and a strategic plan, how do you get the message out? Advertising is publishing your added value. Marketing is understanding the unique features and dynamics of your local and regional market place. The interplay of these two subjects will be critical to business and service success.

Cardiomyopathy

Thursday, 04:30 PM - 06:00 PM • S404AB

[Back to Top](#)

**RC703** • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5**RC703A • CT****Hans-Christoph R Becker** MD (Presenter)

LEARNING OBJECTIVES

1) To understand the different forms of cardiomyopathy and how they present in CT. 2) To learn about the best imaging strategy for cardiomyopathy in CT.

RC703B • MRI**Hajime Sakuma** MD (Presenter) *

LEARNING OBJECTIVES

1) To understand study protocols and CMR findings in patients with various cardiomyopathies. 2) To recognize the value of CMR in risk stratification of patients with non-ischemic cardiomyopathies.

RC703C • Clinical Perspective**Daniel Lee** (Presenter) *

LEARNING OBJECTIVES

1) Understand the role of CT/MR in determining the etiology of cardiomyopathy. 2) Understand the role of CT/MR in selecting patients for revascularization. 3) Understand the role of CT/MR in selecting patients for device therapy.

Interactive Game: Musculoskeletal Pitfalls and Pearls**Thursday, 04:30 PM - 06:00 PM • E450A****RC704** • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

LEARNING OBJECTIVES

This interactive session will use RSNA Diagnosis Live. Please bring your charged mobile wireless device (phone, tablet or laptop) to participate.

RC704A • Pediatric Cases**Lane F Donnelly** MD (Presenter) *

LEARNING OBJECTIVES

1) Identify both normal pediatric musculoskeletal findings that may be interpreted as normal as well as potentially overlook abnormal findings that are easily overlooked.

ABSTRACT

The pediatric musculoskeletal system is continuously changing throughout development. With maturing states of cartilage and bone, the appearance of normal is different at different ages. In addition, the types of pathology and their presenting appearances are different at different ages of childhood. This presentation will review normal findings that have at times been interpreted as abnormal as well as reviewing abnormalities that can be easily overlooked. The intent is that by reviewing these two types of scenarios, the attendee will be less apt to make an error when encountering these situations in practice.

RC704B • Appendicular Trauma**Mark E Schweitzer** MD (Presenter)

LEARNING OBJECTIVES

1) Review some subtle imaging findings indicative of significant derangements. 2) Review the locations where joint effusions can be reliably described radiographically. 3) Emphasize some normal variant of appendicular trauma.

ABSTRACT

Appendicular trauma is common and most patients are imaged initially by conventional radiography. In these patients it is important to use a systematic approach looking at alignment and soft tissues changes, especially the presence of effusions. It is also important to be cognizant that there are specific fractures and soft tissue injuries that are indicative of major soft tissue or visceral trauma. It is no less important to be aware that some glaring radiographic findings may be associated with less severe trauma. We will review the concepts behind and locations of osteoporotic fractures, and what defines the risk of and the locations for pathologic fractures. Specific mechanisms for specific injuries will be discussed as well.

RC704C • Tumor**Donald J Flemming** MD (Presenter) *

LEARNING OBJECTIVES

1) Describe common errors in image interpretation of possible tumors of the musculoskeletal system. 2) Describe common **nonneoplastic** entities that are referred to orthopedic oncology practice because of errors in image interpretation. 3) Describe imaging features of nonneoplastic entities that are often confused with tumor.

ABSTRACT

Errors in interpretation of possible tumors of the musculoskeletal system can lead to both underdiagnosis or overdiagnosis of neoplasm. One of the more common errors seen in an orthopedic oncology referral practice is confusing a common nonneoplastic disease with a neoplastic diagnosis. The purpose of this presentation is to discuss entities such as fracture, arthropathy and systemic diseases that are commonly confused with tumor. Key imaging features that help distinguish these entities from neoplasm will be reviewed.

Non-Traumatic Neuro Emergencies**Thursday, 04:30 PM - 06:00 PM • E451A****RC705** • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5**RC705A • Non-traumatic CNS Hemorrhage****Patrick A Turski** MD (Presenter) *

LEARNING OBJECTIVES

1) At the end of this lecture the participant should be able to recognize the variable appearance of parenchymal and subarachnoid hemorrhage on CT/CTA and MRI/MRA imaging. 2) In addition, the learner should be able to provide a differential diagnosis based on imaging characteristics and location. 3) The clinical examples will also include cases that allow the learner to become familiar with the complications of non traumatic intracranial hemorrhage.

ABSTRACT

The lecture begins with an overview of the common causes of non-traumatic intracranial hemorrhage. The pathophysiology of hypertensive hemorrhage is discussed followed by a series of examples demonstrating the classic locations and appearance on CT and MR imaging. The presentations of aneurysmal and non aneurysmal subarachnoid hemorrhage will be reviewed with emphasis on the evaluation of vasospasm using CTA and CT perfusion imaging. Vascular malformations are discussed by using clinical cases that show hemorrhages from feeding artery aneurysms, intra-nidal aneurysms and venous outflow obstruction/thrombosis. Advanced 4D MRA techniques are introduced that use compressed sensing, under-sampling, and constrained reconstruction to provide time resolved whole brain images to aid in the diagnosis and characterization of intracranial hemorrhage. To complete the review, additional examples of hemorrhage from vasculitis, amyloid angiopathy and neoplastic diseases are presented.

RC705B • Emergency CNS Infections

Turgut E Tali MD (Presenter) *

LEARNING OBJECTIVES

1) Select and apply proper imaging technics and modalities. 2) Identify the basic imaging findings of the CNS infectious diseases. 3) Understand important clues for differential diagnosis. 4) Develop an overall perspective concerning image-guided procedures.

ABSTRACT

Central nervous system (CNS) infections remain as an important cause of morbidity and mortality worldwide. Altered immune status due to HIV infection, immunosuppressive therapies, the increase in international travel and widespread use of antibiotics contribute the emergence of CNS infections. Patient demographics (age/immune status), the pace of the clinical presentation (altered mental status or focal neurologic findings) and laboratory data are the main determinants when evaluating CNS infections. Rapid diagnosis and initiation of appropriate therapy are at utmost importance for patient outcome. CNS infections that commonly present in urgent care settings include meningitis, cerebritis, encephalitis, spinal epidural abscess and subdural empyema. Meningitis is an acute or chronic inflammatory infiltrate of the meninges and CSF. Most cases are caused by acute pyogenic infections. However, meningitis can also be acute lymphocytic (viral) or chronic. Streptococcus pneumoniae and Neisseria meningitidis are the most common responsible agents in adults, whereas group B beta hemolytic streptococcus and gram-negative enteric microorganisms are the most prevalent agents in newborn in developed and developing countries, respectively. CT is commonly used as a screening test in patients with a suspicion of meningitis. MRI is the imaging modality of choice for the diagnosis of acute manifestations, and secondary complications, as well as treatment monitoring. Unenhanced MR examinations of patients with early meningitis may be unremarkable. The purulent exudates of acute meningitis are isointense with underlying brain that give rise to a 'dirty' appearance on T1WI. On FLAIR, the exudates do not suppress and hyperintensity on FLAIR is a typical but nonspecific finding of acute meningitis. Purulent exudates usually are restricted in diffusion on DWI. Postcontrast images demonstrate intense and uniform meningeal enhancement. Imaging also plays a major role to demonstrate the development of complications, including infarction, cerebritis, abscess, subdural empyema or effusion, hydrocephalus, ventriculitis, myelitis and vasculopathy. Cerebritis is poorly localized perivascular inflammatory infiltrations with minimal scattered necrosis, edema, and petechial hemorrhage. Most are caused by a hematogenous spread of a remote infection, whereas some cases may be caused by otomastoid infections or direct inoculation. Cerebritis are usually bacterial in origin but they can also be fungal, parasitic or granulomatous. Cerebritis in newborn and infants differs from the adults. They are relatively larger in size with relatively poor capsule formation and typically originate in the periventricular WM. There are four stages in the evolution of a cerebritis: early cerebritis, late cerebritis, early capsule, late capsule. Imaging findings vary according to the stage. MRI shows surrounding edema, mass effect, capsule (thicker rim border near cortex, thinner near ependyma) hypointense on T2WI, hyperintense on T1WI with central necrotic area, satellite lesions, daughter rings, petechial hemorrhage, heterogeneous enhancement of the rim, restricted diffusion on DWI with high signal intensity while ADC maps show low signal at the corresponding areas. MRS shows lactate and amino acids. Ventriculitis occurs most likely due to rupture of a brain abscess into the ventricles. Rapid recognition and intervention are very important to treat this lethal condition. Irregular ventricular debris that is hyperintense on T1WI and hypointense on T2WI is typical. There is ependymal enhancement in 60% of the cases. Subdural empyema is a surgical emergency, which is defined as purulent fluid collection between the dura and arachnoid membranes. It can be secondary to bacterial meningitis in infants and young children. In older children and adults, the subdural empyema usually occurs secondary to the extension of paranasal sinus infection. MRI shows hyperintense extra-axial crescentic fluid collections compared to CSF on T1WI. They are iso-to hyperintense to CSF on T2WI and are hyperintense on FLAIR. There is diffusion restriction on DWI and peripheral enhancement on post-contrast images. Acute encephalitis are diffuse parenchymal inflammatory diseases. They can also involve the meninges. There are many responsible agents, including HSV 1, HHV 6, VZV, Rabies, JC virus, HIV, Papovavirus, Flavivirus, Arbovirus, Enterovirus, Toxoplasma, fungi, Listeria, Rickettsia, Borrelia. Slow virus encephalitis as SSPE, Rasmussen, Prion disease. Herpes simplex encephalitis is caused by DNA virus HSV-1 in more than 95% of the cases. Mortality is high with significant morbidity. There is predilection for limbic system (the anterior and medial temporal lobes, insular cortex, cingulum, subfrontal region). It is unilateral initially and progresses to bilateral in the advancing stage and causes hemorrhagic, necrotizing encephalitis. MRI shows gyral edema with hypointensity on T1WI, high signal on T2WI, mass effect, patchy enhancement, petechial hemorrhages. The basal ganglia are usually spared. Despite vaccination, VZV still causes neurologic problems in clinical practice, including Bell's palsy, Ramsay-Hunt syndrome, meningitis, encephalitis, myelitis, Reye syndrome, and postherpetic neuralgia. Meningitis is the most common presentation in immunocompetent individuals. Encephalitis is the second most common presentation. Acute disseminated encephalomyelitis is seen in 8% of the cases. Cerebellitis is common with diffuse cerebellar swelling and hyperintensities on T2WI/FLAIR images. Enhancement is variable. Restriction on DWI is common. Rabies encephalitis is caused by a neurotropic RNA virus of the Rhabdoviridae family and is a rapidly progressing fulminant disease remaining to be a significant health problem in developing countries. Basal ganglia, thalami, hippocampi and brain stem are the main sites of involvement. MRI demonstrates hyperintensities in the affected regions. Hemorrhage and enhancement are usually West Nile virus (WNV) is a mosquito-borne Flavivirus, leading to periodic epidemics of febrile illness and encephalitis. WNV is now the most common cause of epidemic meningoencephalitis in North America. Most of the infected patients are asymptomatic. Less than 1% of patients develop neurologic disease, manifesting as meningitis, encephalitis, and acute poliomyelitis. Bilateral involvement in the basal ganglia, thalami and brain stem is typical. Central to the practice of emergency medicine is to identify the patients that would benefit from immediate treatment and intervention. Regarding CNS infections, imaging findings should always be evaluated with clinical data and laboratory findings.

RC705C • ENT Emergencies-Cases NOT to Miss!

Wendy R Smoker MD (Presenter)

LEARNING OBJECTIVES

1) Recognize traumatic, infectious, and vascular pathologies that acutely compromise vision. 2) Identify infections in various 'spaces' of the neck (masticator, carotid, pharyngeal mucosal [peritonsillar abscesses], parapharyngeal) that may compromise the airway. 3) Identify acute traumatic and inflammatory lesions affecting the temporal bone. 4) Recognize acute vascular injuries of the neck.

ABSTRACT

The category of ENT emergencies encompasses a variety of pathologies, only a few of which can be addressed in the time allotted. This discussion will focus on: 1) Pathology (potentially) affecting vision acutely and including orbital trauma, orbital infections, and carotid cavernous fistulas 2) Infections that may compromise the airway including masticator space, peritonsillar, retropharyngeal and parapharyngeal abscesses, Ludwig angina, and necrotizing fasciitis. 3) Traumatic hematomas affecting the retropharyngeal and perivertebral spaces 4) Temporal bone infections (petrous apicitis, Bezold abscess...) and traumatic injuries (fractures affecting the facial nerve canal, cochlear hemorrhage,) 5) Vascular emergencies such as impending 'blow-out' lesions

Salivary Glands

Thursday, 04:30 PM - 06:00 PM • N228



[Back to Top](#)

RC706 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC706A • Salivary Gland Imaging

Bronwyn E Hamilton MD (Presenter)

LEARNING OBJECTIVES

1) The participant will be able to recognize the normal anatomical landmarks that define the parotid, submandibular, and sublingual spaces. 2) The participant will recognize common inflammatory, infectious, and neoplastic diseases affecting the salivary glands. 3) The participant will understand the respective roles for CT and MRI in salivary gland imaging.

RC706B • Parapharyngeal Spaces

Hugh D Curtin MD (Presenter)

LEARNING OBJECTIVES

1) The participant should be able to separate lesions that occur in the prestyloid parapharyngeal space from those in the post or retrostyloid parapharyngeal (carotid) space and from those in the masticator space. 2) The participant will be able to identify the major landmarks for assessing masses in the parapharyngeal region, the carotid artery, the styloid process, the parapharyngeal fat, and the stylo-mandibular tunnel are the most important. 3) The participant will be able to identify and will understand the importance of the trigeminal fat pad in the masticator space.

ABSTRACT

The parapharyngeal region is separable into three major compartments. Substantial fascial layers organize these compartments and have a substantial effect on the imaging appearance of lesions occurring in each. The compartments are the prestyloid parapharyngeal space, post or retrostyloid parapharyngeal space and the masticator space. The ♦carotid space♦ used in an alternative classification is very similar to the poststyloid parapharyngeal space but emphasizes a slightly different fascial layer. As both systems use the same imaging landmarks, either classification can be used in clinical imaging. The most important landmark in designating the location of a lesion is the carotid artery. Other important landmarks are the styloid process, the posterior margin of the mandible, the medial pterygoid muscle and the fat in the parapharyngeal space. Lesions in the prestyloid parapharyngeal space are almost always salivary gland in origin. They are anterior to the carotid artery and push the parapharyngeal fat antero-medially. Lesions in the poststyloid parapharyngeal compartment push the carotid artery anteriorly compressing the parapharyngeal fat antero-laterally. Masses in this space are usually nerve sheath tumors or paragangliomas (glomus vagale).

Lesions of the masticator space compress the parapharyngeal fat posteromedially and distort the fat planes between the pterygoid muscles. These lesions are not salivary tumors but may be of osseous, odontogenic, neural or mesenchymal origin. Temporomandibular joint pathology also occurs here. The third division of the trigeminal nerve passes into the trigeminal fat pad located along the medial margin of the lateral pterygoid muscle just inferior to foramen ovale. Perineural spread can reach the trigeminal fat pad and foramen ovale by following the auriculotemporal nerve from the parotid gland or the other major branches of the third division of trigeminal.

RC706C • Perineural Spread

Lawrence E Ginsberg MD (Presenter)

LEARNING OBJECTIVES

1) Review the various cutaneous malignancies that may afflict the face and scalp, focusing on imaging appearance and staging evaluation. 2) Understand the clinical circumstances and imaging appearance and strategies related to perineural tumor spread in head and neck malignancies. 3) Understand the spectrum of upper aerodigestive tract malignancy attributable to minor salivary glands, including the anatomic distribution, imaging appearance including non-specificity, and patterns of spread, particularly by perineural mechanism.

Advancements in Renal Tumor Treatment: What We Need to Know Before and After Therapy

Thursday, 04:30 PM - 06:00 PM • S105AB

[Back to Top](#)



RC707 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Coordinator

Erick M Remer, MD
Ronald J Zagoria, MD
Debra A Gervais, MD *

LEARNING OBJECTIVES

1) Attendees will learn the current treatment options for RCC, including partial nephrectomy and tumor ablation. 2) Attendees will be able to articulate the benefits and drawbacks of treatment options, specifically complications and outcomes. 3) Attendees will understand the steps of renal tumor ablation and considerations for ablation success. 4) Attendees will be able to report salient imaging findings before and after RCC treatment, especially partial nephrectomy and tumor ablation.

ABSTRACT

This course will provide an introduction to the incidence of RCC, trends in imaging, and the distinction of tumor types. Current treatment options (partial nephrectomy, tumor ablation) and how they are performed will be discussed and the benefits and drawbacks of each will be detailed. Findings that are important to report when interpreting studies before and after treatment will be reviewed.

Emergency Musculoskeletal Radiology: The Usual (and Unusual) Suspects

Thursday, 04:30 PM - 06:00 PM • E350

[Back to Top](#)



RC708 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC708A • Noncardiac Chest Pain: Musculoskeletal Causes

Joseph S Yu MD (Presenter)

LEARNING OBJECTIVES

1) Discuss musculoskeletal conditions that may present with chest pain. 2) Review appropriate imaging algorithm for different processes. 3) List differential diagnosis for location-specific sources of pain.

