SPPH01

AAPM/RSNA Physics Tutorial for Residents: Multi-spectral and Volumetric Imaging

Special Courses

AMA PRA Category 1 Credits ™: 2.00
ARRT Category A+ Credits: 2.00
Sat, Nov 29 12:00 PM - 2:00 PM   Location: E351

Participants

Moderator
Richard J. Massoth PhD : Nothing to Disclose

LEARNING OBJECTIVES

1) Describe the underlying physics of multi-spectral volumetric imaging and advanced applications that can increase the effectiveness of this emerging imaging technology. 2) Understand imaging artifacts resulting from hybrid imaging techniques and the limitations of the technology. 3) Describe dual imaging techniques used in diagnostic imaging.

Sub-Events

SPPH01A  Physics Overview of Multi-spectral and Volumetric Imaging
Richard J. Massoth PhD (Presenter):  Nothing to Disclose

LEARNING OBJECTIVES

View learning objectives under main course title.

SPPH01B  Multi-spectral CT Imaging
Mark Patrick Supanich PhD (Presenter):  Research agreement, Siemens AG

LEARNING OBJECTIVES

View learning objectives under main course title.

SPPH01C  Hybrid Imaging in Nuclear Medicine
Osama R. Mawlawi PhD (Presenter):  Research Grant, Siemens AG Research Grant, General Electric Company

LEARNING OBJECTIVES

View learning objectives under main course title.

SPGW01

NIH Grantsmanship Workshop

Special Courses

AMA PRA Category 1 Credits ™: 3.75
ARRT Category A+ Credits: 4.00
Sat, Nov 29 1:00 PM - 5:00 PM   Location: E253AB

Participants

Moderator
Gayle E. Woloschak PhD : Nothing to Disclose

LEARNING OBJECTIVES

1) Gain greater understanding of the NIH grants process: a. understand the process for preparing a research or training grant application. b. learn the elements of a competitive grant application. 2) Gain insight into the new features of the NIH review process. 3) View the review process in action through a mock study section.
Sub-Events

SPGW01A   Welcome and Introductory Remarks
Gayle E. Woloschak PhD (Presenter): Nothing to Disclose

LEARNING OBJECTIVES
View learning objectives under main course title.

SPGW01B   Preparing an R01 Research Application
Pratik Mukherjee MD, PhD (Presenter): Research Grant, General Electric Company Medical Advisory Board, General Electric Company

LEARNING OBJECTIVES
View learning objectives under main course title.

SPGW01C   Preparing K Awards
Ruth C. Carlos MD, MS (Presenter): Nothing to Disclose

LEARNING OBJECTIVES
View learning objectives under main course title.

SPGW01D   Clinical Trials in Applications
Michael Walter Vannier MD (Presenter): Nothing to Disclose

LEARNING OBJECTIVES
View learning objectives under main course title.

SPGW01E   Program Perspectives

LEARNING OBJECTIVES
View learning objectives under main course title.

SPGW01F   The Process of Review
Gayle E. Woloschak PhD (Presenter): Nothing to Disclose

LEARNING OBJECTIVES
View learning objectives under main course title.

SPGW01H   Questions to the Faculty
Gayle E. Woloschak PhD (Presenter): Nothing to Disclose

LEARNING OBJECTIVES
View learning objectives under main course title.

SPGW01I   Summary and Evaluation Form
Gayle E. Woloschak PhD (Presenter): Nothing to Disclose

LEARNING OBJECTIVES
View learning objectives under main course title.
SPRW01
RSNA/ARR Study Section Reviewers Workshop What It Takes to Be an Expert Reviewer for the NIH: The Peer Review Process Demystified

Special Courses

AMA PRA Category 1 Credits ™: 3.75
ARRT Category A+ Credits: 4.00
Sat, Nov 29 1:00 PM - 5:00 PM Location: E253CD

Participants
Elizabeth Anne Krupinski PhD (Presenter): Nothing to Disclose
Carolyn C. Meltzer MD (Presenter): Board of Directors, ACR Image Metrix
Kathryn A. Morton MD (Presenter): Nothing to Disclose

LEARNING OBJECTIVES
1) Identify the different grant mechanisms available within the NIH and the requirements for submitting to a particular mechanism. 2) List the criteria used in the evaluation of NIH grants and what happens prior to and during a study section review meeting. 3) Articulate the benefits of being a reviewer for the NIH and the different ways that one can be a reviewer. 4) Observe a mock study section presented by the NIH with experienced reviewers evaluating at least two grant mechanisms.

SPSP01
Nuevos Horizontes en Diagnostico por Imagen Desde el CIR: Sesión del Colegio Interamericano de Radiología (CIR) en Español/New Horizons in Diagnostic Imaging from CIR: Session of the Interamerican College of Radiology (CIR) in Spanish

Special Courses

AMA PRA Category 1 Credits ™: 3.75
ARRT Category A+ Credits: 4.00
Sat, Nov 29 1:00 PM - 5:00 PM Location: E451A

LEARNING OBJECTIVES
1) To review advances or new horizons in imaging in major subspecialties from experts from different CIR (Interamerican College of Radiology) countries. 2) To use a practical approach including case-based learning. 3) To seek audience participation with presentation of unknown clinical examples related to the organ system presentations.

Sub-Events
SPSP01A Introducción/Opening Remarks
Gloria Soto Giordani MD (Presenter): Nothing to Disclose

LEARNING OBJECTIVES
View learning objectives under main course title.

SPSP01B Primera Parte/Part 1
Moderator: Pablo Riera Ros MD, PhD: Medical Advisory Board, Koninklijke Philips NV Medical Advisory Board, KLAS Enterprises LLC Medical Advisory Committee, Oakstone Publishing Departmental Research Grant, Siemens AG Departmental Research Grant, Koninklijke Philips NV Departmental Research Grant, Sectra AB Departmental Research Grant, Toshiba Corporation

LEARNING OBJECTIVES
View learning objectives under main course title.

SPSP01C Sistema Nervioso Central: Correlación Entre Marcadores Genéticos e Imágenes en Astrocitomas/Central Nervous System: Imaging-Genetic Markers Correlation in Astrocytomas
Mauricio Castillo MD (Presenter): Nothing to Disclose

LEARNING OBJECTIVES
1) To become familiar with the traditional biochemical/genetic markers of astrocytomas and how their presence or absence correlate with imaging findings. 2) To understand the biological changes, as reflected by MR advanced imaging techniques, that astrocytomas go through when malignant transformation occurs.
In this lecture we will use advanced MR imaging techniques, perfusion (both contrast enhanced and arterial spin labelled), permeability, diffusion, and spectroscopy to understand the biological behavior of astrocytomas. Low grade astrocytomas may not show high choline on MRS but show high myoinositol which correlates with low perfusion values. Anaplastic astrocytomas produce metalloproteases and thus VEGF and PDGF can stimulate angiogenesis resulting in high perfusion with gadolinium and ASL. Lastly, hypoxia induces formation of permeability factors leading to edema and contrast enhancement in glioblastomas. Necrosis, seen as lipids on MRS is a marker of glioblastoma. Presence of MGMT promoter and alterations in the IDH1 gene (present in most secondary glioblastomas) confer a better survival pattern to glioblastoma patients and these findings are seen predominantly in temporal and deep tumors and in those with little contrast enhancement and high signal on T2 and DWI images. Thus, the intial transformation in all low grade astrocytomas is ischemia that can be seen as the presence of lactate on MRS, while markers of higher grades such as angiogenesis, permeability, and necrosis can be identified with perfusion, K-trans maps, and MR spectroscopy. Lack of myoinositol on MRS indicates its consumption for production of metalloproteases and thus it is also an early marker of angiogenesis. Many of these changes occur before anatomical images may suggest them.