ABSTRACT

Non-cardiac chest pain is a symptom that is frequently encountered in medicine. It tends to elicit a long list of differential diagnoses. The vast majority of people who present with chest pain do not have pathology related to the musculoskeletal system. Occasionally, however, the sternum, clavicles, and ribs along with their articulations may be an unsuspected source of pain. Initial assessment of the thorax begins with a routine radiographic series of the chest. Properly exposed upright PA and lateral radiographs made in full inspiration are often sufficient, but in certain instances, these projections may not allow adequate visualization of the osseous anatomy owing to the superimposition of structures with the mediastinal soft tissues or an incomplete depiction of the contour of the bones, such as the ribs and sternum. As such, a more tailored approach may be required, utilizing cross-sectional imaging modalities such as computed tomography (CT) and magnetic resonance (MR) imaging for evaluating pathologic processes that affect the sternum and sternoclavicular joints, or a dedicated bone-detail rib series for evaluation of the ribs. Occasionally, a coned-down fluoroscopic or radiographic evaluation is adequate, such as a lateral view of the sternum for a dislocation. Scintigraphic examinations such as bone scintigraphy, gallium scanning, and white blood cell scanning are efficacious for assessing metabolic processes that increase bone turnover or produce an inflammatory response. In this course, a differential diagnosis for painful noncardiac and extrapleural conditions of the chest will be discussed including fractures and dislocations, stress fractures, arthritis, costochondritis, sternocostoclavicular hyperostosis, condensing osteitis, infection, muscle tears, and tumors.

RC708B • Acute Hip Pain in the ED: Fracture and Beyond

Bharti Khurana MD (Presenter)

LEARNING OBJECTIVES

1) To provide an understanding of the proximal femoral and pelvic fractures. 2) Describe the multi modality approach to acute hip pain in the Emergency Department. 3) Review the critical findings relevant to orthopedic surgeons for managing these fractures and avoid potential complications.

ABSTRACT

Hip fracture is a common injury with current incidence exceeding 250,000 per year in the United States. The incidence is increasing with increase in life expectancy and elderly population. A prompt diagnosis of hip fracture is important since morbidity and mortality increases as time elapses from the original injury. A thorough knowledge of anatomy, normal variations, pathophysiology and morphologic types of fractures can increase the sensitivity and specificity of plain radiographs and cross sectional imaging in detecting these injuries. Although radiography has been reported more than 90% sensitive in detecting fracture, 2-11% of ED patients harbor radiographically occult fractures. Detection of fracture on MRI is based on presence of marrow edema around the fracture site and does not rely on cortical or trabecular displacement. Awareness of treatment principles and potential complications will help radiologists in improving the value of their service to orthopedic colleagues. Other causes of acute hip pain include muscle injuries, infection, neoplasms, transient osteoporosis, osteonecrosis and rapidly progressive osteoarthritis. Abbreviated MRI protocols are helpful in the ED. A checklist for a systematic approach is critical for the radiologists interpreting these studies in ED to avoid potential misses and pitfalls.

RC708C • Radiologic Detection and Characterization of Retained Foreign Bodies in Extremities

Ken F Linnau MD,MS (Presenter)

LEARNING OBJECTIVES

1) Identify the most common extremity foreign bodies encountered in Emergency Radiology. 2) Discern the most appropriate imaging modality (computed radiography, ultrasound, CT, and MRI) to visualize a suspected retained foreign body at high conspicuity. 3) Describe the imaging characteristics of various retained foreign materials across the various modalities (computed radiography, ultrasound, CT).

ABSTRACT

PURPOSE/AIM: To review the prevalence and describe the imaging characteristics of the most commonly encountered subcutaneously retained extremity foreign bodies in the emergency room setting on various imaging modalities (CR, US, CT, MR). **CONTENT ORGANIZATION**
Overview of the most commonly retained subcutaneous foreign bodies and review of the current literature. Display the different categories of foreign bodies and their imaging characteristics. Foreign body categories will include plastic, wood, glass, gravel, fish bones, needles and tubing. Describe each foreign body appearance on computed radiography, ultrasound, CT and MRI and provide illustrative clinical examples.

Gastrointestinal: Biliary Imaging (An Interactive Session)

Thursday, 04:30 PM - 06:00 PM • E353C

[Back to Top](#)



RC709 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC709A • Biliary and Gall Bladder Malignancies

Richard M Gore MD (Presenter)

LEARNING OBJECTIVES

1) Understand the prevalence and risk factors for gallbladder and biliary malignancies. 2) Review the imaging features of these malignancies. 3) Describe the staging system for followup of these neoplasms. 4) Make recommendations to improve the early detection of these clinically elusive tumors.

ABSTRACT

GALLBLADDER CARCINOMA Carcinoma Manifesting as Mural Thickening Focal or diffuse thickening of the gallbladder wall is the least common presentation of gallbladder carcinoma and is the most difficult to diagnose, particularly in the early stages. Gallbladder carcinoma may cause mild to marked mural thickening in a focal or diffuse pattern. This thickening is best appreciated on sonography, in which the gallbladder wall is normally 3 mm or less in thickness. Carcinomas confined to the gallbladder mucosa may present as flat or slightly raised lesions with mucosal irregularity that are difficult to appreciate sonographically. In one sonographic series, half the patients with these early carcinomas had no protruding lesions, and fewer than one third were identified preoperatively. More advanced gallbladder carcinomas can cause marked mural thickening, often with irregular and mixed echogenicity. The gallbladder may be contracted, normal sized, or distended, and gallstones are usually present. Carcinoma Manifesting as a Polypoid Mass About one fourth of gallbladder carcinomas manifest as a polypoid mass projecting into the gallbladder lumen. Identification of these neoplasms is particularly important because they are well differentiated and are more likely to be confined to the gallbladder mucosa or muscularis when discovered. On ultrasound images, polypoid carcinomas usually have a homogeneous tissue texture, are fixed to the gallbladder wall at their base, and do not cast an acoustic shadow. Most are broad based with smooth borders, although occasional tumors have a narrow stalk or villous fronds. The polyp may be hyperechoic, hypoechoic, or isoechoic relative to the liver. Gallstones are usually present, and the gallbladder is either normal sized or expanded by the mass. A small polypoid carcinoma can be indistinguishable from a cholesterol polyp, adenoma, or adherent stone. Most benign polyps are small, measuring less than 1 cm. If a gallbladder polyp is

RC709B • Bile Duct Injury and Benign Disease

Alampady K Shanbhogue MD (Presenter)

LEARNING OBJECTIVES

1) Describe the imaging modalities most useful for evaluating bile duct injuries. 2) Understand classification of bile duct injuries and most appropriate mode of treatment (percutaneous, endoscopic, or surgical) for biliary injuries. 3) Describe the salient clinical and imaging manifestations of the spectrum of benign biliary strictures. 4) Identify and differentiate among the various causes of benign biliary strictures.

ABSTRACT

RC709C • Interesting Biliary Cases

Tracy A Jaffe MD (Presenter)

LEARNING OBJECTIVES

1) Learners will view interesting and complicated biliary cases seen in practice with an emphasis on MR imaging.

Ultrasound of Superficial Structures (An Interactive Session)

Thursday, 04:30 PM - 06:00 PM • E353B



[Back to Top](#)

RC710 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC710A • Scrotum

Paul S Sidhu MRCP, FRCR (Presenter) *

LEARNING OBJECTIVES

1) To recognize the various intra- and extra testicular lesions seen on a sonographic examination. 2) To understand the variety of predominantly benign extra-testicular lesions seen in adult men. 3) To recognize the variety of intra-testicular lesions seen and to understand the malignant composition of the majority of these lesions. 4) To understand the role of sonography in acute scrotal pain. 5) To understand the role of application of color Doppler to the examination. 6) To appreciate the possible role of the new imaging techniques of contrast-enhanced sonography and tissue elastography.

ABSTRACT

Ultrasonography remains the ideal imaging method for examining the scrotal contents, with high inherent resolution of the technique and the superficial position of the scrotal contents helping. Any abnormalities present may be divided into extra- and intra-testicular lesions; the majority of lesions outside the testis in the adult likely to be benign and the majority within the testes likely to be malignant; in the pediatric population an extra-testicular lesion may be malignant; a rhabdomyosarcoma likely. The assessment of the extra-testicular space will identify cysts (spermatoceles) hydroceles, varicoceles and the solid tumors of adenomatoid or lipoma origin. Within the testes the focal lesion is likely a primary germ cell tumor; seminoma or a mixed germ cell tumor of different cell lines. Rarely a benign entity may be encountered; epidermoid cyst, segmental infarction or a Leydig cell tumor. The differentiation of malignant from benign may be dependent on the presence of vascularity on color Doppler sonography. Rare intra-testicular lesions such as sarcoidosis or adrenal rest cells may cause difficulty. The presentation with acute testicular pain may be problematic but age is important; a pubescent boy may have spermatic cord torsion, the older man inflammatory disease. Color Doppler sonography may help in the differentiation but beware the sonographic diagnosis of torsion; this is essentially a clinical diagnosis. The presence of testicular microlithiasis has associated risk factors, and sonographic surveillance is controversial. Macrocalcification may also have implications for the patient. The issue of testicular sparing surgery for benign disease may be realized with the advent of the newer techniques. Contrast-enhanced sonography confirming the absence of vascularity indicating the lesion is benign and tissue elastography confirms the lesion is hard indicating malignancy.

RC710B • Thyroid

Jill E Langer MD (Presenter) *

LEARNING OBJECTIVES

1) Recognize the sonographic features of thyroid nodules that are most predictive of malignant nodules. 2) Recognize the sonographic features of thyroid nodules that are most predictive of benign nodules. 3) Discuss different recommendations and indications for performing FNA of thyroid nodules.

ABSTRACT

Thyroid nodules are commonly noted in the thyroid gland of adults when examined by sonography. The sonographic features of thyroid nodules have been recognized to be the most important feature of thyroid nodule assessment with respect to the risk of malignancy. The optimal management of an incidentally-detected thyroid nodule depends on a working knowledge of which sonographic features raise suspicion for malignancy as contrasted which those features present in the much more common, benign nodule. This talk will review those sonographic features as well as discuss the rationale for the recommendations from both the Endocrinology and the Radiology literature concerning which nodules should undergo fine-needle aspiration (FNA).

RC710C • Lumps, Bumps, and Hernias

Gandikota Girish MBBS (Presenter)

LEARNING OBJECTIVES

1) Understanding the sonographic appearance of lipomas in the subcutaneous tissues. 2) Differentiating lipomas from liposarcomas. 3) Understanding some of the common pitfalls when using sonography to evaluate patients for inguinal hernias.

ABSTRACT

Sonography is a useful tool for evaluating superficial lumps and bumps in the adult patient. Lipomas are one of the more common superficial lumps, and sonographic evaluation can demonstrate compressibility, vascularity, homogeneity and overall appearances similar to adjacent adipose tissue. However a clinical history of the presence of pain, a recent increase in size and a sonographic finding of a soft tissue component may suggest a more aggressive etiology. Inguinal hernias are a common clinical condition which may present with inguinal discomfort, and Ultrasound is a useful means for making a definite diagnosis. However, there are a number of concepts which help the practitioner maximize the utility of the technique, including understanding the keyhole effect, treating the inguinal canal as a vessel, understanding the relationship between the deep ring and the inferior epigastric artery, and being aware of the 'thin man' pitfall and the normal movement of the spermatic cord, to name a few.

**RC711 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5****LEARNING OBJECTIVES**

1) Recognize the strengths of FDG PET/CT and dedicated CT imaging in head and neck cancer. 2) Recognize the false positives and false negatives associated with FDG PET/CT and CT imaging. 3) Understand the importance of combining PET and dedicated CT imaging findings for a thorough interpretation.

ABSTRACT

Accurate staging and timely detection of recurrence are of prime importance for for improving outcome in head and neck cancer patients. FDG PET/CT imaging helps in staging and detecting persistent or recurrent disease, estimate its extent and monitor tumor response and occasionally detect synchronous second primary tumors. After radical surgery or radiation therapy for HNC, conventional imaging modalities can be highly inaccurate in differentiating tumor from non-neoplastic post-treatment changes as normal tissue planes are altered substantially. FDG-PET has higher sensitivity and specificity for detecting metastatic lesions in HNC than other conventional imaging modalities including CT. Although in some instances PET can be false negative without the existence of a morphologic imaging component. Combined PET/CT scanners overcome some of these limitations by fusing the morphologic data obtained by CT with the functional data of PET. In this session case examples will be presented to highlight the superior sensitivity and specificity of FDG PET/CT imaging. In addition, case examples of dedicated CT will be presented in those cases when FDG PET imaging can be misleading with false positive or negative results.

RC711A • Correlative CT and PET Imaging: Superiority of CT**Peter M Som MD (Presenter)****LEARNING OBJECTIVES**

1) The attendee will learn from case examples how the morphologic information of CT and MR imaging are a critical part of a of PET study. 2) The attendee will learn by case examples the imaging findings on CT and MR that should make one question the pathologic significance of PET avidity.

ABSTRACT

Although PET avidity can identify head and neck cancers that may be poorly seen on morphologic imaging, there are times when the PET findings may be misleading. These include PET avidity in non-cancerous lesions, apparant PET avidity related to artifact, and the absence of PET avidity due to limited biomass in necrotic lesions. Case examples will be presented to illustrate these points.

RC711B • Correlative CT and PET Imaging: Superiority of PET**Lale Kostakoglu MD,MPH (Presenter)****LEARNING OBJECTIVES**

1) Recognize the strengths of FDG PET/CT imaging over CT imaging in head and neck cancer. 2) Recognize the false positives and false negatives associated with FDG PET/CT imaging. 3) Understand the importance of combining PET and CT imaging findings for a thorough interpretation.

RC711C • Correlative PET and MRI Imaging: Superiority of MRI**John A Arrington MD (Presenter)****LEARNING OBJECTIVES**

1) Understand and recognize the advantages and strengths of MRI as well as the complementary roles of MRI, CT, and FDG PET/CT in the diagnosis and treatment of head and neck cancer. 2) Attendee will learn through case studies the areas of superiority of MRI as well as evaluating and correlating MRI examinations with false positive and false negative PET examinations.

ABSTRACT

MRI, CT, and FDG PET/CT have strengths and weaknesses in the detection and staging head and neck carcinoma. While PET/CT is highly sensitive in the detection of primary head and neck carcinoma and metastatic nodal disease, there are limitations including avidity in muscle activation and inflammatory lesions as well as the detection of perineural tumor spread and metastatic necrotic nodal disease. MRI case studies will be presented highlighting the areas of superiority of MRI over FDG PET/CT.

Peripheral Artery Disease (PAD)**RC712 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5****Moderator****Stephen T Kee , MD****LEARNING OBJECTIVES**

1) Discuss the basic pathology of peripheral artery disease. 2) Describe the risk factors associated with the development of peripheral artery disease. 3) Outline the benefits of providing a comprehensive clinical service in the management of PVD. 4) Discuss how to build a PVD practice. 5) Describe the basic techniques employed in the treatment of PVD.

ABSTRACT**RC712A • Clinical Overview of PAD****Stephen T Kee MD (Presenter)****LEARNING OBJECTIVES**

View learning objectives under main course title.

RC712B • Lower Extremity CTA**Richard L Hallett MD (Presenter)****LEARNING OBJECTIVES**

1) Describe techniques for patient selection, acquisition, reconstruction, and interpretation of lower extremity CTA. 2) Describe evidence-based results for lower extremity CTA, and expected impact on patient care. 3) Describe a coherent plan that integrates lower extremity CTA into cost-effective clinical care.

ABSTRACT

Peripheral arterial disease (PAD) is a common cause of morbidity and mortality in developed countries. Traditionally, imaging for risk stratification and therapeutic planning involved catheter angiography. In recent years, cross-sectional imaging by CTA and MRA has proven a robust technique for non-invasive PAD assessment. Given ubiquity of CT scanning technology, CTA is widely available. High resolution datasets can be acquired rapidly, which facilitates assessment of clinically labile or trauma patients. To be optimally effective, CTA techniques require particular attention to contrast medium and scan protocol. With appropriate protocol design, data acquisition requires limited operator dependence. The acquired 3D dataset is rich with information, but requires careful scrutiny by the interpreting physician. Volumetric review of these datasets produces the most accurate results. Extensive small vessel calcification remains a potential barrier to full assessment of pedal vessels by CTA. Recent published data validates the clinical effectiveness of CTA for diagnosis of PAD and for the direction of treatment planning. Ongoing research aims to exploit the newest generation of CT scanners to acquire additional information, including dual energy data, time-resolved information, and radiation dose savings.

RC712C • Lower Extremity MRA**Harald Kramer MD (Presenter)****LEARNING OBJECTIVES**

1) Identify the appropriate technique for peripheral MRA depending on the available hardware and the clinical question and condition of the patient. 2) Differentiate between different contrast agents and their specific characteristics. 3) Chose between different contrast agent application schemes depending on the technique used and the clinical question. 4) Compare the pros and cons of contrast-enhanced and non contrast-enhanced techniques for peripheral MRA.

ABSTRACT

The prevalence of symptomatic peripheral artery disease (PAD) ranges around 3% in patients aged 40 and 6% at an age of 60 years. Additionally, the prevalence of asymptomatic PAD lies between 3% and 10% in the general population increasing to 15% to 20% in persons older than 70 years of age. However, these data still might underestimate the total prevalence of PAD since screening studies showed that between 10% and 50% of all patients with intermittent claudication (IC) never consult a doctor about their symptoms. These data prove the need for an accurate and reliable method for assessment of the peripheral vasculature. Digital subtraction angiography (DSA) still serves as the reference standard for all vascular imaging techniques. However, because of the absence of ionizing radiation, the use of non-nephrotoxic contrast agents or even non contrast-enhanced sequences and the large toolbox of available techniques for high-resolution static and dynamic imaging Magnetic Resonance Angiography (MRA) constitute an excellent non-invasive alternative. Different acquisition schemes and contrast agent application protocols as well as different types of data sampling for static, dynamic, contrast- and non contrast-enhanced imaging enable to tailor each exam to a specific question and patient respectively.

RC712D • Endovascular Treatment of PAD

Stephen T Kee MD (Presenter)

LEARNING OBJECTIVES

View learning objectives under main course title.