**URL**

https://sites.google.com/site/castilloneuroradiology/

**Active Handout**

http://media.rsna.org/media/abstract/2014/14002958/SPSP01C sec.pdf
diffusion weighted MRI (DWI) for differentiating benign from malignant lung lesions.

URL
http://www.ultrax.com.br/chest

**SPSP01G**

Conferencia del Colegio Interamericano de Radiología/Interamerican College of Radiology Lecture
Dante R. Casale Menier MD (Presenter): Nothing to Disclose

**LEARNING OBJECTIVES**

View learning objectives under main course title.

**SPSP01H**

Segunda Parte/Part II
Moderator Miguel E. Stoopen MD: Nothing to Disclose

**LEARNING OBJECTIVES**

View learning objectives under main course title.

**ABSTRACT**

N/a

**URL**

www.webcir.org

**SPSP01I**

Musculoesqueletico: Imágenes Avanzadas del Cartílago Articular y "Chemichal Shift" de Médula Ósea/Musculoskeletal: Advanced Imaging of the Articular Cartilage and Bone Marrow Chemical Shift Imaging
Gonzalo Javier Delgado MD (Presenter): Nothing to Disclose

**LEARNING OBJECTIVES**

View learning objectives under main course title.

**SPSP01J**

Abdomen e Hígado: Contrastes Hepatoespecíficos y Elastografía por Resonancia Magnética/Abdomen and Liver: Liver Specific Contrast Agents and Hepatic MR Elastography
Luis Antonio Sosa MD (Presenter): Nothing to Disclose

**LEARNING OBJECTIVES**

View learning objectives under main course title.

**SPSP01K**

Próstata: Resonancia Magnética de 3T y PET/CT con Colina/Prostate: 3T MRI and Choline PET/CT
Daniela Stoisa MD (Presenter): Nothing to Disclose

**LEARNING OBJECTIVES**

View learning objectives under main course title.

**Handout:** Daniela Stoisa
http://media.rsna.org/media/abstract/2014/14002966/cap chicago 2014.ppt

**SPSP01M**

Clausura/Closing Remarks
Dante R. Casale Menier MD (Presenter): Nothing to Disclose, Pablo Riera Ros MD, PhD (Presenter): Medical Advisory Board, Koninklijke Philips NV Medical Advisory Board, KLAS Enterprises LLC Medical Advisory Committee, Oakstone Publishing Departmental Research Grant, Siemens AG Departmental Research Grant, Koninklijke Philips NV Departmental Research Grant, Sectra AB Departmental Research Grant, Toshiba Corporation, Miguel E. Stoopen MD (Presenter): Nothing to Disclose

**LEARNING OBJECTIVES**
AAPM/RSNA Tutorial on Equipment Selection: Multi-Spectral and Volumetric Imaging

**Special Courses**

| PH | US | NM | CT |

AMA PRA Category 1 Credits™: 2.00  
ARRT Category A+ Credits: 2.00  
Sat, Nov 29 2:15 PM - 4:15 PM  Location: E351

**Participants**

**Moderator**

Jerry A. Thomas MS  
Stockholder, General Electric Company  
Stockholder, Hologic, Inc  
Stockholder, Stryker Corporation  
Speaker, Medical Technology Management Institute

**LEARNING OBJECTIVES**

1. Understand the advanced capabilities of multi-spectral volumetric imaging in the major modalities of Ultrasound, MRI, CT and Nuclear Imaging.  
2. Appreciate the clinical capabilities of multi-spectral volumetric imaging and approach to utilizing advanced imaging applications with this technology.

**Sub-Events**

**SPPH02A**

**Dual Energy Imaging in Diagnostic Radiology**

Jerry A. Thomas MS (Presenter):  
Stockholder, General Electric Company  
Stockholder, Hologic, Inc  
Stockholder, Stryker Corporation  
Speaker, Medical Technology Management Institute

**LEARNING OBJECTIVES**

View learning objectives under main course title.

**SPPH02B**

**Hybrid Imaging in Ultrasound**

Evan Boote PhD (Presenter):  
Nothing to Disclose

**LEARNING OBJECTIVES**

View learning objectives under main course title.

**ABSTRACT**

Ultrasound imaging is a relatively inexpensive, low-risk application to patients, ubiquitously available in the health care setting. However, ultrasound presents a challenge to the novice user, particularly with regard to recognition of anatomic landmarks. In some situations, ultrasound imaging is not capable of resolving some structures, either due to spatial and/or contrast resolution limitations; in certain other situations, ultrasound offers a superior approach to visualizing abnormalities or the depiction of blood flow in the body. Hybrid ultrasound may be defined in a number of ways - the most likely definition would be what might be termed 'fusion' imaging, where a set of image data from a second modality is imported into the ultrasound system, anatomical landmarks are established, and a fused image is displayed in real-time. Hence the advantages of the other modalities would be gained during the use of the ultrasound system. Another definition of 'hybrid' may be the use of a device to depict a biopsy needle placement in real-time. A further extension of the word 'hybrid' might be to include real-time simultaneous imaging with another modality, even a non-traditional imaging modality. This presentation will review these variations of 'hybrid' ultrasound that are commercially available and in current clinical practice. However, the presentation will also cover those still in the development stage. The practical applications of these systems will be discussed, as will the limitations and restrictions on their use. Included in this will be an evaluation of cost of the system and a case-study on the use of hybrid imaging in a hospital setting.

**SPPH02C**

**Commercially Available Multi-spectral and Volumetric Imaging Systems**

Sarah Eva McKenney PhD (Presenter):  
Nothing to Disclose

**LEARNING OBJECTIVES**

View learning objectives under main course title.

**ABSTRACT**

The price of purchasing and maintaining the latest imaging systems is on the order of millions; tight budgets in health care necessitate the ability to make smart purchases. This work identifies important considerations when purchasing an advanced imaging system, specifically in the context of dual energy and multi-modality volumetric imaging. The roles of imaging stakeholders are examined including: administrators, radiologists,
technologists, medical physicists, IT specialists, clinical engineers, and vendors. A general overview of the strengths and weaknesses of volumetric commercially available imaging systems is also provided. Learning Objectives • Identify the needs of the imaging cohort • Evaluate prospective systems for purchase

URL
http://goo.gl/CB3Tgm

SPMT11

Mock Jury Trial

Special Courses

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| AMA PRA Category 1 Credits ™: 5.00
| ARRT Category A+ Credits: 6.00
| Sun, Nov 30 10:30 AM - 3:30 PM  Location: S406A

Participants
Moderator
Leonard Berlin MD : Nothing to Disclose
Attorney for Defense
Timothy G. Nickels Nothing to Disclose
Judge
Clare Elizabeth McWilliams Nothing to Disclose
Attorney for Plaintiff
Keith A. Hebeisen Nothing to Disclose
Defendant Radiologist
Jonathan W. Berlin MD Stockholder, Nuance Communications, Inc Radiology Advisory Board, Nuance Communications, Inc
Expert Witness
Lincoln L. Berland MD Consultant, Nuance Communications, Inc Stockholder, Nuance Communications, Inc
Expert Witness
Mark E. Baker MD Research Consultant, Bracco Group Researcher, Siemens AG Research support, Siemens AG

LEARNING OBJECTIVES
1) Learn the various components of a medical malpractice lawsuit trial that is conducted in front of a jury in a courtroom. 2) Understand the specific roles of the presiding judge, the attorney for the plaintiff, the attorney for the defendant, and the expert witnesses who testify that the defendant radiologist either complied with, or breached, the standard of medical care. 3) Become apprised of how a jury of lay persons evaluate and judge the testimony of the witnesses, and the arguments of the opposing attorneys, by observing and listening to the jurors’ deliberations. 4) Appreciate the dilemma faced by radiologists when observing an incidental finding which is observed on a radiologic exam obtained for unrelated reasons.