Pediatric Neuroimaging II

Thursday, 04:30 PM - 06:00 PM • S102AB

PD **MR** **NR**

[Back to Top](#)

RC713 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC713A • MRI Imaging of Brain Development

Robert C McKinstry MD, PhD (Presenter) *

LEARNING OBJECTIVES

1) Describe how water and myelin content influence the T1 and T2 relaxation times. 2) Describe the time course and regional variation of brain maturational changes. 3) Use a systematic approach to determine the child's brain age.

RC713B • Congenital Brain Malformations

Sarah S Milla MD (Presenter)

LEARNING OBJECTIVES

1) Understanding the classification of congenital brain malformations, particularly cortical malformations. 2) Comprehension of the genetic undertones of congenital brain malformations. 3) Ability to identify imaging appearance of common cortical malformations on brain MR imaging.

Interactive Game: Interventional

Thursday, 04:30 PM - 06:00 PM • E353A

IR

[Back to Top](#)

RC714 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator

Steven M Zangan, MD

Brian S Funaki, MD

Rakesh C Navuluri, MD

LEARNING OBJECTIVES

1) Recognize vascular and non-vascular conditions and their image-guided treatment in the chest, abdomen and pelvis. This interactive session will use RSNA Diagnosis Live. Please bring your charged mobile wireless device (phone, tablet or laptop) to participate.

Digital Breast Tomosynthesis

Thursday, 04:30 PM - 06:00 PM • E451B

DM **BR**

[Back to Top](#)

RC715 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC715A • Clinical Implementation

Lawrence W Bassett MD (Presenter)

LEARNING OBJECTIVES

1) Identify the key practical issues affecting the clinical implementation of digital tomosynthesis. 2) Understand the technical aspects of digital tomosynthesis that will impact clinical workflow and IT resources. 3) Integrate changes to current workstation read-out protocols to allow for efficient interpretation of digital tomosynthesis studies.

ABSTRACT

Author will discuss approaches of image acquisition in digital breast tomosynthesis (DBT). The basics of DBT image interpretation and potential challenges of clinical digital breast tomosynthesis will be reviewed.

RC715B • Interpretation

Emily F Conant MD (Presenter) *

LEARNING OBJECTIVES

1) Understand the basics of DBT image presentation and interpretation. 2) Review DBT applications in screening and diagnosis. 3) Identify potential challenges in clinical implementation of DBT.

RC715C • Research Evidence

Etta D Pisano MD (Presenter) *

LEARNING OBJECTIVES

1) Understand the published literature on the use of tomosynthesis for breast cancer screening. 2) Understand the proposed trial design for the Tomosynthesis Mammographic Imaging Screening Trial (TMIST) and what that trial adds to the available data on tomosynthesis.

What the Referring Physician Needs to Know (Sponsored by the RSNA Public Information Committee)

Thursday, 04:30 PM - 06:00 PM • S504AB

PR **GN**

[Back to Top](#)

RC716 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator

Judy Yee, MD *

Jeffrey D Kopin, MD

Stephan G Wyers, MD

Sally Reynolds, MD

LEARNING OBJECTIVES

1) Discern what referring physicians need from radiologists at various stages of patient care. 2) Recognize referring physicians' preferences in communication methods. 3) Identify referring physicians' needs regarding structured reporting and appropriateness criteria. 4) Understand how to improve your communications and work more effectively with referring physicians to enhance patient care. 5) Recognize opportunities to improve/expand your interactions with referring physicians.

Ultrasound/Opto-Acoustic Molecular Imaging

Thursday, 04:30 PM - 06:00 PM • S504CD

US OI MI

[Back to Top](#)

RC717 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator
Juergen K Willmann, MD *

LEARNING OBJECTIVES

In this course, attendees will learn the principles and applications of molecular imaging using ultrasound and photoacoustic imaging techniques. In the first part, principles and applications of ultrasound molecular imaging will be reviewed. In the second part, principles and applications of molecular imaging using photoacoustic imaging techniques will be presented. In the third part, ultrasound guided drug delivery approaches will be reviewed. At the end of this course, the attendees will understand the principles and potential clinical applications of ultrasound and optoacoustic molecular imaging as well as of ultrasound guided drug delivery.

RC717A • Photoacoustic Imaging

Stanislav Emelianov PhD (Presenter) *

LEARNING OBJECTIVES

1) Understand the fundamental principles of photoacoustic imaging and major components of photoacoustic imaging system. 2) Knowing how photoacoustic images are formed and how to interpret photoacoustic images. 3) Understand how imaging contrast agents or imaging probes affect contrast, penetration depth and specificity in photoacoustic imaging. 4) Understand the ability of photoacoustic imaging system to visualize anatomical, functional and molecular properties of imaged tissue. 5) Identify the role of photoacoustic imaging in pre-clinical and clinical applications.

ABSTRACT

Photoacoustic imaging or tomography ♦ a non-ionizing, non-invasive, real-time imaging technique capable of visualizing optical absorption properties of tissue at reasonable depth and high spatial resolution, is a rapidly emerging biomedical and clinical imaging modality. Photoacoustic imaging is regarded for its ability to provide in-vivo morphological and functional information about the tissue. With the recent advent of targeted contrast agents, photoacoustics is capable of in-vivo molecular imaging, thus facilitating further molecular and cellular characterization of tissue.

This presentation is designed to provide both a broad overview and a comprehensive understanding of photoacoustic imaging. With a brief historical introduction, we will examine the foundations of photoacoustics, including relevant governing equations, optical/acoustic properties of the tissues, laser-tissue interaction, system hardware and signal/image processing algorithms. Specifically, penetration depth and spatial/temporal resolution of photoacoustic imaging will be analyzed. Integration of photoacoustic and ultrasound imaging systems will be discussed. Techniques to increase contrast and to differentiate various tissues in photoacoustic imaging will be presented. Furthermore, design, synthesis and optimization of imaging probes (typically, nanoconstructs or dyes) to enable molecular/cellular photoacoustic imaging will be presented. Special emphasis will be placed on contrast agents capable of multiplexed imaging, multi-modal imaging and image-guided therapy including drug delivery and release. The presentation will continue with an overview of several commercially available and clinically-relevant systems capable of photoacoustic imaging. Regulatory aspects of photoacoustic imaging systems and imaging contrast agents will be presented. Finally, current and potential biomedical and clinical applications of photoacoustics will be discussed.

RC717B • Ultrasound Molecular Imaging

Juergen K Willmann MD (Presenter) *

LEARNING OBJECTIVES

1) To understand the acquisition and quantification principles of ultrasound molecular imaging. 2) To understand the characteristics and biodistribution of molecularly targeted ultrasound contrast agents. 3) To understand the role of ultrasound molecular imaging in preclinical and clinical applications.

ABSTRACT

Ultrasound imaging is a widely available, relatively inexpensive, and real-time imaging modality that does not expose patients to radiation and which is the first-line imaging modality for assessment of many organs. Through the introduction of ultrasound contrast agents, the sensitivity and specificity of ultrasound for detection and characterization of focal lesions has been substantially improved. Recently, targeted contrast-enhanced ultrasound imaging (ultrasound molecular imaging) has gained great momentum in preclinical research by the introduction of ultrasound contrast agents that are targeted at molecular markers over-expressed on the vasculature of certain diseases. By combining the advantages of ultrasound with the ability to image molecular signatures of diseases, ultrasound molecular imaging has great potential as a highly sensitive and quantitative method that could be used for various clinical applications, including screening for early stage disease (such as cancer); characterization of focal lesions; quantitative monitoring of disease processes at the molecular level; assisting in image-guided procedures; and, confirming target expression for treatment planning and monitoring.

In this refresher course the concepts of ultrasound molecular imaging are reviewed along with a discussion on current applications in preclinical and clinical research.

RC717C • Sonographically-guided Drug Therapy

Alexander L Klibanov PhD (Presenter) *

LEARNING OBJECTIVES

1) To identify the basic principles of ultrasound energy deposition as applied to molecular imaging and image-guided therapeutic interventions. 2) To combine the general physical principles of ultrasound-microbubble interaction, drug-carrier systems pharmacokinetics and ultrasound contrast imaging, apply this knowledge for the development of triggered delivery approaches in the setting of personalized medicine. 3) To understand advantages and disadvantages of ultrasound application in the potential image-guided intervention designs. 4) To identify and compare potential clinical applications of ultrasound-guided drug delivery.

ABSTRACT

The reason of ultrasound use in drug delivery is to enhance drug action specifically in the area of disease. The design of such therapeutic intervention should assure that drug deposition or action enhancement take place only in the disease site, with the general goal to improve the therapeutic index. There are several approaches to ultrasound-assisted drug delivery. The first approach, closest to clinical practice, takes advantage of existing ultrasound contrast agents (intravenous gas microbubbles approved in US for cardiac imaging). When these bubbles are co-injected intravenously with the drugs, and ultrasound energy applied to the areas of disease, localized energy deposition leads to endothelium activation or transient 'softening' of blood brain barrier (BBB). Drugs (including antibodies or liposomes) can thus transit BBB and achieve therapeutic action. Ultrasound imaging can be used for targeted focusing of ultrasound energy in the areas of disease. Second approach suggests attaching microbubbles to the drug or a drug carrier (including nucleic acid drugs). Microbubbles can be complexed with drug or gene carrier nanoparticles, so that local action of ultrasound would result in triggered drug release/deposit or transfection in the ultrasound-treated area. Third approach involves targeted microbubble design, as in ultrasound molecular imaging. Combination of targeted microbubbles with drug carrier makes possible unfocused ultrasound use, to act only in the areas of the target receptor expression, where microbubbles adhere and ultrasound energy is then deposited. Lately, formulation moved from microbubbles to smaller nanodroplet drug carriers, to reach interstitium, where drug release could take place upon ultrasound treatment. Overall, combination of ultrasound imaging, including contrast (molecular) imaging, focused ultrasound, and drug carrier systems will lead to novel image-guided therapies, especially applicable in the era of personalized medicine.

Advances in Cross-sectional Oncologic Imaging

Thursday, 04:30 PM - 06:00 PM • S402AB

RO OI

[Back to Top](#)

RC718 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC718A • Microbubble-enhanced Ultrasound in Oncology

Hyun-Jung Jang MD (Presenter)

LEARNING OBJECTIVES

1) To identify when and where CEUS is useful in oncologic patients relevant to clinical practice. 2) To understand advantages of CEUS in oncologic imaging including a real-time dynamic imaging and purely intravascular property of microbubble contrast agents. 3) To understand the background rationales and

potential role of CEUS in monitoring antivasular treatment and tumor perfusion measurement.

ABSTRACT

RC718B • Dual-Energy CT in Oncology

Anno Graser MD (Presenter) *

LEARNING OBJECTIVES

1) To understand basic principles of dual energy CT in imaging of soft tissues. 2) To learn about the properties of iodine distribution maps in dual energy CT, and how to exploit them in the characterization of malignancy. 3) To understand the perspectives of dual energy CT in response assessment based on DECT quantification of iodine uptake. 4) To learn how to build successful dual energy CT examination protocols for disease characterization in patients with malignancy. 5) Dose issues in dual energy CT will also be explained in this refresher course lecture.

RC718C • Practical Utilization of 3D Techniques in Cancer Imaging

Zhen J Wang MD (Presenter)

LEARNING OBJECTIVES

1) Review 3D imaging techniques available for common modalities in oncologic imaging. 2) Illustrate uses of 3D imaging in everyday clinical practice. 3) Review cases where 3D imaging makes a difference.

ABSTRACT

Medical Physics 2.0: Information Management and Display

Thursday, 04:30 PM - 06:00 PM • N229

PH IN

[Back to Top](#)

RC721 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Co-Director

Ehsan Samei, PhD *

Co-Director

Douglas E Pfeiffer, MS *

RC721A • Information Management and Display Perspective

Ehsan Samei PhD (Presenter) *

LEARNING OBJECTIVES

1) To gain an appreciation for interaction between medical physics and information technology in modern medicine. 2) To understand how physics can add value to patient care in the area of information and image management and technology.

RC721B • Information Management and Display 1.0

Donald Peck PhD (Presenter)

LEARNING OBJECTIVES

1) Review the different areas of imaging informatics. 2) Understand the methodology for developing informatics standards and the role of physicists and radiologists in the process. 3) Review the current status of informatics standards 4) Review current technology for validating the function of these systems.

ABSTRACT

Imaging informatics is part of every radiology practice today. Imaging informatics covers everything from the ordering of a study, through the data acquisition and processing, display and archiving, reporting of findings and the billing for the services performed. The standardization of the processes used to manage the information and methodologies to integrate these standards is being developed and advanced continuously. These developments are done in an open forum and imaging organizations and professionals all have a part in the process. In this presentation the flow of information and the integration of the standards used in the processes will be reviewed. The role of radiologists and physicists in the process will be discussed. Current methods for validation of informatics systems function will also be discussed.

RC721C • Information Management and Display 2.0

Michael J Flynn PhD (Presenter)

LEARNING OBJECTIVES

1) Information management; a. Decision support for Radiology examination orders. b. Dose monitoring for radiographic, interventional, CT and Nuclear Medicine procedures. 2) Data storage and distribution; a. Enhanced DICOM objects. b. Vendor neutral archives for enterprise image storage. c. Web distribution protocols. 3) Study viewing and report generation; a. Color calibration and presentation management. b. Structured reports.

Uncertainties in Imaging for Radiation Oncology: Sources and Mitigation Techniques-Image Registration

Thursday, 04:30 PM - 06:00 PM • S502AB

PH RO

[Back to Top](#)

RC722 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Co-Director, Moderator

Kristy K Brock, PhD *

LEARNING OBJECTIVES

1) Describe methods to perform QA/QC of deformable registration. 2) Propose methods to account for uncertainties. 3) Highlight clinical integration.

RC722A • Uncertainties in Deformable Registration

Kristy K Brock PhD (Presenter) *

LEARNING OBJECTIVES

View learning objectives under main course title.

RC722B • Clinical Practice

Patrick Kupelian MD (Presenter) *

LEARNING OBJECTIVES

View learning objectives under main course title.

Minicourse: Recording and Reporting Radiation Dose: CT

Thursday, 04:30 PM - 06:00 PM • E351

QA PH CT

[Back to Top](#)

RC723 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Director

J. Anthony Seibert, PhD

RC723A • Measurements and Indices in CT Dose

LEARNING OBJECTIVES

1) The audience will be able to identify and discuss the standard parameters used for reporting dose in computed tomography, including the volume CTDI, DLP, and effective dose using the k-coefficients. 2) The audience will be able to identify and discuss parameters which influence the radiation dose to the patient, including patient size, dose modulation protocols, and scan length. 3) Participants will be able to identify the limitations of using effective dose in describing radiation dose levels to individual patients.

ABSTRACT

Computed tomography has experienced rapid growth in utilization over the past 10 years, due in part to the dramatic increase in image quality and decrease in scan time that helical and multi-slice CT scanners have allowed. This increased utilization has raised legitimate concerns about the radiation dose levels in CT. Traditional dose metrics such as the volume computed tomography index (CTDIvol) and the dose length product (DLP) will be discussed. The limitations of these metrics in the context of individual patient dosimetry will also be explained. In recent years, a number of new CT dose concepts have been introduced in the peer-reviewed literature, in task group reports, and in other documents. A number of these new dose metrics will be discussed, including the rise-to-equilibrium-dose, H(L), and the site-specific dose estimate (SSDE). CT dosimetry has historically been performed using integrating ion chambers. In light of the dynamic scanning capabilities of modern CT scanners, the utility of a real-time radiation meter will be discussed. Real-time dose meters can substantially reduce the time required by the physicist in the CT scanner suite, while increasing the quantity and quality of the dose information that is measured. Niche applications include the rapid assessment of beam quality (half value layer) and the characterization of the beam shaping filters used in CT. In summary, this presentation will discuss existing CT dose parameters, and will then review a number of proposed new CT dose parameters which will likely be useful for CT dose assessment in the future. The recent growth of CT technology has outgrown the simple dose metrics of the past, and there is a need for the CT community to embrace new and more accurate CT dose metrics.

RC723B • Estimating Patient Dose

Dianna D Cody PhD (Presenter) *

LEARNING OBJECTIVES

1) Recognize the limitations of current approaches to estimate CT patient dose. 2) Understand several methods available for estimating CT patient dose. 3) Understand potential future options for patient CT dose estimations.

RC723C • Initial Experience with California Law on Reporting Dose from CT

J. Anthony Seibert PhD (Presenter)

LEARNING OBJECTIVES

1) Describe the provisions of the California State law on dose reporting for computed tomography (CT) scanners. 2) Demonstrate ways in which the required elements volume Computed Tomography Dose Index (CTDIvol) and Dose Length Product (DLP) can be placed into the radiology report. 3) Discuss discrepancies regarding the relationship between CTDIvol and patient dose, and issues in accumulating dose indices for CT scans in a multi-series exam and for individual exams over time. 4) Report on the status of compliance with the statutes of the law.

ABSTRACT

Radiation over-exposure for computed tomography (CT) perfusion studies occurring in the 2008-2009 timeframe resulted in California Senate Bill 1237, legislation that was authored by Senator Padilla in response to these incidents. The legislation was signed by the Governor in September 2010. The law contains three parts: (1) Recording CT dose indices for each patient, placing these values in the radiology report, and verifying accuracy of the volume Computed Tomography Dose Index (CTDIvol); (2) Requiring accreditation for all CT scanners performing diagnostic exams that are under the authority of the California Department of Public Health; (3) Reporting of radiation exposures that exceed specified limits to organs, cause unanticipated erythema or hair loss, or inappropriate irradiation to body parts not ordered by a physician. Part 1 of the law commenced on July 1, 2012, and the other two parts are to commence on July 1, 2013. This presentation describes the steps taken to comply specifically with Part 1 of the law. To ensure compliance, an automated extraction and delivery of the CTDIvol and DLP indices to the radiology report were implemented. However, the legislation does not provide guidance on how to: (1) adjust CTDIvol for patient size; (2) deal with CT exams having multiple different series, each with individual dose indices; (3) sum CTDIvol and DLP for the same or different body areas scanned (if appropriate). The consequence is variable reporting at the initial implementation of the law, which requires standardized reporting metrics. Recommendations by the University of California Dose Optimization and Standardization Endeavor (UC DOSE) is discussed in this context, with relevant solutions described and specific examples demonstrated. To conclude, an update from the users perspective of compliance, as well as reporting of the status from the State of California Department of Public Health office is provided.

Professionalism and the Radiology Trainee

Thursday, 04:30 PM - 06:00 PM • S403A



[Back to Top](#)

RC724 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Director

Ronald L Eisenberg, MD, JD

Stephen D Brown, MD

Priscilla J Slanetz, MD, MPH *

LEARNING OBJECTIVES

1) To discuss effective strategies to address the issue of the impaired and/or incompetent colleagues. 2) To explain how to handle unprofessional behavior within and across disciplines. 3) To formulate approaches to accountability, the unexpected outcome, and the role of apology.

ABSTRACT

Unprofessional behavior during medical school, residency, and fellowship training has been linked to subsequent disciplinary action by medical boards. Consequently, educational initiatives fostering professionalism are essential for residency and fellowship training in order to promote high quality patient care. Moreover, professionalism is now one of the six competencies that residents are required to achieve before completing their training and taking the new core examinations. Professionalism is one of the most challenging components of the core ACGME competencies to teach and evaluate during residency training. This interactive course will involve group participation using reflective practice, a technique that we have successfully incorporated into residency training at our institutions. These radiology-specific, case-based sessions will address the topics of (1) the clinically incompetent and/or impaired attending; (2) unprofessional behavior across disciplines; and (3) managing the unexpected outcome, the role of apology, and accountability. Although primarily geared toward trainees, we welcome radiologists in practice who can share their practical experiences regarding these issues with residents and fellows. All three of the course facilitators have received RSNA Education Scholar Awards. Dr. Brown is a pediatric radiologist and bioethicist, Dr. Slanetz is a breast imager and residency program director, and Dr. Eisenberg is general radiologist, associate program director, and non-practicing lawyer.

Quantitative Imaging: Informatics

Thursday, 04:30 PM - 06:00 PM • E352



[Back to Top](#)

RC725 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Director

Michael F McNitt-Gray, PhD *

RC725A • The Role of Informatics in Quantitative Imaging

Katherine P Andriole PhD (Presenter)

LEARNING OBJECTIVES

1) Understand the role of informatics in quantitative imaging. 2) Be able to identify existing limitations in information technologies with respect to quantitative imaging, and conversely see how informatics may assist in filling some of the current gaps in quantitative imaging methods. 3) Become familiar with on-going efforts to address current challenges facing research into and clinical implementation of quantitative imaging applications.

ABSTRACT

Quantitative imaging is increasingly becoming an essential part of biomedical research as well as being incorporated into clinical diagnostic activities. Referring clinicians are asking for more objective information to be gleaned from the imaging tests that they order so that they may make the best clinical management decisions for their patients. Medical Physicists, Researchers, Imaging Scientists, and others may be called upon to identify existing issues as well as develop, validate and implement new approaches and technologies to help move the field further toward quantitative imaging methods. Biomedical imaging informatics tools and techniques such as standards, integration, data mining, cloud computing and new systems architectures, ontologies and lexicons, data visualization and navigation tools, and business analytics applications can be used to overcome some of the existing limitations. The RSNA's Quantitative Imaging Biomarkers Alliance (QIBA) is an initiative with international participation from medical physicists, clinicians, researchers, industry scientists, and government

officials all interested in optimizing the potential of quantitative imaging. A major QIBA informatics activity, the imaging data warehouse is in progress. Current status and future plans will be described.

RC725B • Standards for Quantitative Imaging

David A Clunie MBBS (Presenter) *

LEARNING OBJECTIVES

1) Identify the importance of quantitative imaging principles in the setting of clinical trials. 2) identify the role of standards, including DICOM and others, in the successful application of quantitative imaging principles. 3) Analyze quantitative imaging techniques and apply this knowledge to protocol development in the setting of clinical trials.

RC725C • Clinical and Research Needs for Quantitative Imaging Informatics Tools

Bradley J Erickson MD, PhD (Presenter) *

LEARNING OBJECTIVES

1) Become familiar with the quantitative imaging tools that are available for clinical and research uses. 2) Become familiar with the clinical and research problems that are being addressed by quantitative imaging. 3) Become familiar with the clinical and research problems that might be addressed by quantitative imaging in the near future and how to prepare one's practice for these uses.

ABSTRACT

Quantitative imaging is more than just the measurement of structures in images. It is a new way of approaching diagnosis and therapy assessment. While simple linear measurements might qualify as quantitative imaging, it is important to think of QI in a much broader context. In addition to measuring spatial quantities like length, area, and volume, one can measure image values on functional imaging, which might represent a physiologic value. One can measure textures and edge properties, potentially replacing the "it just looks like it" answer to why an expert can diagnose a certain disease. Measuring change can also be more than just spatial. Spatial change detection is important, of course, and doing it well is a critical component of QI. Measuring change in non-spatial properties is likely to become more important in the future. Finally, while some might believe that genomics will largely replace imaging, there is currently much interest in the use of imaging to provide pervasive and non-destructive prediction of genomic, proteomic, and metabolomic properties that are likely to be of great value to patient care.

Decision Support in Clinical Practice

Thursday, 04:30 PM - 06:00 PM • N226



[Back to Top](#)

RC726 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Co-Moderator

Charles E Kahn, MD, MS *

Co-Moderator

Elizabeth S Burnside, MD, MPH *

LEARNING OBJECTIVES

ABSTRACT

RC726A • CPOE: Radiology Decision Support for the Clinician

Charles E Kahn MD, MS (Presenter) *

LEARNING OBJECTIVES

1) Define decision support systems and their role in radiology. 2) Describe widely used decision support technologies. 3) Explore how radiology decision support systems can improve patient care outcomes.

ABSTRACT

Decision support systems use knowledge -- ranging from books, to web sites, to real-time artificial intelligence systems -- to help physicians improve their decision making. This Refresher Course will review a number of systems that can help radiologists' decision making. We will describe tools for information retrieval and image retrieval, and systems that use rules or probabilities to help identify the most likely diagnosis. We will discuss how evolving technologies provide new ways to integrate advanced decision support into routine clinical practice, and how decision support systems can improve outcomes in patient care.

RC726B • Decision Support in Predicting Diagnosis and Outcomes

Elizabeth S Burnside MD, MPH (Presenter) *

LEARNING OBJECTIVES

1) Understand the potential role of informatics in predicting diagnosis and outcome based on variables derived from imaging. 2) Appreciate the important trade-offs that exist when developing or using predictive models. 3) Learn about the application and critical evaluation of different methodologies that can provide predictive information.

ABSTRACT

RC726C • Quantitative Image Analysis for Image Retrieval, Decision Support, and Knowledge Discovery

Sandy Napel PhD (Presenter) *

LEARNING OBJECTIVES

1) Understand what quantitative image features are and the various ways in which they may be obtained. 2) Understand the concept of image similarity. 3) Understand several ways in which quantitative image features may be used to compute image similarity. 4) Learn about potential applications of quantitative image features, such as content-based image retrieval, decision support, and discovery of relationships between image features and molecular properties of disease.

URL's

http://snapp4.stanford.edu/~snapel/RSNA_QIA_2012.pdf

From Research to Reimbursement: The Story of CT Colonography and What It Teaches Us about Healthcare Payment Policy (In Conjunction with the American College of Radiology) (An Interactive Session)

Thursday, 04:30 PM - 06:00 PM • S103CD



[Back to Top](#)

RC727 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Bibb Allen, MD

James V Rawson, MD

Ezequiel Silva, MD

Robert K Zeman, MD

Geraldine B McGinty, MD

Pamela Kassing

Mark O Bernardy, MD

Timothy A Crummy, MD

LEARNING OBJECTIVES

1) Understand the current process of how reimbursement for new technology is obtained from CPT code development, valuation and coverage. 2) Using CT colonography as an example, the participants will become familiar with the specific processes for obtaining coverage for new technology and procedures in the public and private sectors and how a myriad of governmental agencies and other policymaking groups are involved in determining which new procedures are covered. 3) Understand why obtaining coverage has become the limiting factor in bringing new technology to the mainstream. 4) Interactive techniques will be used to engage the audience in the consideration of strategic partnerships between industry, clinical research, governmental agencies and third party payors.

ABSTRACT

Abdominal MRI Technique Update (An Interactive Session)

Thursday, 04:30 PM - 06:00 PM • E450B

[Back to Top](#)



RC729 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC729A • Respiratory Artifacts in Abdominal MRI: Causes and Cures

Eduard E De Lange MD (Presenter)

LEARNING OBJECTIVES

1) Understand how the characteristics of commonly used abdominal-imaging pulse sequences influence their susceptibility to respiratory artifacts. 2) Explain differences between multi-slice and single-shot pulse sequences. 3) Describe various approaches for suppressing respiratory artifacts. 4) Optimize routine imaging protocols for abdominal MRI.

RC729B • Choosing an MRI Contrast Agent

Jay K Pahade MD (Presenter)

LEARNING OBJECTIVES

1) Provide background of different available MRI contrast agents and their properties. 2) Discuss safety profiles and concepts related to minimizing risk of NSF. 3) Review common indications for different available MRI contrast agents and their relative strengths and weaknesses.

ABSTRACT

RC729C • Optimizing Contrast Enhancement: 2013 and Beyond

Martin R Prince MD, PhD (Presenter) *

LEARNING OBJECTIVES

1) Learn how to perform high temporal resolution dynamic MR Contrast enhanced imaging. 2) Learn post-processing strategies for high temporal resolution MR data. 3) Review applications of high temporal resolution imaging.

ABSTRACT

Leveraging Imaging Informatics to Improve Radiology Education: Beyond the Teaching File (An Interactive Session)

Thursday, 04:30 PM - 06:00 PM • S103AB

[Back to Top](#)



RC730 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator

Marc D Kohli, MD *

RC730A • Simulation Systems in Radiology Education

Kitt Shaffer MD,PhD (Presenter)

LEARNING OBJECTIVES

1) Describe two professional systems that currently use simulation extensively for teaching. 2) List three teaching situations in radiology where simulation could be integrated. 3) Describe three levels of training in radiology where simulation could play a role.

ABSTRACT

This interactive session will explore the role of simulation in all types of professional training outside of radiology, as well as potential educational, training, evaluation and quality improvement settings within radiology where simulation may play a role in the future.

RC730B • Educational Tools for the Next Generation in Radiology

Richard E Sharpe MD, MBA (Presenter)

LEARNING OBJECTIVES

1) Explain factors that are changing the face of radiology education. 2) Contrast the educational tools used by past, present and future generations of radiologists. 3) Describe cutting edge innovative educational tools for diagnostic radiology training.

RC730C • Quality Improvement Tools in Education

Jason N Itri MD, PhD (Presenter)

LEARNING OBJECTIVES

1) Define standards for evaluating the quality of an assessment method. 2) List quality-related educational outcomes for radiology trainees. 3) Describe IT tools that can be used to assess trainee performance and the impact of interventions. 4) Discuss educational and training interventions that improve quality-related outcomes.

ABSTRACT

RC730D • Taking Audience Response to the Next Level

Lonie R Salkowski MD (Presenter)

LEARNING OBJECTIVES

1) Demonstrate the ability to set-up, prepare and incorporate a presentation into an audience response system. 2) Determine methods for exporting and analyzing data from an audience response session. 3) Identify differences of using audience response systems on PC versus Mac platforms. 4) Identify techniques where the audience response system can be applied to active learning environments.

ABSTRACT

This session will demonstrate ways to incorporate audience response devices into learning environments, and assist users how to use the data that is collected behind the scenes within audience response systems.

Common Spinal Injection Procedures for Diagnosis and Treatment of Back Pain (Hands-on Workshop)

Thursday, 04:30 PM - 06:00 PM • E263

[Back to Top](#)



RC731 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

A. Orlando Ortiz, MD, MBA *

John M Mathis, MD, MSc

Chi-Shing Zee, MD

Bassem A Georgy, MD, MSc *

Allan L Brook, MD *

LEARNING OBJECTIVES

1) Describe and demonstrate methods for patient selection, evaluation and technique for Image-guided injection procedures used in spine pain management. 2) These procedures will include epidural steroid injections, nerve root blocks, facet blocks, sacroiliac joint injections, lumbar synovial cyst therapy, radiofrequency

ablations, and discography. 3) Neuroanatomy and how to avoid them. 4) Discuss pertinent anatomy, instruments and pharmacology. 5) These objectives will be accomplished using didactic lectures complemented by procedure videos, supervised hands on lab work with training models and round table case discussions.

ABSTRACT

Neck and back pain complaints are very common in the general population. Radiologists can contribute to the diagnosis and management in patients who are not responding to conservative management. Spine injection procedures can frequently be performed on an outpatient basis with a brief recovery phase. These procedures are performed with imaging guidance, often a multi-directional fluoroscope, in order to correctly localize the specific anatomic sites in or about the spine for diagnostic and or therapeutic needle localization. An understanding of patient selection, indications and contraindications, are paramount to the safety and success of these procedures. The diagnostic and therapeutic potential of these procedures is also facilitated by a thorough evaluation of the spine, with respect to both anatomy and potential pathology, with cross sectional imaging techniques as well as other radiologic tests. Communication of these results between the Radiologist and the spine proceduralist will contribute to optimal patient outcomes.

Managing the Problem Employee

Thursday, 04:30 PM - 06:00 PM • S403B

[Back to Top](#)

PR **LM**

RC732 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

William G Bradley, MD, PhD
Valerie P Jackson, MD
Paul A Craig, JD, RN

LEARNING OBJECTIVES

1) Individual Employee Assessment: How to assess performance issues and distinguish inadequacies in core competencies from behavioral issues that require special intervention. 2) Workgroup Assessment: How to recognize group dynamics that contribute to individual dysfunctional behavior. 3) Individual Employee Intervention: How to lay the foundation for effective intervention with the problem employee. 4) Workgroup Intervention: How to support the workgroup, dislodge barriers to successful communication and improve group dynamics. 5) Managing Disruptive Behavior and Preventing Workplace Violence: Outside Help and Crisis Management: How to recognize danger signs, before problem employee becomes disruptive and poses risk of workplace violence. (This course is part of the Leadership Track)

ABSTRACT

This course will examine how to recognize a problem employee and, once recognized, how to deal with him/her. The primary intention is to recognize a dysfunctional environment and to 'rehabilitate' the problem employee. If that fails, the recommended procedures for terminating a problem employee will be discussed with the objective of minimizing the damage from any subsequent legal action.

MR Imaging-guided Breast Biopsy (Hands-on Workshop)

Thursday, 04:30 PM - 06:00 PM • E260

[Back to Top](#)

MR **BR**

RC750 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Amy D Argus, MD *
Mary C Mahoney, MD *
Laura B Shepardson, MD
Carol H Lee, MD
Simone Schradling, MD
Habib Rahbar, MD
Jiyon Lee, MD
Roberta M Strigel, MD,MS
Sandra Brennan, MBBCh, MSc
Tanya W Stephens, MD
Virginia M Molleran, MD
Lilian Wang, MD
Colleen H Neal, MD *
Amanda Ingram, MD
Vilert A Loving, MD
Kirti M Kulkarni, MD
Andrew Bowman, MD, PhD
Stephen J Seiler, MD
Mary S Newell, MD
Hal D Kipfer, MD

LEARNING OBJECTIVES

1) Establish criteria for MR Image-guided breast biopsy patient selection. 2) Cultivate a working understanding of MR Image-guided biopsy and needle localization instrumentation and implementation. 3) Basic MR Image-guided biopsy and needle localization parameters and requirements for appropriate coil, needle and approach selection. 4) Discuss practice integration issues. 5) Benefits and limitations of availability of MR Image-guided biopsy/needle localization in your practice.

ABSTRACT

This course is intended to provide both basic didactic instruction and hands-on experience in the application of MRI guided breast biopsy and needle localization. Because MRI is having a progressively larger role in the evaluation of breast cancer each year, there has been a tremendous increase in the need for MRI guided biopsy and needle localization of the identified abnormalities, since many of these can only be identified at MRI. This course will be devoted to the understanding and identification of: 1) appropriate patient selection 2) optimal positioning for biopsy 3) target selection and confirmation 4) various biopsy techniques and techniques 5) potential problems and pitfalls

IR Management of Biliary Obstruction: What You Didn't Learn in Fellowship (How-to Workshop)

Thursday, 04:30 PM - 06:00 PM • E261

[Back to Top](#)

IR **GI**

RC751 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Anne M Covey, MD
Roy L Gordon, MD
Eric Reiner, DO *

LEARNING OBJECTIVES

1) Describe an appropriate imaging work up for malignant bile duct obstruction (MBDO). 2) List the indications for percutaneous biliary intervention in the setting of MBDO. 3) Formulate a plan to achieve clinical goal of drainage based on imaging and clinical data. 4) Understand potential complications of biliary drainage in MBDO and their management.