ABSTRACT
A mock trial will be held that focuses on an allegation of negligence against a radiologist who observed an incidental finding on an abdominal CT scan that was obtained for reasons unrelated to the finding. The radiologist evaluated the finding, and determined that it was an insignificant and clinically unimportant finding, and thus reported that the finding can be ignored by the referring physician. The finding was forgotten until 18 months later when it was determined that the incidental finding had in fact been an early carcinoma. By that time the patient was inoperable, and thus the lawsuit was ready to be tried before a jury. Ordinarily such a trial would last one to two weeks, but because of time restraints, the trial will be conducted over a period of 3 hours. A real Judge who presides over malpractice trials in Chicago’s courtroom, and prominent plaintiff's and defense attorneys, will conduct the trial, in an abbreviated fashion, as they would in a real trial. Two radiologist- expert witnesses will testify, one critical, and the other supportive, of the defendant radiologist. When the testimony is over, there will be a video and audio feed of the jury’s deliberations to the audience. Following the rendering of a verdict, an open discussion among the participants and the audience will be held.

SPOI11

Oncodiagnosis Panel: Breast Cancer

Special Courses

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| AMA PRA Category 1 Credits ™: 1.50
| ARRT Category A+ Credits: 1.50
| Sun, Nov 30 10:45 AM - 12:15 PM  Location: E353C

Sub-Events

SPOI11A

Innovations in Breast Cancer Diagnosis and Targeting for Therapy
Ellen Bachman Mendelson MD (Presenter): Research support, Siemens AG Speakers Bureau, Siemens AG Medical Advisory Board, Quantason, LLC Consultant, Quantason, LLC

LEARNING OBJECTIVES
1) Learn how to sequence multimodality imaging and interventions to provide specific diagnoses and map disease extent as well assess responses to breast cancer therapies.
**ABSTRACT**

At the conclusion of this presentation, which will provide an update on state-of-the-art breast imaging, attendees will learn how to sequence multimodality imaging and interventions to provide specific diagnoses and map disease extent as well as assess responses to breast cancer therapies.

**SPOI11B**

**Changing Paradigms of Radiation Therapy in Breast Cancer, Maximizing Tumor Control and Minimizing Toxicity**

Jean Lundberg Wright MD (Presenter): Nothing to Disclose

**LEARNING OBJECTIVES**

1) Understand the principles of radiation therapy, including external and brachytherapy and various treatment fractionation and dose schedules. 2) Learn to apply specific imaging modalities and techniques for radiation therapy planning to maximize target coverage. 3) New techniques to reduce dose to normal tissue and novel radiation therapy modalities will be reviewed.

**SPOI11C**

**New Paradigms of Breast Cancer Surgery**

Kelly K. Hunt MD (Presenter): Nothing to Disclose

**LEARNING OBJECTIVES**

1) Following this program, participants should have an understanding of the important controversial aspects of coordinated local treatment of breast cancer. 2) Participants will learn different approaches to nodal staging and management of the axilla in patients with positive lymph nodes. 3) They will obtain a better understanding of the pros and cons of neoadjuvant and adjuvant systemic therapies based on breast cancer subtypes.

**SPSC20**

**Controversy Session: Shoulder Imaging: US vs MR**

**Special Courses**

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Mon, Dec 1 7:15 AM - 8:15 AM  Location: E351

**Participants**

Moderator

Laura W. Bancroft MD : Royalties, Wolters Kluwer nv

Jon A. Jacobson MD (Presenter): Consultant, BioClinica, Inc Royalties, Reed Elsevier Equipment support, Arthrex, Inc

Theodore T. Miller MD (Presenter): Nothing to Disclose

**LEARNING OBJECTIVES**

1) Describe the indications for shoulder US. 2) Describe the advantages and disadvantages of US for evaluating the shoulder. 3) Describe the indications for shoulder MRI. 4) Describe the advantages and disadvantages of MRI for evaluating the shoulder.

**SPSH20**

**Hot Topic Session: Meeting the Demand for 24/7 Coverage in Academic Medical Centers**

**Special Courses**

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Mon, Dec 1 7:15 AM - 8:15 AM  Location: E352

**Participants**

Moderator

Stephen Ledbetter MD : Nothing to Disclose

**LEARNING OBJECTIVES**

Many radiology departments are actively considering different methods to best expand to 24/7 attending coverage. In this session, three very different solutions will be explored, with particular attention to the issues relevant to academic medical centers, including: staffing, scheduling, and sustainability; expertise and scope of practice; the academic mission including academic productivity and implications to trainee education and autonomy; and financial considerations. Each model will be discussed, followed by a panel session for open discussion.

**Sub-Events**
Korea Presents: Exploring Evidence in Cardiovascular Imaging

Special Courses

AMA PRA Category 1 Credits™: 1.50
ARRT Category A+ Credits: 1.50

Mon, Dec 1 10:30 AM - 12:00 PM   Location: E353C

Participants

Moderator
Tae-Hwan Lim MD, PhD : Nothing to Disclose
Arthur E. Stillman MD, PhD : Nothing to Disclose

LEARNING OBJECTIVES

This session is part of Korea Presents at RSNA 2014.

Sub-Events

SPCP21A

Opening Remarks
RSNA President N. Reed Dunnick MD Nothing to Disclose, Tae-Hwan Lim MD, PhD Nothing to Disclose, Jongmin John Lee MD, PhD Nothing to Disclose

LEARNING OBJECTIVES

Korea and Korean Society of Radiology (KSR)
This session is part of Korea Presents at RSNA 2014.

ABSTRACT

Korea and Korean Society of Radiology (KSR) Following dinosaurs, Homo erectus, and Homo sapiens, our ancestors have inhabited in and around Korean peninsula. In a history of many dynasties for 5000 years, Republic of Korea was established in 1947 AD. In 2013, the population was counted as 51,098,531 (26th / 225 countries) within 100,210 km2(111th / 208 countries). The number of medical doctor per 100,000 population has been increasing continuously up to 214 in 2012. Among 113,000 medical doctors, 3,465 board-certified radiologists are registered in 2014. KSR was founded in 1945. Korean congress of radiology (KCR) has continued every year till now. From 2010, KCR was organized as an international congress with the official language of English. This year, over 75% of sessions were conducted in English. Topics for only Korean doctors and some basic educational sessions were in Korean. Additional on the regular members (76.0%), 604 resident members (13.3%) and 478 international members (10.5%) are registered in KSR (4,547 in total). During the KCR, about 10% of registrants are usually from abroad. As a diligent radiology society in Asia-Oceania region, KSR conducts diverse international activities including visiting symposium, KSR fellowship, invited speaker exchange, awarded poster exchange, joint symposium, national delegate exchange, journal collaboration, booth exchange, and visiting professorship. So far, international collaboration has been established between KSR and 20 countries or societies world-wide. The globalization of KSR is on the purpose of giving more opportunities for KSR members to improve themselves through international communication. Also KSR aims for a synergic evolution together
with our partner societies. As a world leading radiology society, RSNA has been a source of motivation and is a chance of globalization for KSR and its members.