ABSTRACT

BILIARY COMPLICATIONS FOLLOWING ORTHOTOPIC LIVER TRANSPLANTATION Roy Gordon MD, Interventional Radiology, University of California, San Francisco
Transplant patients are different for a number of reasons as listed below: ♦Most liver transplant patients have benign disease and a potential for long-term survival
♦Resources (livers and financial) are limited, so every effort must be made to salvage the transplanted liver
♦Immunosuppression alters both response to infection and the healing process Participants in this course will learn about the incidence, nature and management of biliary complications following liver transplantation both from the diagnostic and the therapeutic approach. The following questions will be addressed: 1. Should bile leaks be treated surgically or non-operatively?
2. Should anastomotic strictures be treated surgically or dilated?
3. How should non-anastomotic strictures be managed? In addition some other biliary problems in the liver transplant recipient will be presented detailing diagnosis and management
♦Bile duct filling defects
♦Sphincteric dysfunction
♦Mucocoeal of cystic duct remnant
♦Problems related to split livers (living donors) **PERCUTANEOUS INTERVENTION IN MALIGNANT BILIARY OBSTRUCTION -- ANNE COVEY MD FSIR INDICATIONS FOR BILIARY DRAINAGE**

1. Biliary sepsis

2. Intractable pruritus
3. Lower bilirubin for chemotherapy
4. Biliary diversion (leak)
5. ? Improve QOL

INDICATION FOR PERCUTANEOUS DRAINAGE MBO

1. Failed endoscopy
2. High obstruction
3. Obstructed Roux loop
4. Access for additional therapies (stone removal, dilation, brachytherapy)

PRE PROCEDURE WORK UP IMAGING

1. Obstructive vs. non obstructive jaundice
2. Level of obstruction
3. Portal vein status
4. Atrophy
5. Parenchymal lesions
6. Ascites
7. Liver anatomy

LABS

1. Platelet count
2. INR
3. LFTs

PROCEDURE ISSUES

1. Right vs left drain
2. Atrophy/portal vein compromise
3. Ascites
4. Catheter vs stent

Techniques for Interventional Sonography and Thermal Ablation (Hands-on Workshop)

Thursday, 04:30 PM - 06:00 PM • E264

US IR

[Back to Top](#)

RC752 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Andrew J Rabe, DO
 William E Shiels, DO *
 Howard T Harcke, MD
 Veronica J Rooks, MD
 John M Racadio, MD *
 John D Lane, MD
 Corrie M Yablon, MD
 James S Donaldson, MD
 Linda J Warren, MD
 Hisham A Tchelepi, MD
 Neil T Specht, MD
 Mahesh M Thapa, MD
 Kristin M Dittmar, MD
 Nicholas A Zumberge, MD *
 James W Murakami, MD
 Neil D Johnson, MD *
 Stephen C O'Connor, MD

LEARNING OBJECTIVES

1) Identify basic skills, techniques, and pitfalls of freehand invasive sonography. 2) Discuss and perform basic skills involved in thermal tumor ablation in a live learning model. 3) Perform specific US-guided procedures to include core biopsy, abscess drainage, vascular access, cyst aspiration, soft tissue foreign body removal, and radiofrequency tumor ablation. 4) Incorporate these component skill sets into further life-long learning for expansion of competency and preparation for more advanced interventional sonographic learning opportunities.

ABSTRACT

Advanced Image Analysis, including Applications such as Automated Stent Planning and Multimodality Image Fusion and Treatment Planning (Hands-on Workshop)

Thursday, 04:30 PM - 06:00 PM • S401CD

IN

[Back to Top](#)

RC753 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Gary J Wendt, MD, MBA *

LEARNING OBJECTIVES

1) To get hands-on experience using 3D / 4D tools to process huge data sets, specifically multislice CT and MR using data sets. 2) How to effectively deal with the following data: CT and MR angiograms, perfusion, and bone. 3) Getting hands on experience using 3D / 4D tools to process data in near realtime. 4) Introduce the basic 3D tools that are available and how they can be used both within radiology as well as how they apply to referring clinicians.

ABSTRACT

This course will focus on how to get hands-on experience using 3D / 4D tools to process huge data sets, specifically multislice CT and MR using data sets. How to effectively deal with the following data: CT and MR angiograms, perfusion, and bone. It will also focus on providing hands on experience using 3D / 4D tools to process data in near realtime for emergencies like stroke work-up. It will also introduce the basic 3D tools that are available and how they can be used both within radiology as well as how they apply to referring clinicians

Using RADIANCE for CT Dose Monitoring and Quality Assurance: A Hands-on Course

Thursday, 04:30 PM - 06:00 PM • S401AB

QA IN

[Back to Top](#)

RC754 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Tessa S Cook, MD, PhD
 Adam H Kaye, MD
 William W Boonn, MD *

LEARNING OBJECTIVES

1) Download and install RADIANCE. 2) Configure RADIANCE for their facility. 3) Set up RADIANCE to query and retrieve dose sheets automatically from PACS or another archive. 4) Use the RADIANCE reporting tools to review their institutional dose data. 5) Export dose data from RADIANCE for custom analysis using a spreadsheet or database.

ABSTRACT

RADIANCE is a freely-available, open source software packaged designed to facilitate dose monitoring, dose reporting and quality assurance for computed tomography (CT) examinations. It uses optical character recognition (OCR) to extract structured data from the image-based dose sheets that have been and continue to be produced by CT scanners worldwide. The structured data is parsed and useful dose-related parameters are extracted, including the x-ray tube voltage (kV), x-ray tube current (mA), volumetric CT dose index (CTDIvol) and dose-length product (DLP). In addition, information about the patient, type of study, scanner and performing institution are obtained from the DICOM study header. This aggregate of dose and exam data is stored in a relational database which can be used to perform quality assurance measures. Using the RADIANCE dashboard and scorecards, facilities can closely monitor their dose data,

generate monthly reports for individuals and administrators, identify and investigate outliers and evaluate dose reduction and protocol optimization measures. With the development of radiation dose structured reports (RDSRs or Dose SRs), which are generated by newer scanners, facilities can participate in the American College of Radiology's Dose Index Registry (DIR). However, sites without the newest scanners or latest firmware, or those whose scanners will not be updated, can use RADIANCE to generate an RDSR from legacy (i.e., image-based) dose sheets and automatically send it to the DIR. Participants in this hands-on course will learn how to install and configure RADIANCE for optimal use at their facilities.

URL's
<http://www.radiancedose.com>

Waiting to Exhale: What's the Latest with Inhalation Lung Diseases?

Friday, 08:30 AM - 10:00 AM • N230

CT **CH**

[Back to Top](#)

RC801 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC801A • Smoking Related Lung Disease

Jeffrey P Kanne MD (Presenter) *

LEARNING OBJECTIVES

1) Identify immunologic reactions to cigarette smoke in the lungs. 2) Describe the histopathologic features of smoking-related lung disease. 3) Illustrate the high-resolution CT findings of smoking-related lung disease.

RC801B • Hypersensitivity Pneumonitis

Justus E Roos MD (Presenter)

LEARNING OBJECTIVES

1) To review the most common clinical manifestations of hypersensitivity pneumonitis. 2) To demonstrate the range of histologic features of hypersensitivity pneumonitis and correlate them with radiologic findings. 3) To illustrate abnormalities indicative of hypersensitivity pneumonitis and their differential considerations at chest radiographs and CT.

ABSTRACT

RC801C • Occupational Lung Disease

Jonathan H Chung MD (Presenter) *

LEARNING OBJECTIVES

1) List at least 3 common and 3 uncommon occupational lung diseases. 2) Briefly describe the prevalence and background of occupational lung diseases. 3) Describe and recognize the imaging manifestations of occupational lung diseases. 4) Describe the thoracic complications of occupational inhalational exposure.

ABSTRACT

RC801D • Aspiration

Santiago E Rossi MD (Presenter) *

LEARNING OBJECTIVES

1) Discuss the most common risk factors, clinical manifestations and implications of aspiration. 2) Review the radiographic and both common and atypical CT findings of aspiration pneumonia including aspiration of solid foreign bodies and aspiration of liquids such as infectious material, gastric acid, partially digested food, lipid aspiration and chronic.

ABSTRACT

How to Be the Speaker Everyone Wants You to Be (An Interactive Session)

Friday, 08:30 AM - 10:00 AM • E353B

PR **ED**

[Back to Top](#)

RC802 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Jannette Collins, MD, MEd

LEARNING OBJECTIVES

1) Apply adult learning principles. 2) Demonstrate effective presentations skills.

ABSTRACT

Effectiveness of an oral presentation depends on the ability of the speaker to communicate with the audience. An important part of this communication is focusing on two to five key points and emphasizing those points during the presentation. Every aspect of the presentation should be purposeful and directed at facilitating learners' achievement of the objectives. This necessitates that the speaker has carefully developed the objectives and built the presentation around attainment of the objectives. A presentation should be designed to include as much audience participation as possible, no matter the size of the audience. Techniques to encourage audience participation include questioning, brainstorming, small-group activities, role-playing, case-based examples, directed listening, and use of an audience response system. It is first necessary to motivate and gain attention of the learner for learning to take place. This can be accomplished through appropriate use of humor, anecdotes, and quotations. This course will review adult learning principles and effective presentation skills.

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URL's

<http://med.uc.edu/radiology/facstaff/collj4/index.html>

Interactive Game: Read with the Experts (Cardiac Radiology)

Friday, 08:30 AM - 10:00 AM • E353A

CA

[Back to Top](#)

RC803 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator

Jill E Jacobs, MD

Frank J Rybicki, MD, PhD *

Satinder P Singh, MD

Sanjeev Bhalla, MD

Jacobo Kirsch, MD

LEARNING OBJECTIVES

1) To illustrate common cardiac pathologies encountered in noninvasive imaging. 2) To review imaging protocols designed to best depict cardiac pathology. 3) To review image post-processing tools to render cardiac imaging findings for interpretation and communication with referring clinicians. This interactive session will use RSNA Diagnosis Live. Please bring your charged mobile wireless device (phone, tablet or laptop) to participate.

ABSTRACT

This session will include live reads with experts in cardiac radiology to meet the learning objectives. Specific cases and clinical scenarios will be presented to best

No Course RC804. See Series VSMK61 Musculoskeletal Radiology Series: Elbow, Hand and Wrist Imaging

Friday, 08:30 AM - 10:00 AM

[Back to Top](#)

RC804

Brain Aneurysms

Friday, 08:30 AM - 10:00 AM • N227

[Back to Top](#)



RC805 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC805A • Diagnostic Evaluation of Brain Aneurysms

Juan P Villablanca MD (Presenter)

LEARNING OBJECTIVES

The course will review the relative strengths and limitations of current imaging techniques for the detection and follow-up of patients with symptomatic and asymptomatic cerebral aneurysms. A practical strategy for image review and analysis will be provided that ensures complete lesion characterization and minimizes operator error. A rubric for the analysis of the pre- and post-operative aneurysm patients will also be presented with an emphasis on a practical clinical approach. A brief natural history and modality based literature review will also be provided.

ABSTRACT**RC805B • Intervention for Brain Aneurysms**

Steven W Hetts MD (Presenter) *

LEARNING OBJECTIVES

1) Discuss the current endovascular interventional approaches to both ruptured and unruptured brain aneurysm treatment. 2) Critically evaluate recent clinical trial results regarding interventional brain aneurysm treatment. 3) Appreciate the limitations to endovascular brain aneurysm treatment using current technologies. 4) Understand that cerebral vasospasm is the leading cause of mortality and morbidity for hospitalized patients with aneurysmal subarachnoid hemorrhage, and appreciate current approaches to treating vasospasm.

ABSTRACT**RC805C • The Neurointerventional Suite of the Future**

Charles M Strother MD (Presenter) *

LEARNING OBJECTIVES

1) To understand the basic concepts behind selection of patients for revascularization based on physiologic criteria. 2) To understand the capabilities of measuring brain perfusion using C-arm CT. 3) To appreciate the potential value of using a single modality environment for the diagnosis, triage and treatment of patients with an acute ischemic stroke.

Sinonasal Imaging

Friday, 08:30 AM - 10:00 AM • S406B

[Back to Top](#)



RC806 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

LEARNING OBJECTIVES**RC806A • Anatomy and Developmental Problems**

C. Douglas Phillips MD (Presenter) *

LEARNING OBJECTIVES

1) Understand the normal embryology of the sinonasal cavity. 2) Recognize the appearance of developmental lesions of the sinonasal cavity. 3) Understand the strengths and weaknesses of CT and MR in evaluation of common developmental abnormalities of the sinonasal region.

ABSTRACT

There is a wide spectrum of maldevelopmental lesions of the midface and sinonasal cavity. Understanding the normal embryology of the face and sinuses help clarify the pathology visualized, and allows them to be segmented and characterized. The complex interplay of the sinonasal cavity and anterior fossa during development of the fetus must be understood. Imaging of the sinuses and anterior fossa are required on discovery of these complex midfacial lesions to give the surgeon clear understanding of the repair required. This talk will discuss the range of anterior fossa and sinonasal maldevelopmental lesions from choanal stenosis to encephaloceles.

RC806B • Sinonasal Infections and Inflammation

Patricia A Hudgins MD (Presenter) *

LEARNING OBJECTIVES

1) Understand the pathophysiology of sinus inflammatory diseases and the rationale for FESS. 2) Learn and understand the surgical anatomy and anatomic variants of the sinonasal cavity, and be able to apply this knowledge such that an organized sinus dictation can be developed. 3) Know the CT and MR Imaging findings of sinonasal bacterial and fungal, both invasive and non-invasive infections.

ABSTRACT

The most important goal of sinus CT imaging in the patient with sinusitis or a history of repeat or prolonged sinus infections is to analyze each sinus outflow tract to determine whether there is an anatomic and surgically correctable cause for sinus cavity obstruction. While the description 'ostioameatal complex' has been popularized, the term oversimplifies CT analysis, and instead each sinus cavity should be individually assessed. This session will review the normal anatomy of each sinus outflow tract in coronal, axial and sagittal planes, and present the common correctable causes of ostial stenosis. Imaging findings of bacterial sinusitis will be presented, with a description of potential complications of severe infection. Invasive and non-invasive fungal sinonasal infection will be contrasted and compared, as the imaging findings are markedly different.

RC806C • Sinonasal Masses

Michelle A Michel MD (Presenter) *

LEARNING OBJECTIVES

1) Discuss the role of imaging in evaluating sinonasal neoplasms. 2) Describe the risk factors and histologic classification of sinonasal malignancies. 3) Demonstrate the imaging features of a variety of sinonasal neoplasms. 4) Review staging, treatment, and prognosis of sinonasal neoplasms.

ABSTRACT

Although sinonasal malignancies are rare and they account for less than 1% of cancer deaths in western countries, these tumors arise in a complex anatomic location and are histologically diverse. In addition to new histologic and clinical classifications, the last decade has brought new insights into the etiological risk factors, tumor biology, and therapeutic options of these lesions. Sinonasal malignancies have a relatively poor prognosis and many present at an advance stage due to delay in diagnosis. Diagnosis may be delayed because the presenting symptoms often mimic those of chronic rhinosinusitis, they generally present with little pain, and there is space for tumor growth within the sinus lumen. Epithelial tumors account for the majority of sinonasal malignancies and squamous cell carcinoma is the most common. Additional epithelial neoplasms include adenocarcinoma and adenoid cystic carcinomas Soft tissue tumors of the nasal cavity and paranasal sinuses are uncommon and include rhabdomyosarcoma, hemangiopericytoma, and other very rare forms. Malignancies of bone and cartilage

include osteosarcoma, chondrosarcoma, malignant giant cell tumor, and Ewing sarcoma. Additional neoplasms such as esthesioneuroblastoma, mucosal melanoma, and lymphomas are uncommon, but may have characteristic features that help to distinguish them from other lesions. CT and MR are the modalities of choice for imaging neoplasms of the sinonasal cavities and their roles are often complementary. CT demonstrates bony remodeling or destruction, identifies intratumoral calcification, demonstrates the matrix of cartilaginous and osseous neoplasms, and delineates obstruction of sinus drainage pathways. MR imaging is superior for distinguishing tumor margins from obstructed secretions; for delineating extension of tumor into the infratemporal fossa, orbit, and intracranial cavities; for detecting perineural tumor spread; and for demonstrating the vascularity of neoplasms.

Imaging and Treating Gynecologic Cancer 2013: What Really Works and What Is Most Cost Effective

Friday, 08:30 AM - 10:00 AM • N226

[Back to Top](#)

OI **OB** **GU**

RC807 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

LEARNING OBJECTIVES

RC807A • What Really Works: Overview of Imaging Procedures and Algorithm for Staging Gynecology

Julia R Fielding MD (Presenter)

LEARNING OBJECTIVES

1) To review the appearance of gynecologic cancer on CT, PET and MR images. 2) To determine when and why radiologic staging is necessary. 3) To show an algorithm that meets the needs of surgical and radiation oncology colleagues.

ABSTRACT

Staging gynecologic malignancies has evolved over the years to include multi-modality imaging. Although the official international standards (FIGO) allow for cross sectional imaging in some cases, examination under anesthesia remains the mainstay of diagnosis. In experienced hands and with the addition of biopsy results, manual staging of cervical cancer is excellent, while endometrial cancers are often understaged. It is now routine to stage advanced ovarian cancer with CT scans. The goal of this course is to impart 1) best imaging practices based on ACR guidelines, 2) review cost effectiveness of current staging algorithms and new imaging techniques and 3) show the important interactions required between radiology and radiation oncology to provide state of the art care.

RC807B • Radiology Findings: Impact on Radiation Therapy

Nina A Mayr MD (Presenter)

LEARNING OBJECTIVES

1) To review current types of radiation therapy in use for gynecologic cancer. 2) To show the essential anatomic information required from imaging tests. 3) To demonstrate the value of functional and/or fused imaging in radiation therapy.

RC807C • What Does It Cost? Appropriate Use of Imaging Technology

Katarzyna J Macura MD, PhD (Presenter) *

LEARNING OBJECTIVES

1) To assess the appropriateness of utilization of imaging modalities in the work-up of women with gynecologic malignancies. 2) To discuss the cost of imaging technologies and oncologic outcome optimization.

Emergency Radiology Case-based Countdown (An Interactive Session)

Friday, 08:30 AM - 10:00 AM • E353C

[Back to Top](#)

ER **MK** **GI** **CH**

RC808 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC808A • Thoracic Top 10 Countdown

Faisal Khosa FFRRCSI, FRCPC (Presenter)

LEARNING OBJECTIVES

The audience will be shown cases with acute presentations in the ER, the format will be interactive utilizing audience response system. At the end of the session the participants will be able to efficiently deal with complex situations presenting as acute emergency in the ER with resultant improved patient care.

2.

ABSTRACT

The Top 10 countdown will comprise of interactive audience response system in which 10 unknown Thoracic emergencies will be presented. The salient features of the cases would be illustrated along with more complex imaging modalities and possible differential diagnoses where appropriate.

RC808B • Abdominal Top 10 Countdown

Joel A Gross MD, MS (Presenter)

LEARNING OBJECTIVES

1) Select among varying imaging techniques to optimize the appropriate study for the patient. 2) Recognize classic and subtle signs of radiologic pathology, and avoid some common pitfalls and errors.

ABSTRACT

The Abdominal Top 10 Countdown is an interactive audience response based presentation in which 10 unknown abdominal cases from the emergency department will be presented. The participants are encouraged to interact with the cases. The salient features of the cases are then illustrated along with more complex imaging modalities, if appropriate. The interactive nature will challenge the learners' skill and knowledge applications.

RC808C • Musculoskeletal Top 10 Countdown

Manickam Kumaravel MD, FRCR (Presenter)

LEARNING OBJECTIVES

1) Analyze varying imaging techniques and will be able to apply this knowledge to improve effective patient care. 2) Be proficient in scrutinizing subtle radiographic signs in musculoskeletal presentations in the emergency department and in understanding the use of more complex imaging techniques to ascertain the underlying pathology.

ABSTRACT

The Top 10 countdown is an interactive audience response based system in which 10 unknown Musculoskeletal cases from the emergency room will be presented. The participants are encouraged to interact with the cases. The salient features of the cases are then illustrated along with more complex imaging modalities, if appropriate. The interactive nature will challenge the learners' skill and knowledge applications.

Gastrointestinal: Imaging the Obese Patient (An Interactive Session)

Friday, 08:30 AM - 10:00 AM • S402AB

[Back to Top](#)

GI

RC809 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC809A • Challenges and Solutions in Imaging the Obese Patient

Rajan T Gupta MD (Presenter) *

LEARNING OBJECTIVES

1) Identify and understand the challenges in imaging the obese patient. 2) Determine how to alter CT parameters in order to optimize imaging in this patient population. 3) Explore the other imaging modalities that can be used to detect and characterize disease processes in the obese patient.

ABSTRACT

RC809B • Bariatric Surgery I: Overview and Roux-En-Y Gastric Bypass

Courtney A Coursey MD (Presenter) *

LEARNING OBJECTIVES

1) Describe indications for bariatric surgery. 2) Identify expected post-operative changes following bariatric surgical procedures. 3) Identify complications following bariatric surgical procedures.

RC809C • Bariatric Surgery II: Laparoscopic Gastric Banding

Christine O Menias MD (Presenter)

LEARNING OBJECTIVES

1) Familiarize the Radiologist with the Laparoscopic Gastric Band Apparatus. 2) Understand normal post procedure imaging of Laparoscopic Gastric Band. 3) Recognize potential complications with imaging.

Right Upper Quadrant Ultrasound

Friday, 08:30 AM - 10:00 AM • E351

US **OR** **GI**

[Back to Top](#)

RC810 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC810A • Sonography of Focal Liver Lesions

Mitchell E Tublin MD (Presenter)

LEARNING OBJECTIVES

1) Describe a practical approach for the characterization of liver lesions at ultrasound. 2) Illustrate useful imaging features of typical and atypical hemangiomas. 3) Demonstrate the potential use of ultrasound contrast agents for liver mass characterization.

ABSTRACT

Despite improvements in ultrasound technology, the approach to characterization of liver lesions at ultrasound has changed little over the past thirty years. A recommendation for further evaluation by either MRI or CECT is typically given, though in many cases, the ultrasound features (in combination with clinical history) are sufficient for diagnosis. Microbubble contrast agents may improve ultrasound diagnostic specificity in the near future.

RC810B • Liver Elastography

Thomas H Grant DO (Presenter)

LEARNING OBJECTIVES

1) What are these techniques. 2) When should they be used. 3) How effective are they. 4) Future innovations.

ABSTRACT

Noninvasive assessment of liver fibrosis is challenging given that chronic liver disease affects hundreds of million patients worldwide. Fibrosis is reversible with effective intervention. Therefore an effective, relatively fast method to detect fibrosis is essential.

RC810C • Gallbladder and Biliary Disease

Anthony E Hanbidge MBBCh (Presenter)

LEARNING OBJECTIVES

1) Discuss the value of ultrasound when evaluating the gallbladder and bile ducts. 2) Identify the imaging features of acute conditions of these structures and complications. 3) Recognize common pitfalls to avoid misinterpretation. 4) Describe other conditions of the gallbladder and bile ducts including adenomyomatosis, sclerosing cholangitis, gallbladder cancer and cholangiocarcinoma.

Advances and Updates in SPECT/CT

Friday, 08:30 AM - 10:00 AM • S504CD

NM **CT**

[Back to Top](#)

RC811 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC811A • SPECT/CT in Musculoskeletal Diseases

Christopher J Palestro MD (Presenter)

LEARNING OBJECTIVES

1) Describe the role of SPECT/CT in the workup of patients with malignancy. 2) Describe the role of SPECT/CT in musculoskeletal infection. 3) Use SPECT/CT to improve the accuracy of radionuclide studies for diagnosing musculoskeletal diseases.

ABSTRACT

RC811B • SPECT/CT in Endocrine Disorders and Others

Don C Yoo MD (Presenter)

LEARNING OBJECTIVES

1) Discuss the advantages of SPECT/CT for the evaluation of endocrine disorders. 2) Discuss the limitations of SPECT/CT for the evaluation of endocrine disorders. 3) Discuss the impact of SPECT/CT on management in patients with endocrine disorders.

No Course RC812. See Series VSVA61 Vascular Imaging Series: MR Angiography-Principles and Technique Optimization

Friday, 08:30 AM - 10:00 AM

RC812

[Back to Top](#)

Chest/Cardiovascular Imaging II

Friday, 08:30 AM - 10:00 AM • N229

PD **CH**

[Back to Top](#)

RC813A • Pitfalls and Errors in Pediatric Thoracic Imaging

George A Taylor MD (Presenter)

LEARNING OBJECTIVES

- 1) Understand the common sources of error in pediatric thoracic imaging.
- 2) Demonstrate understanding of the influence of biases on the diagnostic process.
- 3) Analyze image viewing techniques and apply them to strategies for improving image interpretation.

ABSTRACT

The goal of this presentation is to describe common patterns and potential etiologies of diagnostic error in pediatric thoracic imaging identified over a 13-year experience at a large academic children's hospital. Errors are defined as a diagnosis that was delayed, wrong or missed; they are classified as perceptual, cognitive, system-related or unavoidable. Perceptual errors were the most common type of error, defined as a diagnostic finding that is noticeable but missed. Cognitive contributors to perceptual errors will be discussed, including the role of search satisfaction, visual distractors, and visual isolation. Cognitive errors were defined as faulty information processing, related to overinterpretation of an imaging finding, misinterpretation of a finding or failure to consider a different diagnosis for a given finding [premature closure]; faulty data gathering (poorly performed imaging examination, inadequate review of patient history or lack of consideration of a patient's underlying condition), or insufficient knowledge base. The presentation will also discuss a number of cognitive biases that subconsciously affect our ability to effectively reach the right diagnosis. These will include examples of availability heuristics (memory of a similar case), framing effect (how data are presented), the anchoring heuristic (premature closure), the reluctance to confront authority (blind obedience), and reader overconfidence. Finally, we will review organizational errors in which systems issues such as faulty medical history and inefficient processes contribute to diagnostic errors in the chest. The presentation will suggest strategies for systematic and individual improvement.

RC813B • Back to Basics: Radiography of the Pediatric Chest

Robert H Cleveland MD (Presenter) *

LEARNING OBJECTIVES

- 1) Review strategies to improve diagnostic accuracy in interpreting chest radiographs.
- 2) Enhance confidence for NOT obtaining follow-up CT.
- 3) Increase appreciation of when follow-up CT is needed.

ABSTRACT

In this session, we will review the role of the chest x-ray (CXR) in the era of high tech imaging. Specifically the need to re-establish a sense of confidence in interpreting CXR will be addressed. Situations where a confident interpretation of the CXR obviates the need for CT will be stressed as well as those where the CXR clearly requires CT follow-up. The need to "image gently", following ALARA, guidelines is now widely accepted in pediatric radiology and is growing in acceptance in adult imaging. In our department (Boston Children's Hospital) this has lead to a 24% decrease in CT volume between 2006 and 2010. This in turn, means that a need for an increased nuanced approach to interpreting CXR is required. Specific recommendations to increase the accuracy in interpreting CXR will be discussed. As the indications for a high percentage of CXR in pediatrics are nonspecific, the need to constantly be vigilant regarding unexpected and uncommon conditions will be stressed. Particular attention will be paid to the broad range of conditions related to wheezing (or noisy breathing) and dyspnea including airway obstruction and interstitial lung disease. The increasing incidence of complications in pediatric community acquired pneumonia and the appropriate role of CXR in that situation will also be discussed.

RC813C • Advanced Imaging of the Pediatric Chest

Mantosh S Rattan MD (Presenter)

LEARNING OBJECTIVES

- 1) Introduce the ChILD (Children's Interstitial Lung Disease) Research Cooperative classification for pediatric diffuse lung disease.
- 2) Discuss imaging techniques in children with diffuse lung disease.
- 3) Review imaging features of specific disorders in the ChILD spectrum.

No Course RC814. See Series VSIR61 Interventional Radiology Series: Top 5 Complications in Interventional Oncology - Avoidance, Recognition and Management

Friday, 08:30 AM - 10:00 AM

[Back to Top](#)

RC814

Clinical Breast MR Imaging (An Interactive Session)

Friday, 08:30 AM - 10:00 AM • E450A

[Back to Top](#)



RC815A • Breast MRI: Suspicious Lesions

Christiane K Kuhl MD (Presenter) *

LEARNING OBJECTIVES

- 1) To review breast MR imaging features used to distinguish suspicious from benign lesions.
- 2) To understand the appropriate use of the ACR Breast MR lexicon.
- 3) To review the management of suspicious breast MR findings.

ABSTRACT

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RC815B • Breast MRI: BI-RADS 3

Christopher E Comstock MD (Presenter)

LEARNING OBJECTIVES

- 1) Understand appropriate use of the ACR BI-RADS in MR Interpretation.
- 2) Review interesting cases using BI-RADS lexicon.

RC815C • MR-guided Biopsy

Carol H Lee MD (Presenter)

LEARNING OBJECTIVES

- 1) To review technical considerations in MR guided biopsy.
- 2) To discuss potential pitfalls associated with MR biopsy and how to handle them.
- 3) To understand appropriate post-biopsy management and follow-up.

ABSTRACT

Radiology in the Developing World: Mistakes Made, Lessons Learned, What's Next? (Sponsored by the RSNA Committee on International Radiology Education)

Friday, 08:30 AM - 10:00 AM • S404AB

[Back to Top](#)



**Coordinator
William W Mayo-Smith, MD ***

RC816A • RSNA Committee on International Radiology Education: How We Can Help

Teresita L Angtuaco MD (Presenter) ; **William W Mayo-Smith** MD (Presenter) *

LEARNING OBJECTIVES

1) Improved ability to participate in or develop global radiology projects. 2) Understand available resources and types of organizations involved in global radiology. 3) Create a viable framework for global radiology incorporating the multifactorial implementation challenges. 4) Develop global radiology strategies that maximize sustainability and scalability.

ABSTRACT

RC816B • Political Challenges and Ethical Practices

Kristen K DeStigter MD (Presenter) *

LEARNING OBJECTIVES

1) Describe the ethical considerations associated with setting up a global imaging project. 2) Discuss the political challenges that may be encountered when designing and implementing a global imaging endeavor. 3) Understand the cultural factors that play into the political and ethical challenges.

RC816C • Involving Radiologists on the Ground: Dealing with Competing Incentives

Marc D Kohli MD (Presenter) *

LEARNING OBJECTIVES

1) Identify challenges particular to providing radiology service in a resource-constrained setting. 2) Explain how partnerships and bi-directional exchange can be used to address these challenges.

ABSTRACT

RC816D • Creating a Remote Digital Department: Funding Is the Easy Part

Jeffrey B Mendel MD (Presenter) *

LEARNING OBJECTIVES

1) Improve ability to participate in or develop global radiology projects. 2) Understand available resources and types of organizations involved in global radiology. 3) Create a viable framework for global radiology incorporating the multifactorial implementation challenges. 4) Develop global radiology strategies that maximize sustainability and scalability.

ABSTRACT

RC816E • Strategies For Sustainability and Scalability of Radiology in Developing Countries: Lessons Learned from RAD-AID's Radiology-Readiness Model

Daniel J Mollura MD (Presenter)

LEARNING OBJECTIVES

1) Describe evidence of radiology needs in limited-resource regions. 2) Describe how data collection and analysis can help radiology planning in developing world. 3) Provide examples showing that projects planned from data analysis can increase long term effectiveness of radiology services in the developing world.

ABSTRACT

The World Health Organization (WHO) reports that 50-70% of the world's population has inadequate or no access to medical imaging, such as radiography, ultrasound and mammography. This disparity has contributed to inadequate health care among poor populations, such as for women's health (breast cancer screening and maternal infant health), HIV-related disease, Tuberculosis, cancer, heart disease, and trauma, because these diseases often require radiology for diagnosis and care. To address this worldwide problem, multidisciplinary approaches should be optimized to include economic development, health care system evaluation, technology innovation, clinical education, and technical training. Projects developed on this model can increase targeted effectiveness for long term radiology services by implementing programs that specifically meet measured needs and can be monitored for outcomes. Moreover, data collection and analysis of radiology needs should ideally encompass these multidisciplinary areas in order to clearly target the highest yield areas for intervention given the infrastructure, economic context, referral pathways, and epidemiological disease patterns. By scaling this model for diverse regions based on interdisciplinary teams and methods, radiology services in the developing world can address shortages and decrease global health care disparities.

Essentials of Molecular Imaging

Friday, 08:30 AM - 10:00 AM • S505AB



[Back to Top](#)

RC817 • AMA PRA Category 1 Credit™: 1.5 • ARRT Category A+ Credit: 1.5

Moderator

Steven M Larson, MD *

RC817A • Molecular Imaging as a Guide for Better Cancer Therapies

Steven M Larson MD (Presenter) *

LEARNING OBJECTIVES

1) The participants will learn the definition of \diamond theranostic \diamond radiotracer. 2) The participants will learn the role of MEK in non-avid thyroid cancer. 3) The participants will learn why expression of Prostate Specific Membrane antigen (PSMA) offers potential for improved diagnosis and therapy of prostate cancer. 4) The participants will learn the contribution of radioactive nanoparticles both now and in the future for staging and drug delivery.

RC817B • Pediatric Molecular Imaging

Heike E Daldrop-Link MD (Presenter)

LEARNING OBJECTIVES

1) To understand advantages and limitations of radiation-free whole body diffusion MRI techniques for tumor staging in children. 2) To recognize the value of immediately clinically applicable iron oxide nanoparticles for tumor staging and tumor characterization in pediatric patients. 3) To learn about clinically relevant PET/MR applications in pediatric patients.

ABSTRACT

Pediatric Molecular Imaging

How much does Molecular Imaging matter in our clinical environment? Molecular Imaging spurs the discovery of fundamentally new targets for imaging diagnoses, thereby leading to new knowledge and new concepts that substantially advance our approach to detecting, characterizing and treating disease. Translational molecular imaging approaches are increasingly integrated into the clinical care of adult patients, but applications in pediatric patients are still limited due to safety considerations and regulatory and administrative hurdles. The clinical need for more specific information along with the success of molecular imaging techniques in adult patients will ultimately penetrate into pediatric applications. New, child-adapted molecular imaging approaches are currently utilized to improve our knowledge of the biology of pediatric diseases, and to support personalized diagnostic and therapeutic approaches. This presentation will show three immediately clinically applicable molecular imaging applications for pediatric patients: (1) Novel approaches for radiation-free whole body staging, (2) Improved tumor characterization with clinically approved iron oxide nanoparticles and (3) clinically relevant MR/PET applications in pediatric patients. Further developments aim to integrate the advantages of multi-modality molecular imaging tools towards more comprehensive and quantitative diagnoses that can direct early decision making, guide individualized clinical care procedures, and ultimately, accelerate and improve positive treatment outcomes.

RC817C • Molecular Imaging of Breast Cancer: Clinical and Biologic Insights

David A Mankoff MD, PhD (Presenter)

LEARNING OBJECTIVES

1) Review breast cancer clinical and biologic concepts relevant to treatment. 2) Discuss how molecular imaging may be used to guide targeted breast cancer therapy. 3) Describe future directions in breast cancer biomarker imaging.

ABSTRACT

This talk will review molecular imaging in the context of current knowledge of breast cancer biology and the increasing trend towards individualized and targeted breast cancer therapy. The discussion will emphasize molecular imaging, especially PET, and biomarker applications to guide treatment selection. Insights gained into the in vivo biology of breast cancer from quantitative molecular imaging will also be discussed.

RC817D • New Tools and Targets for Molecular Imaging

Martin G Pomper MD, PhD (Presenter) *

LEARNING OBJECTIVES

1) Discuss emerging molecular imaging agents. 2) Discuss new targets for molecular imaging. 3) Focus on translation of molecular imaging agents to the clinic.

ABSTRACT

We will discuss how one goes about identifying a suitable target for molecular imaging and then actually generates the imaging agent - for a variety of modalities, whichever is appropriate to answer the question at hand. There will be a focus on clinical translation and discussion of combined diagnostic/therapeutic (theranostic) agents.