URL

http://www.radiology.kr

**SPCP21B**

**What are Risk Factors for Stroke? Imaging Assessment of Cardiovascular Risk in Stroke**

**Jin Hur MD (Presenter):** Nothing to Disclose

**LEARNING OBJECTIVES**

1) Understand the stroke subtype and the risk factors of cardio-embolic stroke. 2) Describe the imaging modalities in the assessment of cardiovascular risk in stroke patients. 3) Describe the advantages and disadvantages of cardiac CT and MRI in the use of assessing cardio-embolic sources in stroke patient. 4) Discuss the prognostic value of cardiac CT for risk stratification in stroke patients.

This session is part of Korea Presents at RSNA 2014.

**ABSTRACT**

Cardiogenic emboli have been estimated to be the causative factor in 20% to 40% of all stroke cases. Therefore, identification of a cardiac source of embolism in stroke patients is important for proper therapeutic management. Currently, transesophageal echocardiography (TEE) is considered the reference standard method for the detection of potential sources of cerebral embolism. TEE offers high resolution images of the left atrium (LA) and its appendage as well as the thoracic aorta for the evaluation of left atrial blood stasis and aortic atherosclerosis. Although TEE is widely available, it is a semi-invasive test, usually performed under conscious sedation. In current clinical practice, there is a need for a less invasive modality that is capable of assessing the cardiovascular system for embolic stroke patients. Cardiac magnetic resonance imaging (MRI) is an appealing modality to evaluate a suspected embolic stroke patient. Cardiac MRI can adequately image potential embolic sources such as LV thrombi, cardiac masses, aortic plaques or LAA thrombi. Recently introduced multidetector computed tomography (MDCT) with subsecond rotation times and a dedicated cardiac reconstruction algorithm can acquire 3-dimensional data of the heart, enabling detailed visualization of not only the coronary arteries but also other cardiac structures such as the left atrial appendage (LAA), myocardium, valves, and septa. Therefore, MDCT can play a significant role as a noninvasive procedure in the detection of the cardioembolic origin of stroke. Radiologists should be familiar with their imaging features as identification has significant management and prognostic implications.

**SPCP21C**

**Is Screening of Coronary Heart Disease with Coronary CT Angiography Necessary? Coronary CT Angiography in Asymptomatic Patients**

**Sang Il Choi MD (Presenter):** Nothing to Disclose

**LEARNING OBJECTIVES**

1) To review the use of various multimodality imaging techniques for assessing subclinical coronary artery disease. 2) To demonstrate the current multimodality appropriate use criteria for detection and risk stratification of coronary artery disease in asymptomatic subjects. 3) To recognize the potential role and limitations of coronary CT angiography as screening tool in asymptomatic subjects.

This session is part of Korea Presents at RSNA 2014.

**SPCP21D**

**Is CT Stress Perfusion Comparable to FFR in Assessing Ischemic Heart Disease? Multicenter Trial PERFUSE**

**Byoung Wook Choi MD (Presenter):** Nothing to Disclose

**LEARNING OBJECTIVES**

1) Understand the clinical role and indication of myocardial perfusion with computed tomography. 2) Access the study design and rationale to compare myocardial perfusion with computed tomography with FFR regarding to clinical utility. 3) Able to set up a proper protocol of computed tomography for myocardial perfusion in clinical practice. 4) Assess the technical advances and consideration of computed tomography in myocardial perfusion.

This session is part of Korea Presents at RSNA 2014.

**ABSTRACT**

The FAME trial demonstrated the superiority of FFR (fractional flow reserve)-guided revascularization strategy over angiography-guided treatment. The functional significance of coronary artery stenosis is now considered as the standard reference for revascularization. Non-invasive imaging for myocardial ischemia can be used for identifying functionally significant stenosis as well. Evaluation of myocardial ischemia by using CT has been reported as a new alternative non-invasive method. According to a recent study, as compared to FFR and invasive angiography, the combination of CT angiography (CTA) and CT perfusion (CTP) was highly accurate in detection and exclusion of myocardial ischemia. The PERFUSE (Stress Coronary PERfusion Versus FRActional Flow Reserve GUided Percutaneous Coronary IntErvention) trial is a multicenter, randomized, controlled, noninferiority trial in the comparison of CTP- and FFR-guided percutaneous coronary intervention (PCI). The objective of this trial is to compare outcomes of composite of any of all cause mortality, myocardial infarction,
and unplanned hospitalization with revascularization at 1 year after CTP-guided PCI to FFR-guided PCI in angina patients with coronary artery disease. The inclusion criteria is patients who referred for CTA because of angina or angina equivalent symptom and having more than 70% diameter stenosis at least one major epicardial coronary artery on CTA. A total 1000 patient will be enrolled (500 per each arm) and randomized to either FFR guided or CTP-guided groups. Twenty centers in Korea are participating in the study.

Closing Remarks

Byung Ihn Choi MD, PhD (Presenter): Research Consultant, Samsung Electronics Co Ltd, James P. Borgstede MD (Presenter): Nothing to Disclose

LEARNING OBJECTIVES

This session is part of Korea Presents at RSNA 2014.

ABSTRACT

First of all, I'd like to thank members of Board of Directors of RSNA including Dr. Dunnick (President), and Dr. Baron (Chairman) and Dr. Borgstede (Liaison for international affairs) for inviting Korea to RSNA which is the most prestigious organization in the field of Radiology in the year of meaningful centennial anniversary of RSNA. During the last 30 years, I have attended RSNA more than 20 times since 1985 when I was a visiting fellow of UC San Francisco. Since then, advance of RSNA has been amazing in every aspect of the meeting not only in quality but also in quantity, about 60,000 attendants for the meeting and more than 50,000 members from all over the world. RSNA really became a global congress of Radiology. Therefore, KSR is now trying to follow this unbelievable progress of RSNA as a role model of KCR. Personally, I love RSNA because RSNA is an ideal place for me to learn recent updated knowledge and cutting edge information of radiology, and to meet old and new friends. Also, I can enjoy rich cultural environment in Chicago including music, fine art and natural resources. As an honorary member of RSNA and a past president of KSR, I'll try to do my best to enhance a mutual friendship and collaboration between RSNA and KSR. Finally, I'd like to congratulate the celebration of 100th scientific assembly and annual meeting of RSNA and wish RSNA a glorious future.
This session will give a brief summary of concepts, procedures and tools for addressing quality health care and patient safety in radiotherapy using systems engineering approaches that have proven effective in other fields of medicine and widely in industry. Establishing quality management procedures takes a risk-analysis approach, beginning with mapping a process, assessing the risks at each step, determining the propagation of failures and addressing potential failures with the most effective tools. The session also considers how to maintain and continually improve quality and safety in a radiotherapy facility through incident reporting, root-cause analysis and quality improvement techniques. Understanding these approaches requires knowledge of safety culture, work systems and how humans succeed and fail, all of which will be covered in this session.

**Sub-Events**

**SPPH22A**  
**Introduction: Work Systems and Safety Culture**  
Jennifer Lynn Johnson MSc, MBA (Presenter): Nothing to Disclose  
**LEARNING OBJECTIVES**

View learning objectives under main course title.

**SPPH22B**  
**Errors and Actions**  
Bruce Robert Thomadsen PhD (Presenter): Nothing to Disclose  
**LEARNING OBJECTIVES**

View learning objectives under main course title.

**SPPH22C**  
**Risk Assessment**  
Frank J. Rath (Presenter): Nothing to Disclose  
**LEARNING OBJECTIVES**

View learning objectives under main course title.

**SPPH22D**  
**Quality Management Concepts**  
Barrett Caldwell (Presenter): Nothing to Disclose  
**LEARNING OBJECTIVES**

View learning objectives under main course title.

**SPPH22E**  
**Quality Management Tools and Approaches**  
Frank J. Rath (Presenter): Nothing to Disclose  
**LEARNING OBJECTIVES**

View learning objectives under main course title.

**SPPH22F**  
**Quality Management Based on Risk Assessment**  
Bruce Robert Thomadsen PhD (Presenter): Nothing to Disclose  
**LEARNING OBJECTIVES**

View learning objectives under main course title.

**SPPH22G**  
**Report Systems**  
Peter Dunscombe PhD (Presenter): Director, TreatSafely, LLC  
**LEARNING OBJECTIVES**

View learning objectives under main course title.

**SPPH22H**  
**Root-Cause Analysis**  
Barrett Caldwell (Presenter): Nothing to Disclose  
**LEARNING OBJECTIVES**
SPPH22I  Quality Improvement
Peter Dunscombe PhD (Presenter): Director, TreatSafely, LLC

LEARNING OBJECTIVES
View learning objectives under main course title.

SPPH22J  Managing Change
Jennifer Lynn Johnson MSc, MBA (Presenter): Nothing to Disclose

LEARNING OBJECTIVES
View learning objectives under main course title.

SPEP21
Estate Planning Today for a Better Tomorrow

SPECIAL COURSES

CME credit is not available for this session.

Mon, Dec 1 3:00 PM - 5:30 PM Location: E253AB

Participants
Alicia K. Waltenberger (Presenter): Nothing to Disclose

LEARNING OBJECTIVES
1) Fundamentals of conventional estate planning for any financial situation. 2) Planning strategies for retirement needs, Roth conversions, and charitable gifts. 3) Sophisticated strategies to leverage taxable gifts and transfer wealth to lower generations.

ABSTRACT
It is important to understand the fundamentals of estate planning and the importance of having a solid plan in place regardless of your financial situation. The desire to be tax efficient and keep up with the changing tax environment can sometimes feel like an insurmountable feat. In this seminar, we will explore a number of issues in the financial and tax planning arena including: 0 Income and Estate Tax Updates - understanding the impact of the new income tax laws on your planning, as well as exploring strategies that may reduce your tax exposure; 0 Roth Conversions - an analysis of whether a Roth conversion is a smart move, unwise or much ado about nothing; 0 Estate Planning Basics - a review of estate planning fundamentals, including a look at conventional estate planning strategies and how the changes in the estate tax laws may impact that conventional planning; 0 Sophisticated Planning Strategies - there are various planning techniques available to leverage taxable gifts, allowing wealth to be funneled to lower generations on a tax-advantaged basis both during lifetime and at death; 0 Non-Tax Related Planning - a look at how family dynamics, asset protection and state tax issues may impact the estate plan; and 0 Charitable Planning - identifying the types of gifts and giving techniques that offer the greatest tax benefit to donors both during lifetime and at death. In addition to comprehensive discussion outlined above, the session will include ample opportunity for Q&A.

SPDL21
RSNA Diagnosis Live™: Chest/Abdomen/Neuroradiology

SPECIAL COURSES

AMA PRA Category 1 Credits ™: 1.50
ARRT Category A+ Credit: 0

Mon, Dec 1 4:30 PM - 6:00 PM Location: E451B

Participants
Neety Panu MD, FRCPc (Presenter): Nothing to Disclose
Gregory Lewis Katzman MD (Presenter): Author, Amirsys, Inc Stockholder, Amirsys, Inc

LEARNING OBJECTIVES
1) The participant will be introduced to a series of radiology 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 imaging 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
**SPSI21**

**Special Interest Session: Radiology and Pathology Diagnostics: Is It Time to Integrate?**

**Special Courses**

**AMA PRA Category 1 Credits™:** 1.50  
**ARRT Category A+ Credits:** 1.50

*Mon, Dec 1 4:30 PM - 6:00 PM  Location: E351*

**Participants**

**Moderator**  
Mitchell Dennis Schnall MD, PhD: Nothing to Disclose  
Michael D. Feldman MD, PhD: Nothing to Disclose

**LEARNING OBJECTIVES**

1) Learn about the potential value that would come from better integration of pathology and radiology. 2) Learn about near term opportunities for improving workflow and performance through coordination of Radiology and Pathology. 3) Learn about the future of molecular diagnostics integrating imaging and tissue assays.

**Sub-Events**

**SPSI21A**  
Goals and Associated Value Proposition Related to Radiology and Pathology Integration  
Mitchell Dennis Schnall MD, PhD (Presenter): Nothing to Disclose

**LEARNING OBJECTIVES**

View learning objectives under main course title.

**SPSI21B**  
Near Term Opportunities for Radiology and Pathology Integration  
Michael D. Feldman MD, PhD (Presenter): Nothing to Disclose

**LEARNING OBJECTIVES**

View learning objectives under main course title.

**ABSTRACT**

There are several challenges to meaningfully integrating clinical radiologic and pathologic information. These include issues of sampling and geographic registration, and practical matters of developing a shared workflow and integrated information systems as well as a common culture. These challenges invite research opportunities to investigate the most effective ways to extract diagnostic information from both molecular markers and imaging data, and to optimize evidence-based utilization of diagnostic tools for best patient outcomes. If done well, integrated and intelligent radiology/pathology information systems and processes may catalyze the realization of precision medicine.

**SPSI21C**  
Integrating Molecular Diagnostics and Molecular Imaging  

**LEARNING OBJECTIVES**

View learning objectives under main course title.

**SPSI21D**  
Panel Discussion  

**LEARNING OBJECTIVES**

View learning objectives under main course title.
Special Interest Session: Optimizing Quantitative Imaging Biomarkers for Practice: QIBA Examples from CT, MR, PET and US

Special Courses

LEARNING OBJECTIVES

1) 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. 2) Describe the challenges of extracting uniform, standardized quantitative measures from clinical imaging scans. 3) Describe the benefits of implementing more quantitative image interpretation in clinical radiology practice, including quality assurance activities and for the development of decision-support tools. 4) List an example of an imaging biomarker from CT, MR, PET and ultrasound scans that are needed in clinical practice.

ABSTRACT

In response to the need for reliable and reproducible quantification of biomedical imaging data, the RSNA in 2007 organized the Quantitative Imaging Biomarkers Alliance (QIBA, http://rsna.org/QIBA_.aspx) whose mission is to improve the value and practicality of quantitative imaging biomarkers by reducing variability across devices, patients and time. QIBA participants span a wide range of expertise including clinical practice, clinical research, physics, statistics, engineering, marketing, regulatory, pharmaceutical, and computer science. QIBA employs a systematic, consensus-driven approach to produce a QIBA Profile that includes one or more Claims and specifications for the image acquisition and processing necessary to achieve that Claim. QIBA Profiles are based on published data whenever such data are available and on expert consensus opinion for specifications where no data exist. Thus there are several sources of variability in the quantitative results obtained from clinical images, which can be grouped into three categories: (1) the image acquisition hardware, software and procedures; (2) the measurement methods used; and (3) the reader variability. Examples of QIBA Profiles for CT volumetry, DW-MR, FDG-PET and ultrasound for liver elastography will be discussed.