Techniques for Quantitative Cancer Imaging: Current Status

Friday, 08:30 AM - 10:00 AM • S404CD

[Back to Top](#)

RO **OI** **BQ**

RC818 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC818A • Computed Tomography

Binsheng Zhao DSc (Presenter)

LEARNING OBJECTIVES

1) Familiarize the audience with conventional CT response assessment methods and their limitations, especially in the era of new drug development. 2) Provide examples of modified RECIST methods in several types of cancers. 3) Raise awareness of the need to re-evaluate RECIST guidelines and establish new response assessment criteria based on tumor volume and density changes. 4) Discuss the effects of CT imaging parameters on tumor measurement and the importance of standardizing an imaging acquisition protocol in response assessment.

ABSTRACT

Computed tomography (CT) has been widely used in assessing tumor response to therapy. This refresher course will familiarize the audience with conventional response assessment methods and their limitations, especially at a time of target drug development. Potential improvements will be discussed, including re-evaluating the RECIST (Response Assessment Criteria in Solid Tumors) guidelines and establishing new response assessment criteria based on tumor volume and density changes on CT. Several examples of modified RECISTs for lymphoma, mesothelioma, hepatocellular carcinoma (HCC) and gastrointestinal stromal tumor (GIST) will be provided. Last but not least, measurement variability will be addressed and the importance of standardizing an imaging acquisition protocol in oncologic response assessment will be discussed.

RC818B • Magnetic Resonance Imaging

Gregory S Karczmar PhD (Presenter) *

LEARNING OBJECTIVES

1) Gain familiarity with methods used for accurate measurements of tumor volumes with MRI, advantages of MRI, challenges, and sources of error. 2) Understand basic principles and clinical applications of dynamic contrast enhanced MRI; possibilities for standardized measurements of perfusion and capillary permeability, and sources of error. 3) Understand basic principles and clinical applications of diffusion-weighted imaging, measurements of the apparent coefficient of diffusion (ADC), and sources of error.

ABSTRACT

Anatomic and functional MRI is increasingly used for diagnosis and staging of cancer, and for detection of response to therapy. However, standardized, quantitative measurements remain challenging. We will review use of MRI to reliably measure tumor volume, and two widely used functional MRI methods - dynamic contrast enhanced MRI (DCEMRI) and diffusion-weighted imaging (DWI). We will discuss methods used to standardize DCEMRI measurements, including quantitative measurements of contrast media as a function of time, measurement of the arterial input function, and use of an appropriate model for calculation of perfusion/capillary permeability, as well as 'model-free' approaches. We will discuss methods used to measure the apparent diffusion constant (ADC) and the relationship between the ADC and underlying physiology/anatomy at the microscopic level.

RC818C • Positron Emission Tomography

Paul E Kinahan PhD (Presenter) *

LEARNING OBJECTIVES

1) Understand the advantages and disadvantages of PET/CT as a quantitative imaging technique. 2) Understand sources of bias and variance in quantitative PET/CT imaging, both in data acquisition and analysis. 3) Learn techniques for limiting variability in quantitative PET/CT imaging.

ABSTRACT

Dual-mode positron emission tomography / x-ray computed tomography (PET/CT) imaging has become a standard tool in cancer imaging for detection, diagnosis and staging over the last decade, and is increasingly being used in therapy planning and assessing response to therapy. This refresher course will familiarize the audience with response assessment methods used in PET/CT imaging and their limitations. Recently proposed criteria will be discussed, including the PERCIST (PET Response Criteria in Solid Tumors) guidelines. Measurement variability will be addressed and the importance of standardizing an imaging acquisition protocol in oncologic response assessment with PET/CT will be discussed.

Medical Physics 2.0: Magnetic Resonance Imaging

Friday, 08:30 AM - 10:00 AM • S405AB

[Back to Top](#)

PH **MR**

RC821 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Co-Director

Ehsan Samei, PhD *

Co-Director

Douglas E Pfeiffer, MS *

RC821A • Magnetic Resonance Imaging Perspective

Douglas E Pfeiffer MS (Presenter) *

LEARNING OBJECTIVES

1) Understand the history and development of magnetic resonance imaging equipment. 2) Understand the impact of equipment development on testing protocols. 3) Understand the requirements for medical physics support in image quality and safety.

ABSTRACT

Magnetic resonance imaging equipment has developed significantly since its inception. Field strength increases and technology development increase the complexity of the equipment and the need for medical physics and MRI scientist support. This talk will briefly introduce the developments that have taken place and discuss the impact that this development has had on testing and support.

RC821B • Magnetic Resonance Imaging 1.0

Ronald R Price PhD (Presenter)

LEARNING OBJECTIVES

1) Review the image quality metrics that are currently used as part of an MRI system performance report. 2) Discuss how the medical physicist can assist in the development and evaluation of imaging sequences used as part of clinical protocols. 3) To review items that should be included as part of an MRI safety

survey. 4) Steps necessary for establishing and maintaining a routine quality assurance program. 5) Review aspects of AAPM Report No. 100 regarding acceptance testing of new MRI systems. 6) Review modality and system specific requirements for MRI accreditation.

ABSTRACT

MRI 1.0: Magnetic Resonance Imaging Ronald R. Price The purpose of this presentation is to review the current role of the medical physicist in clinical Magnetic Resonance Imaging (MRI). The discussion will first discuss MRI acceptance testing with reference to the recommendations of AAPM Report No. 100 and will specifically include items that should be part of both the initial and annual MRI safety survey. This discussion will be followed by a review of the image quality metrics that are currently used as part of an MRI system performance report as well as how the medical physicist may go about assisting in the development and evaluation of imaging sequences used as part of clinical protocols. The presentation will also discuss the steps necessary for establishing and maintaining a routine quality assurance program with emphasis on the necessity of establishing a strong working relationship with the MRI quality assurance technologist. There will also be a review of the system specific requirements for MRI accreditation.

RC821C • Magnetic Resonance Imaging 2.0

David R Pickens PhD (Presenter) *

LEARNING OBJECTIVES

1) Identify requirements for ongoing quality assurance of ultra-high field MRI systems and hybrid MR/PET systems. 2) Identify the need for new quality assurance tools and testing procedures for advanced systems with many parallel imaging channels. 3) Identify site safety issues for ultra-high field and hybrid MR systems and expanded concerns for patient and staff safety. 4) Understand increased requirements from oversight and accreditation organizations. 5) Identify the need for improved continuing education for medical physicists/MRI scientists.

ABSTRACT

This talk will look into the future of clinical MR imaging and the role of the physicist as the technology of MR imaging evolves. Many of the quality assurance techniques used today will need to be extended to address the advent of higher field imaging systems and dedicated imagers for specialty applications. Included will be the need to address quality assurance and testing for hybrid devices such as MR/PET systems. Many new coil systems will be routinely provided in systems with large numbers of parallel receive channels along with parallel transmit channels. New pulse sequences and acquisition methods, increasing use of MR spectroscopy, and real-time guidance procedures will place the burden on the medical physicist to develop and use new phantoms and test procedures to evaluate clinical imagers. Many of these systems will have different potential side effects including potential problems associated with patient and staff safety. New software tools will be available for testing, but these must be understood by the physicist in order that they be used correctly for quality assurance purposes. Finally, new rules, requirements, and regulations undoubtedly will mean that the medical physicist must work closely with staff technologists to keep her/his sites compliant with the latest requirements and must actively keep abreast of these developments.

Minicourse: Recording and Reporting Radiation Dose: Nuclear Medicine

Friday, 08:30 AM - 10:00 AM • S403B

[Back to Top](#)



RC823 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Director

J. Anthony Seibert, PhD

RC823A • Nuclear Medicine Dose Indices

Wesley E Bolch PhD (Presenter)

LEARNING OBJECTIVES

1) Identify the more common radiopharmaceuticals used in functional imaging of normal and diseased tissues. 2) Demonstrate understanding of the parameters needed to estimate tissue dose during nuclear medicine imaging and therapy. 3) Identify fundamental data sources for organ and effective dose per unit administered activity. 4) Demonstrate understanding of the physiological and anatomic sources of individual variability in organ and effective dose per unit administered activity. 5) Identify key features of new generation anatomical models that can reduce dose uncertainties through improved matching of patient body morphometry.

ABSTRACT

A main clinical application of nuclear medicine is that of functional imaging of normal and diseased tissue, and the localization of malignant tissue and its potential metastatic spread. In these applications, the amount of administered activity is such that the absorbed dose to both imaged and non-imaged tissues are typically very low and thus stochastic risks of cancer induction are greatly outweighed by the diagnostic benefit of the imaging procedure. Nevertheless, these tissues doses and their stochastic risks should be quantified for each patient, and placed in context of both their cumulative values received over multiple imaging sessions, and of doses and risks received by other diagnostic imaging procedures they may have (fluoroscopy and computed tomography, for example). The role of internal dosimetry in diagnostic nuclear medicine is thus to provide the basis for stochastic risk quantification. Once this risk is quantified, it may be used to optimize the amount of administered activity in order to maximize image quality while minimizing patient risk. This optimization process is of particular importance for pediatric patients owing to their enhanced organ radiosensitivities and years over which any stochastic effects may become manifest. This optimization should consider, as much as possible, patient age, gender, and body morphometry, and pharmacokinetics, along with all available image acquisition and processing techniques. Unlike other forms of diagnostic imaging, for which dose indices are readily measured, only the administered radioactivity is typically available for dose tracking. In this course, we will review data sources for organ and effective dose per unit administered activity for the more common molecular imaging radiopharmaceuticals. Particular attention will be given to sources of individual variability in both organ and effective dose attributed to both physiological and anatomical variations among patients. Advances in computat

RC823B • Tracking Doses in the Pediatric Population

Frederic H Fahey DSc (Presenter)

LEARNING OBJECTIVES

1) List three considerations in estimating the radiation dose from pediatric nuclear medicine. 2) Discuss three factors that affect the radiation dose from the CT component of hybrid imaging. 3) Describe three factors that can affect the appropriate choice of administered activity for a nuclear medicine study. 4) List 2 advances that may lead to further reduction in the administered activity in pediatric nuclear medicine.

Quantitative Imaging: Quantitative Imaging in Ultrasound

Friday, 08:30 AM - 10:00 AM • E263

[Back to Top](#)



RC825 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Director

Michael F McNitt-Gray, PhD *

RC825A • Elasticity and Backscatter Related Measures

Timothy J Hall PhD (Presenter) *

LEARNING OBJECTIVES

1) Describe the various approaches and history of Quantitative Ultrasound. 2) Understand the difference in system-dependent and system-independent backscatter parameters. 3) Understand the benefits of system-independent backscatter parameters. 4) Describe the state of the art in elasticity imaging and quantitative ultrasound from backscattered echoes.

ABSTRACT

There is a long history of attempts to use the backscattered echo signals from medical ultrasound to describe disease conditions of various tissue types. For example, from the initial application of ultrasound in breasts, the investigators attempted to differentiate benign from malignant disease based on characteristics of the echo signals. Along the way, there have been substantial successes. For example, it was only 30yrs ago that we debated how to estimate blood flow based on ultrasound echo signals and how to interpret that data. Just over 20yrs ago we began to display flow dynamics with color flow imaging. More recently, elasticity imaging methods, which also began in the tissue characterization or quantitative ultrasound community, have become commercially viable products with clear diagnostic potential. These were tissue characterization methods in their early days. Now they are recognized as specific procedures with quantifiable diagnostic merit. Numerous other quantitative ultrasound (QUS) methods have been proposed, developed, tested and have demonstrated varying degrees of success. Many of these methods are still under development. This presentation will discuss quantitative ultrasound methods based on backscattered echo signals focusing on the most recent techniques that are either commercially available or that show the greatest potential as diagnostic tools.

RC825B • Volume Flow and Measures From Contrast Agents

Oliver D Kripfgans (Presenter) *

LEARNING OBJECTIVES

1) Understand the pitfalls of ultrasound based blood flow acquisition, analysis, and interpretation. 2) Become familiar with current approaches of quantitative estimation of blood flow and learn how to minimize associated errors. 3) Obtain an overview of current commercial ultrasound contrast agents as well as their availability in the US. 4) Learn about contrast agent enhanced measurements in a clinical setting.

ABSTRACT

Clinical ultrasound scanners typically offer three methods of blood flow acquisition, namely pulse wave, color flow and power Doppler. While real-time blood flow visualization is one of the perks of ultrasound, standardized quantitative methods are still unavailable to the radiologist. Pulse wave offers volumetric flow computation based on assumptions that are often violated. Color flow has never been directly quantitative as no angle correction can be dialed-in. The advent of 2D ultrasound arrays (electronic or mechanically swept) has enabled color flow and power Doppler acquisition in the coronal plane thus yielding Doppler angle as well as geometry independent flow information for direct quantification of in situ real-time volumetric flow. Ultrasound contrast agents have been approved for many clinical applications in Europe, Asia and Canada. The FDA has limited the use of ultrasound contrast agents in the US and essentially only cleared ultrasound contrast agents for cardiac applications. However, off-label application is practiced in the US. Its extend and benefits will be discussed in this course along with current approaches for ultrasound contrast agents based clinical measurements.

URL's

www.ultrasound.med.umich.edu/ODK/RSNA2012

RC825C • Ultrasound Measurements and FDA Criteria for Display of New Quantitative Measures

Brian S Garra MD (Presenter)

LEARNING OBJECTIVES

1) Review the main types of quantification of Ultrasound images. 2) Review some recent examples exploring sources of error in ultrasound morphometric quantification. 3) Summarize new ultrasound based parameters that might be displayed. 4) Discuss the formation of the Ultrasound QIBA Technical Committee and its objectives. 5) Review recent changes in FDA policy regarding display of quantitative features on ultrasound images.

ABSTRACT

Ultrasound images are probably the most frequently measured images and extensive literature on a wide variety of ultrasound image measurements exists going back to the 1960's. Most morphometric and Doppler measurements are well documented and are at a mature stage. Automated measurements of volume and structures such as arterial intimal medial thickness are also finding increasing clinical application but each method of image segmentation and quantification has its own characteristic problems and sources of error. Some newer measurements including measurement of tissue strain (elastography) and strain rate and one of the newest, shear wave speed, are the subject of considerable research activity and the sources of error and bias are just now being identified and quantified. The RSNA Quantitative Imaging Biomarker Alliance (QIBA) has recently undertaken the task of developing standardized protocols for measurement of ultrasound related parameters. The first project of the US QIBA technical committee is to develop a profile for measurement of shear wave speed in tissue using ultrasound. The FDA has long allowed many types of measurements to be displayed as part of the ultrasound image. A demonstration of reasonable accuracy and precision important for obtaining clearance to display a new measurement. Display of measurement accuracy may also be required and users should be informed of situations where the measurement may be inaccurate. The efforts of the QIBA may provide data that in the future will help to speed up FDA clearance for display of new types of measurements.

The Use of Business Analytics for Improving Radiology Operations, Quality, and Clinical Performance (In Association with the Society for Imaging Informatics in Medicine)

Friday, 08:30 AM - 10:00 AM • E350



[Back to Top](#)

RC826 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator

Katherine P Andriole, PhD

LEARNING OBJECTIVES

1) Understand what is meant by business analytics in the context of a radiology practice. 2) Be able to describe the basic steps involved in implementing a business analytics tool. 3) Learn how business analytics tools can be used for quality assurance in radiology, for maintenance of certification (MOC), and for practice quality improvement. 4) Be introduced to the capabilities of current and potential future business analytics technologies.

ABSTRACT

This course will provide an overview of the use of business analytics (BA) in radiology. How a practice manages information is becoming a differentiator in the competitive radiology market. Leveraging informatics tools such as business analytics can help a practice transform its service delivery to improve performance, productivity and quality. An introduction to the basic steps involved in implementing business analytics will be given, followed by example uses of BA tools for quality assurance, maintenance of certification (MOC) and practice quality improvement. The power of current business analytics technologies will be described, along with a look at potential future capabilities of business analytics tools.

RC826A • An Introduction to Business Analytics Demonstrating Use of an Open-Source Tool for Application to Radiology

Katherine P Andriole PhD (Presenter)

LEARNING OBJECTIVES

1) Gain an overview of business analytics tools and understand how they might be used in radiology. 2) Be able to describe the general steps involved in business analytics, including extract, transform, load (ETL) and key performance indicators (KPI). 3) See a demonstration implementation of an open-source business analytics tool using a radiology use case.

ABSTRACT

This session will provide a general overview of business analytics concepts and how they can be used in radiology. A walk through of the basic steps involved in implementation including identifying, collecting, transforming, and dynamically presenting key performance indicators (KPI) will be demonstrated. The extract, transform, load (ETL) steps will be shown using an example use case, and multiple database sources taken from a radiology practice.

RC826B • Business Analytic Tools for Quality Assurance, MOC and PQI

Paul G Nagy PhD (Presenter)

LEARNING OBJECTIVES

1) Discuss the importance of informatics tools for ABR MOC PQI and ACGME SBP quality efforts. 2) Identify the role of informatics in capturing, extracting, analyzing, and communication quality projects. 3) Illustrate graphical dashboarding examples to support quality efforts.

RC826C • Capabilities of Current and Future Business Analytics Technologies

Tessa S Cook MD, PhD (Presenter)

LEARNING OBJECTIVES

1) To gain familiarity with currently available business technologies and their relevance to radiology practice. 2) To consider how existing business technologies can support quality assurance in radiology. 3) To learn about business analytics features that may be available/desirable in the future to augment and support both the practice of radiology.

ABSTRACT

Consumerism and Radiology

Friday, 08:30 AM - 10:00 AM • S504AB



[Back to Top](#)

RC827 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Richard Duszak, MD

Christine Hughes *

Debra Richman
Nancy Davenport-Ennis, MD
Cherrill Farnsworth *
Steve Bonner

LEARNING OBJECTIVES

1) Identify the present and future ramifications of the rise of consumerism on radiology. 2) Characterize strategies radiology practices and departments can use to prepare for these changes. 3) Define what consumers need to know about imaging and how is it best communicated to consumers. 4) Illustrate how to create a bond with consumers in a commodity market.

ABSTRACT

The rise of consumerism has impacted the relationships patients have with payors and providers. Because of the insular nature of radiology the full impact of consumerism has not yet been felt. Historically, radiologists have managed a Physician to Physician (P2P) relationship. Radiologists have been the invisible heroes in the patient care cycle. Ripples of Radiologist to Consumer (R2C) relationships are emerging in pockets of the US. This session will address the following questions: What are the present/ future ramifications of the rise of consumerism on radiology? How can radiology practices and departments prepare for these changes? What do consumers need to know about imaging and how is it best communicated to consumers? How is a bond created with consumers in a commodity market?

Interactive Game: Clinical Problems in Body MRI - Case-based Instruction

Friday, 08:30 AM - 10:00 AM • E451B



[Back to Top](#)

RC829 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

LEARNING OBJECTIVES

This interactive session will use RSNA Diagnosis Live. Please bring your charged mobile wireless device (phone, tablet or laptop) to participate.

RC829A • Liver Lesion Differential Diagnosis

Christopher G Roth MD (Presenter) *

LEARNING OBJECTIVES

1) To appreciate and understand the typical imaging appearances of common liver lesions. 2) To understand the algorithmic approach to liver lesion differential diagnosis. 3) To understand how information from the various pulse sequences and contrast agents contribute to liver lesion assessment.

ABSTRACT

Given the ubiquitousness of liver lesions on imaging studies, it is incumbent upon radiologists to accurately characterize these lesions and differentiate benign from malignant. While the vast majority of liver lesions are benign incurring no further treatment or management and their features need to be recognized, the management of indeterminate and malignant lesions ranges from percutaneous biopsy to surgery to chemotherapy and a confident diagnosis or differential diagnosis should be pursued before these invasive measures are undertaken. While many lesions are adequately characterized on other imaging modalities, many require further analysis with MRI and some may initially present at MR imaging. Given the wide array of pulse sequences and protocols and proliferation of MR contrast agents, assimilating all of the necessary imaging information to generate an accurate diagnosis or differential diagnosis can be challenging. MRI is considered the most comprehensive and accurate modality for noninvasive assessment of liver lesions and in the majority of cases, a confident lesion diagnosis is possible based on the composite information from multiple pulse sequences. While many lesions exhibit classic features rendering diagnosis straightforward, lesions occasionally demonstrate unusual or atypical features that may complicate accurate diagnosis and familiarity with these infrequent appearances is important for accurate characterization and discrimination between benign and malignant etiology. The utility of the various MRI pulse sequences and contrast agents will be discussed and a diagnostic algorithm will be presented to help classify and accurately diagnose liver lesions.

RC829B • Pancreatic Cysts - Achieving Consistency and Common Sense

Masoom A Haider MD (Presenter) *

LEARNING OBJECTIVES

1) To be able to perform an MRI protocol for evaluation of pancreatic cystic lesions. 2) To recognize the classic MRI findings for cystic pathologies of the pancreas. 3) To have a pragmatic approach to management recommendations of cystic lesions of the pancreas.

ABSTRACT

With the widespread use of cross sectional imaging cystic pancreatic lesions are being detected with increasing frequency. The dominance of pseudocyst as the commonest type of pancreatic cyst may no longer hold. Radiologists must be familiar with the features of cystic neoplasms. MRI offers excellent tissue contrast for characterization of pancreatic cysts as well as for assessment of relationship to the pancreatic duct which can be helpful for differential diagnosis. A number of MRI features can be used to help guide management and offer likely differential diagnosis and will be presented. At the same time MRI has resulted in increased detection of tiny incidental simple pancreatic cysts for which limited or no followup may be necessary. It is important to recognize that in some cases MRI and other non-invasive imaging methods cannot provide reliable diagnosis as there is substantial overlap in imaging findings between some benign and pre-malignant or malignant cystic neoplasm. These scenarios will be reviewed.

RC829C • Cholangiocarcinoma - Addressing a Difficult Challenge

Kartik S Jhaveri MD (Presenter) *

LEARNING OBJECTIVES

1) To emphasize an optimal MR imaging protocol. 2) To highlight role of MRI in the diagnosis and classification. 3) To demonstrate the role of MRI in staging. 4) To understand limitations of MRI and review mimics of cholangiocarcinoma.

ABSTRACT

Although Cholangiocarcinoma is a rare tumour (

Current and Next Generation Health IT Tools To Enable Radiation Exposure Reduction - A Practical Guide

Friday, 08:30 AM - 10:00 AM • S403A



[Back to Top](#)

RC830 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Moderator
Ramin Khorasani, MD *

RC830A • Before the Scan: Optimizing Dose Before the Patient Is On the Table

Rasu B Shrestha MD, MBA (Presenter) *

LEARNING OBJECTIVES

1) Number of CT scans is increasing annually. 2) Wider adoption/ availability of CT scanners. 3) Indications for CT use are increasing (without possible consideration for risks). 4) Rapid increase in number of protocols: Varying equipment leading to protocol variance. Children are at greater risk from a given dose of radiation compared with adults. A thorough look at the issues around radiation dose in children will also be provided.

ABSTRACT

The acceptance of the risks associated with radiation is conditional on the benefits to be gained from the use of radiation. The risks must be restricted and protected against by the application of radiation safety standards. A significant part of the challenge of patient dose management in CT arises from the fact that over-exposure in CT is frequently not detected. In contrast to film based radiography where overexposure results in a dark image, increasing dose in CT and in other digital imaging techniques results in images with: (1) less noise (improved visual appearance) and (2) fewer streak artifacts, (3) although not necessarily with greater diagnostic information. Image quality in CT often exceeds the clinical requirements for diagnosis. It is critical to have a thorough understanding of the basics of radiation dose in CT before we explore the multiple issues around opportunities to reduce these dose parameters. Furthermore, it is also critical to comprehend the role of newer technologies, innovations and developments that are rapidly taking place to address radiation dose reduction in CT - both on the vendor as well as on the private and academic communities. A thorough and comprehensive understanding of the quality and patient safety issues around this is also critical to making sound decisions around imaging on multiple levels. Different organs have different sensitivities to radiation. Tissue Weighted Factor, WT takes into account the risk to the person exposed to radiation that is not uniform over the entire body. As an example, if 1 mSv is received only by the lungs, this results in an effective dose to that person of 0.12 mSv. This means that 1 mSv received by the lungs poses approximately the same risk as 0.12 mSv to the entire body. Fundamentals such as these will be presented in easily digestible chunks in the refresher course. Also covered will be

RC830B • During the Scan: Patient-Centric Imaging

William W Boonn MD (Presenter) *

LEARNING OBJECTIVES

1) Learn how modifications in CT scan protocol can affect image quality and radiation dose. 2) Understand how to optimize scanning protocols based on clinical indication and patient specific factors. 3) Learn how to measure and monitor protocols and dose to track and optimize performance.

RC830C • After the Scan: Data-Mining Dose Data for Improved Quality, Safety, and Outcomes

Aaron D Sodickson MD, PhD (Presenter)

LEARNING OBJECTIVES

1) Understand available metrics of CT radiation exposure, and how they relate to patient dose. 2) Demonstrate methods to extract exposure data on a large scale. 3) Highlight quality improvement and patient safety applications of large radiation exposure databases.

US for Thyroid Cancer: Diagnosis, Surveillance, and Treatment (How-to Workshop)

Friday, 08:30 AM - 10:00 AM • E450B

US **OI** **NR** **HN**

[Back to Top](#)

RC831 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

Jill E Langer, MD *

Kathryn A Robinson, MD

Sheila Sheth, MD *

LEARNING OBJECTIVES

1) Describe the sonographic characteristics of thyroid nodules that are suspicious for malignancy. 2) a. Discuss the Bethesda Cytology Classification of Thyroid FNA results and the risk of malignancy associated with each category. b. Describe the indications for two new genetic tests that may be performed on FNAs obtained from thyroid nodules with indeterminate cytology. 3) a. Describe the technique of US-guided biopsy of thyroid nodules and cervical lymph nodes in patients who have undergone thyroidectomy for thyroid cancer. b. Discuss the rationale and method of performance of US-guided ethanol ablation of malignant cervical adenopathy in post thyroidectomy patients.

ABSTRACT

This presentation will consist of a three individual presentations. The first will review the sonographic characteristics of thyroid nodules that are suggestive of malignancy. Recommendations for selecting which thyroid nodules require ultrasound-guided biopsies which have been provided by both Radiology consensus conferences and published Endocrinology guidelines will be discussed. The second presentation will review with the Bethesda Cytology Classification of Thyroid FNA results and the risk of malignancy associated with each category. Additionally this presentation describes the indications for two new genetic tests that may be performed on FNAs obtained from thyroid nodules with indeterminate cytology. The last presentation will provide a detailed description of the technique for performing ultrasound guided biopsy of thyroid nodules and cervical lymph nodes. Various methods will be discussed and required equipment outlined. Possible complications, though rare, will be described. A comparison of the typical sonographic features of normal versus abnormal lymph nodes will be presented in an effort to identify those patients in whom sonographic follow up can be used instead of biopsy. A discussion of the possible advantages of adding thyroglobulin assay to cytologic evaluation will be provided. The rationale for and technique of performing ultrasound guided ethanol ablation of malignant cervical lymph nodes in patients with thyroid cancer will be undertaken.

Develop Your Radiology Financial Insight: Fundamental Principles You Should Know About Business

Friday, 08:30 AM - 10:00 AM • S502AB

LM

[Back to Top](#)

RC832 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

RC832A • How Much Is It Worth: Valuing Assets and Investments

Kenneth A Buckwalter MD (Presenter)

LEARNING OBJECTIVES

1) Understand the time value of money. 2) Review interest rate terminology such as Interest rate, Discount rate, and Hurdle rate. 3) Describe standard ways to value an investment for Payback time, Internal rate of return, and Net present value. 4) Use net present value to understand the loss of Tiger Woods's Brand Value in 2009.

RC832B • Follow the Money: Everything You Ever Wanted to Know About the Revenue Cycle

Mark S Frank MD (Presenter)

LEARNING OBJECTIVES

1) Know the definition of 'revenue cycle'. Be aware of how the revenue cycle revenue applies to a 'typical' diagnostic radiology practice. 2) Know the definition of accounts receivable (AR), and the important role that AR plays in radiology practices. 3) Understand the concept of 'charge lag' and the factors contributing to it. 4) Know the major factors that effect timeliness and amount of payment received once a bill is submitted. 5) Know the relationships between net income, accounts receivable, and cash flow. 6) Be aware of the Radiology Business Managers Association (RBMA) recommended factors for tracking AR. 7) Know the definition of Adjusted Collections Percentage (ACP). 8) Know some techniques for reducing AR and optimizing the revenue cycle. 9) Know the definition of RBRVS (Resource Based Relative Value Scale) and its relationship to the Current Procedural Terminology (CPT) coding model. 10) Know the concept and structure (components) of an RBRVS global payment. 11) Understand how work performed (as perceived by the radiologist) maps onto the RBRVS scale and the role of the RBRVS scale in financial payment mechanisms.

Targeted Treatment and Imaging of Liver Cancers: Basic to Advanced Techniques in Minimally-Invasive Therapies and Imaging (How-to Workshop)

Friday, 08:30 AM - 10:00 AM • E260

OI **IR** **GI**

[Back to Top](#)

RC850 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

John J Park, MD, PhD

Jinha Park, MD, PhD

Jonathan M Kessler, MD

Steven S Raman, MD

Marcelo Guimaraes *

LEARNING OBJECTIVES

1) Discuss the role of the interventional radiologist in the treatment and management of patients with primary and metastatic liver cancer as part of the multidisciplinary team. 2) Learn best practice techniques in the treatment of liver cancers, with emphasis on both locoregional and focal therapeutic approaches, and indications for treatment. 3) Explore various tips and tricks for each treatment modality and learn how to avoid complications through good patient selection, choosing the appropriate techniques, and knowing what common mistakes to avoid. 4) Learn about newer and developing techniques and devices, their potential roles and indications, and potential pitfalls. 5) Explore advanced imaging modalities in the detection of tumors and for monitoring treatment response.

ABSTRACT

Pediatric Neurosonography Update: Head, Spine, and Transcranial Doppler Ultrasound (How-to Workshop)

Friday, 08:30 AM - 10:00 AM • E261

PD **US** **NR**

[Back to Top](#)

RC851 • AMA PRA Category 1 Credit™:1.5 • ARRT Category A+ Credit:1.5

M. Beth McCarville, MD *

Geetika Khanna , MD,MS
Kristin A Fickensch , MD

LEARNING OBJECTIVES

1) Describe advances in neurosonography that can be applied on a local level to improve daily practice of neonatal neurosonography. 2) Review indications for neonatal spine sonography, identify normal variants/pitfalls that can simulate disease, and recognise the sonographic features of spinal anomalies. 3) Review the role of transcranial Doppler ultrasound with imaging (duplex) and without imaging (non-duplex), in assigning stroke risk to children with sickle cell disease.

ABSTRACT

URL's

<http://www.umkcradres.org/education/peds/neuro/index.htm>

US-guided Interventional Breast Procedures (Hands-on Workshop)

Friday, 08:30 AM - 10:00 AM • E264

[Back to Top](#)

US **BR**

RC852 • *AMA PRA Category 1 Credit*™:1.5 • ARRT Category A+ Credit:1.5

Jocelyn A Rapelyea , MD
Priscilla J Slanetz , MD, MPH *
Shambhavi Venkataraman , MD
Liane E Philpotts , MD *
Ermelinda Bonaccio , MD
Stephen J Seiler , MD
Bruno D Fornage , MD
Rachel F Brem , MD *
William R Poller , MD *
Margaret M Szabunio , MD

LEARNING OBJECTIVES

1) Describe the equipment needed for ultrasound guided interventional breast procedures. 2) Review the basic principles of ultrasound guidance and performance of minimally invasive breast procedures. 3) Practice hands-on technique for ultrasound guided breast interventional procedures.

ABSTRACT

This course is intended to familiarize the participant with equipment and techniques in the application of US guided breast biopsy and needle localization. Participants will have both basic didactic instruction and hands-on opportunity to practice biopsy techniques on tissue models with sonographic guidance. The course will focus on the understanding and identification of: 1) optimal positioning for biopsy 2) imaging of adequate sampling confirmation 3) various biopsy technologies and techniques 4) potential problems and pitfalls

Advanced Image Analysis, including Applications such as Automated Stent Planning and Multimodality Image Fusion and Treatment Planning (Hands-on Workshop)

Friday, 08:30 AM - 10:00 AM • S401CD

[Back to Top](#)

IN **IR**

RC853 • *AMA PRA Category 1 Credit*™:1.5 • ARRT Category A+ Credit:1.5

Gary J Wendt , MD,MBA *

LEARNING OBJECTIVES

1) To get hands-on experience using 3D / 4D tools to process huge data sets, specifically multislice CT and MR using data sets. 2) How to effectively deal with the following data: CT and MR angiograms, perfusion, and bone. 3) Getting hands on experience using 3D / 4D tools to process data in near realtime. 4) Introduce the basic 3D tools that are available and how they can be used both within radiology as well as how they apply to referring clinicians.

ABSTRACT

This course will focus on how to get hands-on experience using 3D / 4D tools to process huge data sets, specifically multislice CT and MR using data sets. How to effectively deal with the following data: CT and MR angiograms, perfusion, and bone. It will also focus on providing hands on experience using 3D / 4D tools to process data in near realtime for emergencies like stroke work-up. It will also introduce the basic 3D tools that are available and how they can be used both within radiology as well as how they apply to referring clinicians

Basic Tools and Tricks for Data Collection and Organization for Practice Quality Improvement Projects and for Research Data Management - A Step by Step Approach with Excel (Hands-on Workshop)

Friday, 08:30 AM - 10:00 AM • S401AB

[Back to Top](#)

RS **IN**

RC854 • *AMA PRA Category 1 Credit*™:1.5 • ARRT Category A+ Credit:1.5

Andrea J Frangos , MPH
Jaydev K Dave , PhD, MS

LEARNING OBJECTIVES

1) Define the basic structure and functions of a spreadsheet. 2) Learn efficient techniques for data collection in a spreadsheet. 3) Demonstrate key data management skills. 4) Recognize differences between a spreadsheet and a database.

LEARNING OBJECTIVES

1. Learn efficient techniques for manipulating data and performing data analysis with a spreadsheet program.
2. Define the basic structure and functions of a database.
3. Learn how to create a simple database for data collection and analysis.
4. Recognize tasks that are more easily accomplished with a database than a spreadsheet.

ABSTRACT

A spreadsheet program is commonly employed to collect and organize data for practicing quality improvement, for research, and for other purposes. In this refresher course, we will demonstrate how to format and use a spreadsheet properly for data collection and analysis. We will define the essential structure and function of a spreadsheet and elaborate on the process to create a basic spreadsheet. We will review common errors during data acquisition that may be avoided for streamlining the acquisition process. We will then consider several functionalities of a spreadsheet program that facilitate data management. We will also highlight the differences between a spreadsheet and a database, so that the participants may be able to identify best applications for their tasks.

This course will accomplish its learning objective through hands-on tutorial demonstrations with Microsoft Excel ♦ a spreadsheet program. Familiarity with Microsoft Windows environment will be assumed, but no experience with Microsoft Excel spreadsheet program or formula is necessary.

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[Back to Top](#)

IN

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LEARNING OBJECTIVES

1) Understand how PubMed constructs a query and how to develop and refine effective search strategies in radiology. 2) Use PubMed tools including Clinical Queries, Related Articles, Single Citation Matcher and Loansome Doc. 3) Build focused searches using the Medical Subject Headings (MeSH) vocabulary for radiology and limit searches to radiology-oriented journals. 4) Understand how to save and download citations.

ABSTRACT

This hands-on workshop covers key searching techniques, changes to PubMed, and how to develop effective search strategies for PubMed and MEDLINE. Topics covered include: why keywords don't always give the results you expect, how to limit to specific journals, quick searches to find evidence-based citations, how

Disclosure Index

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