Sub-Events

SPSI22A

Introduction
Daniel C. Sullivan MD (Presenter): Nothing to Disclose

SPSI22B

CT for Lung Cancer Screening
James L. Mulshine MD (Presenter): Nothing to Disclose

SPSI22C

DW-MR for Cancer Staging and Monitoring
Mark Alan Rosen MD, PhD (Presenter): Nothing to Disclose

SPSI22D

FDG-PET for Cancer Staging and Monitoring
### SPSI22E
**US Elastography for Liver Fibrosis Diagnosis and Monitoring**

Anthony Edward Samir MD (Presenter): Nothing to Disclose

**LEARNING OBJECTIVES**

View learning objectives under main course title.

### SPSI23

**Special Interest Session: Image Wisely**

*Special Courses*

<table>
<thead>
<tr>
<th>Event Code</th>
<th>Title</th>
<th>Presenter(s)</th>
<th>Disclosures</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPSI23A</td>
<td>Image Wisely Overview</td>
<td>Richard L. Morin PhD (Presenter): Nothing to Disclose, William W. Mayo-Smith MD (Presenter): Author with royalties, Reed Elsevier Author with royalties, Cambridge University Press</td>
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<tr>
<td>SPSI23B</td>
<td>Fluoroscopy Campaign Launch, Team Performance</td>
<td>James R. Duncan MD, PhD (Presenter): Consultant, Novita Therapeutics, LLC Consultant, Proteon Therapeutics, Inc</td>
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<tr>
<td>SPSI23C</td>
<td>Checklists, Task-specific and Patient Specific Factors</td>
<td>Steven Y. Huang MD (Presenter): Nothing to Disclose</td>
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<tr>
<td>SPSI23D</td>
<td>Technical Principles for Interventional Procedures</td>
<td>James R. Duncan MD, PhD (Presenter): Consultant, Novita Therapeutics, LLC Consultant, Proteon Therapeutics, Inc</td>
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<tr>
<td>SPSI23E</td>
<td>High/Substantial Dose Patient Management</td>
<td>Stephen Balter PhD (Presenter): Nothing to Disclose</td>
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**LEARNING OBJECTIVES**

1) List team members for fluoroscopic procedures and their typical responsibilities. 2) Describe the role of shared mental models in teamwork. 3) Write in order the common stages of team development. 4) Produce examples of how teamwork improves radiation safety during fluoroscopic procedures.

**ABSTRACT**

Radiation dose during a fluoroscopic procedure is dependent on many factors. While some factors are fixed (e.g. body habitus), others can be manipulated to minimize radiation dose to the patient and radiology staff while preserving image quality. This presentation focuses on optimizing radiation use by adhering to basic radiation safety principles and tailoring fluoroscopic procedures to task- and patient-specific factors.

1) Promote a checklist for fluoroscopic radiation safety designed to decrease radiation dose to the patient and radiology staff while preserving image quality. 2) Explain how task-specific and patient-specific factors can affect radiation dose and image quality during a fluoroscopic procedure. 3) Be familiar with the various techniques in which dose reduction can be successfully applied.

Radiation dose during a fluoroscopic procedure is dependent on many factors. While some factors are fixed (e.g. body habitus), others can be manipulated to minimize radiation dose to the patient and radiology staff. This presentation focuses on optimizing radiation use by adhering to basic radiation safety principles and tailoring fluoroscopic procedures to task- and patient-specific factors.

1) Understand key aspects of radiobiology and technology that influence tissue reactions. 2) Understand guidelines for radiation management before, during, and after a procedure. 3) Understand the applicability of QA/QI processes to high-dose interventional procedures.
ABSTRACT

Fluoroscopically guided interventional procedures offer patients both clinical and economic benefits. Radiation-induced tissue reactions continue to be an uncommon side-effect of these procedures. Radiogenic tissue reactions should never come as a surprise to either the operator or the patient. A tissue reaction cannot always be avoided, but its magnitude can usually be minimized. Minimizing the likelihood and severity of reactions such as skin injuries requires appropriate action before, during, and after each procedure. This presentation reviews key elements of radiobiology, technology, operational guidelines, and administrative tools for interventional radiation management.

SPSI24
Special Interest Session: Clinical Decision Support for Imaging: Update on Current State and New Federal Regulations

Special Courses

AMA PRA Category 1 Credits ™: 1.50
ARRT Category A+ Credits: 1.50

Mon, Dec 1 4:30 PM - 6:00 PM   Location: N228

Participants

Moderator
Ronald L. Arenson MD : Nothing to Disclose
Keith David Hentel MD, HS (Presenter): Nothing to Disclose
Bibb Allen MD (Presenter): Nothing to Disclose
Ramin Khorasani MD (Presenter): Consultant, Medicalis Corp

LEARNING OBJECTIVES

1) Describe the context (e.g., concerns about inappropriate use of imaging, quality and waste-pre-auth programs, and federal regulations including meaningful use, and promoting evidence based practice) urgency, and future federal requirements for the use of decision support for improving appropriateness of diagnostic imaging. 2) Define decision support, describe attributes of effective decision support and discuss current understanding of impact of CDS on use of imaging. 3) Describe ACR’s approach and direction regarding CDS. 4) Describe current gaps, opportunities and future directions in imaging CDS with focus on pending regulations (e.g., quality and sources of evidence, optimal integration into the EHR).

SPDL31
RSNA Diagnosis Live™: Body, Cardiac, MSK, Neuro, ENT Potpourri

Special Courses

AMA PRA Category 1 Credits ™: 1.00
ARRT Category A+ Credit: 0

Tue, Dec 2 7:15 AM - 8:15 AM   Location: E451B

Participants

Adam Eugene Flanders MD (Presenter): Nothing to Disclose
Sandeep Prakash Deshmukh MD (Presenter): Nothing to Disclose
Christopher Geordie Roth MD (Presenter): Author, Reed Elsevier

LEARNING OBJECTIVES

1) The participant will be introduced to a series of radiology 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 imaging 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.

SPSC30
Controversy Session: Head and Neck Modality Roulette: What's the Best Imaging Option?

Special Courses

AMA PRA Category 1 Credits ™: 1.00
ARRT Category A+ Credit: 1.00

Tue, Dec 2 7:15 AM - 8:15 AM   Location: E451A

Participants

Moderator
Deborah Rachelle Shatzkes MD : Nothing to Disclose

Sub-Events
4DCT in Parathyroid Adenoma Search: Is It Worth the Dose?

C. Douglas Phillips MD (Presenter): Stockholder, MedSolutions, Inc Consultant, Guerbet SA, Laurie A. Loewen MD (Presenter): Nothing to Disclose

LEARNING OBJECTIVES

We will discuss the contribution of 4D-CT to imaging parathyroid adenomas and parathyroid hyperplasia and whether or not the technique is of value in the current radiation-conscious era.

ABSTRACT

A physician wishing to accurately diagnose and localize parathyroid tissue for minimally invasive parathyroid surgery (MIPS) has a number of potential choices. They may choose to not image the patient. They may utilize Tc-99m SESTAMIBI imaging with or without SPECT or CT fusion, they may order US, MRI, or CT studies. 4D-CT has gained attention as an accurate and reliable test to localize parathyroid tissue for MIPS. The questions regarding this technique are 1) does it answer the question reliably? and 2) is it worth the dose to an individual patient?

Surveillance Imaging in Head and Neck Cancer: Should PET/CT be the First-line Modality?

Barton F. Branstetter MD (Presenter): Nothing to Disclose, Hugh D. Curtin MD (Presenter): Nothing to Disclose

LEARNING OBJECTIVES

1) List 3 advantages to using PET/CT for surveillance of treated Head and Neck Squamous Cell Carcinoma. 2) List 3 disadvantages to using PET/CT for surveillance of treated Head and Neck Squamous Cell Carcinoma. 3) Describe the optimal frequency and duration of PET/CT for surveillance of treated Head and Neck Squamous Cell Carcinoma.

ABSTRACT

In patients with head and neck squamous cell carcinomas, PET/CT has proved useful at several different stages of patient care. PET/CT is used for staging a newly-discovered malignancy (or re-staging of recurrence); it is used to monitor response to therapy; it is used to assess suspicious signs and symptoms in treated patients; and it is used for surveillance of treated patients who have no evidence of residual disease. The appropriate application of PET/CT in these clinical scenarios is controversial. Some of the advantages and disadvantages of PET/CT for surveillance are undisputed, but the details of how to apply the technique have not been fully optimized in the current radiology literature. In this presentation, advantages and disadvantages of surveillance PET/CT (relative to CT) are described, and areas of controversy and ongoing research are delineated.

MRI of the IAC: Do We Need Gadolinium?

William P. Dillon MD (Presenter): Nothing to Disclose, Franz J. Wippold MD (Presenter): Nothing to Disclose

LEARNING OBJECTIVES

1) the various MR high resolution techniques for imaging the internal auditory canal. 2) the evidence supporting the use of contrast material with MR imaging in the evaluation of hearing loss. 3) the evidence supporting the use of non contrast MR imaging in the evaluation of hearing loss.

ABSTRACT

This presentation will highlight the evidence in favor and opposed to the use of gadolinium contrast administration in the setting of hearing loss from suspected vestibular schwannoma. Authors will demonstrate the use of high resolution non contrast MRI techniques tailored to the IAC, and show case examples where the use of gadolinium is useful in detecting diseases other than schwannoma.

Hot Topic Session: Advances in Musculoskeletal Tumor Ablation

SPSH30

Special Courses

US MR IR MK

AMA PRA Category 1 Credits ™: 1.00
ARRT Category A+ Credit: 1.00

Tue, Dec 2 7:15 AM - 8:15 AM Location: E351

Participants

Moderator
Mark Richard Robbin MD : Nothing to Disclose

Sub-Events

SPSH30A Update on Osteoid Osteoma Radiofrequency Ablation
LEARNING OBJECTIVES

1) Understand the current practice and literature of Osteoid Osteoma ablation. 2) Discuss different techniques of Osteoid Osteoma ablation. 3) Review techniques of ablation of other benign Bone Tumors.

Cryoablation and Microwave Treatment of Metastatic Disease to Bone

Damian E. Dupuy MD (Presenter): Research Grant, NeuWave Medical Inc Board of Directors, BSD Medical Corporation Stockholder, BSD Medical Corporation Speaker, Educational Symposia

LEARNING OBJECTIVES

1) Review the current microwave and cryoablation technology, 2) Understand the current clinical indications and how both thermal technologies are applied to patients with osseous metastatic disease. 3) Learn the pearls and pitfalls of implementation through clinical examples.

MR-guided Focused Ultrasound Treatment of Painful Bone Metastases

David C. Gianfelice MD (Presenter): Nothing to Disclose

LEARNING OBJECTIVES

1) Introduce technology of MR Guided focused ultrasound ablation 2) Specific application of this technology for painful bone metastases 3) Review of the literature and definitive Phase 3 study 4) Possible future applications
SPSI31D  Medical Imaging and Ebola Virus Disease: Education and Communication
Carolyn C. Meltzer MD (Presenter): Board of Directors, ACR Image Metrix

LEARNING OBJECTIVES
View learning objectives under main course title.

SPCP31  Canada Presents: Beyond Diagnosis–How Cardiovascular Imaging Research in Canada Is Improving Clinical Outcomes

Special Courses
MR  IR  CT  BQ  VA
AMA PRA Category 1 Credits ™: 1.50
ARRT Category A+ Credits: 1.50
Tue, Dec 2 10:30 AM - 12:00 PM  Location: E353C

Participants
Moderator
Bruce B. Forster MD: Investor, Doyen Medical Incorporated
Moderator
Jonathon Avrom Leipsic MD: Speakers Bureau, General Electric Company Speakers Bureau, Edwards Lifesciences Corporation Consultant, Heartflow, Inc Consultant, Circle Cardiovascular Imaging Inc

LEARNING OBJECTIVES
1) Discuss recent practice changing cardiovascular imaging trials from across Canada with a focus on clinical outcomes and therapeutic impact. 2) Define novel opportunities for Trans-Canadian collaboration in cardiovascular outcomes research enabled by imaging networks and shared data registries. 3) Review the potential benefits and limitations that the Canadian Healthcare delivery model may have on outcomes focused imaging research.
This session is part of Canada Presents at RSNA 2014.

Sub-Events
SPCP31A  The Impact of Integration of a Multidetector Computed Tomography Annulus Area Sizing Algorithm on Outcomes of Transcatheter Aortic Valve Replacement: A Prospective, Multicenter, Controlled Trial
Jonathon Avrom Leipsic MD (Presenter): Speakers Bureau, General Electric Company Speakers Bureau, Edwards Lifesciences Corporation Consultant, Heartflow, Inc Consultant, Circle Cardiovascular Imaging Inc

LEARNING OBJECTIVES
1) Discuss historical sizing algorithms for the balloon expandable prostheses. 2) Review the methods for measuring the annulus with MDCT. 3) Define an MDCT area/perimeter based sizing algorithm for balloon expandable TAVR and review the data supporting its integration.
This session is part of Canada Presents at RSNA 2014.

SPCP31C  Refining the Phenotype of Genetic Hypertrophic Cardiomyopathy with Cardiac MRI
Andrew Michael Dominic Crean MD (Presenter): Nothing to Disclose

LEARNING OBJECTIVES
1) To understand the histopathologic basis of late gadolinium enhancement in HCM and how best to measure it. 2) To appreciate the added value of late gadolinium enhancement in prognostication in HCM. 3) To learn about several under-appreciated phenotypic signs of HCM that may be present even in so-called Ògene-positive phenotype-negativeÓ HCM. This session is part of Canada Presents at RSNA 2014.

SPCP31D  A New Paradigm for Cardiac CT Imaging: Quantitative Assessment of Perfusion and Late Enhancement
Ting-Yim Lee MSc, PhD (Presenter): Research Grant, General Electric Company Royalties, General Electric

LEARNING OBJECTIVES
1) To understand the histopathologic basis of late gadolinium enhancement in HCM and how best to measure it. 2) To appreciate the added value of late gadolinium enhancement in prognostication in HCM. 3) To learn about several under-appreciated phenotypic signs of HCM that may be present even in so-called Ògene-positive phenotype-negativeÓ HCM. This session is part of Canada Presents at RSNA 2014.
LEARNING OBJECTIVES

1) Using quantitative CT perfusion and late enhancement imaging to identify different tissue states in acute myocardial infarction. 2) Technical requirements for generation of these quantitative functional maps with clinical CT scanners. 3) Pitfalls in quantitative CT perfusion and late enhancement imaging. 4) Further applications of quantitative cardiac CT imaging.

This session is part of Canada Presents at RSNA 2014.

SPCP31E

Modeling of Abdominal Aortic Aneurysm before, during and after Endovascular Repair: Potential Impact on Patient Management

Gilles P. Soulez MD (Presenter): Speaker, Bracco Group Speaker, Siemens AG Research Grant, Siemens AG Research Grant, Bracco Group Research Grant, Cook Group Incorporated Research Grant, Object Research Systems Inc

LEARNING OBJECTIVES

1) Know the risk factors of abdominal aortic aneurysm (AAA) rupture and the role of maximal diameter (D-max) measurement in therapeutic algorithm. 2) Discuss the variability of D-max measurement and the importance of standardized measurement to improve reproducibility. 3) Understand the challenge of AAA segmentation on CT scanner examination before and after endovascular repair (EVAR) and on unenhanced studies. 4) Understand the utility of AAA modeling for automated D-max and AAA volume measurements. 5) Understand the future developments in AAA modeling to predict AAA rupture, improve endovascular repair (EVAR) planning, EVAR rehearsal, and patient follow-up after EVAR.

This session is part of Canada Presents at RSNA 2014.

ABSTRACT

Aneurysm size is the most important predictive factor for AAA rupture. Accordingly, rupture risk increases with size, with a 3-15% risk per year for those with a 5-6 cm aneurysm, 10-20% for 6-7 cm aneurysms, 20-40% for 7-8 cm aneurysms, and 30-50% for those with a diameter greater than 8 cm. AAA growth rate is correlated to its diameter and to the risk of rupture. The main indications for a procedure are Dmax ≥5.5 cm in men, ≥5.0 to 5.4 cm in women, or symptomatic AAA. Computer modeling have raised the possibility of patient specific risk prediction based on AAA geometry. After computer modeling, AAA with a higher bulge location (P<.020) and lower mean averaged area (P<.005) are associated with AAA rupture however the addition of these indices in a predictive model based on current treatment criteria modestly improved the accuracy to detect aneurysm rupture. AAA segmentation is the first step before AAA modeling. CT-scanner is the modality of choice for AAA evaluation before and after endovascular repair (EVAR). AAA lumen segmentation can be easily performed after contrast injection but thrombus segmentation is far more challenging. Considering the high incidence of renal failure in this population, patient follow-up after EVAR with unenhanced CT-scanner is needed. Semi-automated segmentation of AAA on unenhanced CT-scanner can also be achieved with a high reproducibility. Open the door to patient follow-up with low-dose unenhanced CT-scanner. In this setting, Dmax or AAA volume measurement can be calculated while minimizing exposure to iodine contrast and ionizing radiation to exclude EVAR failure. AAA modeling is a necessary step for EVAR planning and stent selection. AAA can be used to enable a 2D/3D image registration between preoperative CT scanner and fluoroscopy to improve guidance during EVAR procedure and minimize fluoroscopy time and contrast injection. Finally, modeling of AAA can be combined with finite element analysis to enable EVAR rehearsal.

SPCP31F

Fast and Furious: Imaging to Recanalization in Acute Stroke

Mayank Goyal MD, FRCP (Presenter): Shareholder, Calgary Scientific, Inc Research Grant, Covidien AG Consultant, Covidien AG Shareholder, NoNO Inc Investigator, Covidien AG

LEARNING OBJECTIVES

It is clear that in acute ischemic stroke: Time is brain. Also, based on the results of recent trials including IMS3, we as a collective have been unable to show the benefit of endovascular treatment over standard of care. As such many new trials are being designed and/or conducted. In view of the data from recent trials, there need to be strategies that allow for appropriate patient selection for endovascular treatment using imaging that is widely available and not time consuming. Once selected, organization of workflow to rapidly achieve recanalization is going to be the key to success. This talk expands on both these ideas: rapid imaging and patient selection, rapid workflow and intervention for endovascular recanalization.

This session is part of Canada Presents at RSNA 2014.

ABSTRACT

The topic will be divided into three sub topics:
1. Imaging: balancing information vs time. I would discuss various imaging strategies and their pros and cons. Also, I would aim to introduce the basic concepts of Bayesian analysis for decision making
2. Workflow: moving the patient fast through the system including blood work, consent, getting team together and reaching the angio suite
3. Fast recanalization: tips and tricks to achieve rapid and good quality recanalization while keeping the procedural complication rate low.
Prevalence of Extracranial Venous Narrowing on Catheter Venography in People with Multiple Sclerosis, Their Siblings, and Unrelated Healthy Controls: A Blinded, Case-control Study

Darren Klass MD, PhD (Presenter): Nothing to Disclose

LEARNING OBJECTIVES

1) Discuss the incidence of MS and its impact on healthcare in Canada. 2) Discuss the design of the assessor-blinded, case controlled study and the difficult task of ensuring the strict blinding protocol was adhered to. 3) Discuss the findings, the strength of the blinding in the study and the impact of the study results on future interventional radiology studies related to the subject. 4) Discuss the importance of working in a well-functioning interventional radiology team.

This session is part of Canada Presents at RSNA 2014.

ABSTRACT

Background Chronic cerebrospinal venous insufficiency has been proposed as a unique combination of extracranial venous blockages and haemodynamic flow abnormalities that occur only in patients with multiple sclerosis and not in healthy people. Initial reports indicated that all patients with multiple sclerosis had chronic cerebrospinal venous insufficiency. We aimed to establish the prevalence of venous narrowing in people with multiple sclerosis, unaffected full siblings, and unrelated healthy volunteers. Methods: An assessor-blinded, case-control, multicentre study of people with multiple sclerosis, unaffected siblings, and unrelated healthy volunteers was conducted. Study participants were enrolled between January, 2011 and March, 2012, and they comprised 177 adults: 79 with multiple sclerosis, 55 siblings, and 43 unrelated controls, from three centres in Canada. Catheter venography data were available for 149 participants and ultrasound data for 171 participants. Findings: This study revealed a low incidence of chronic cerebrospinal venous insufficiency in all groups; 2% of people with multiple sclerosis, 2% of siblings and 3% of unrelated controls (p=1·0 for all comparisons). Greater than 50% narrowing of any major vein was present in 74% of people with multiple sclerosis, 66% of siblings (p=0·41 for comparison with patients with multiple sclerosis), and 70% of unrelated controls (p=0·82). The ultrasound criteria were fulfilled in 44% of participants with multiple sclerosis, 31% of siblings (p=0·15 for comparison with patients with multiple sclerosis) and 45% of unrelated controls (p=0·98). Conclusions: Chronic cerebrospinal venous insufficiency occurs rarely in both patients with multiple sclerosis and in healthy people. Extracranial venous narrowing of greater than 50% is a frequent finding. The significance of venous narrowing to multiple sclerosis symptomatology remains unknown.

Panel Discussion


LEARNING OBJECTIVES

This session is part of Canada Presents at RSNA 2014.

Closing Remarks

James P. Borgstede MD (Presenter): Nothing to Disclose

LEARNING OBJECTIVES

This session is part of Canada Presents at RSNA 2014.
1) The participant will be introduced to a series of radiology 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 imaging 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.

### SPSC40

**Controversy Session: Breast Density Notification Legislation: Pros and Cons**

**Special Courses**

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AMA PRA Category 1 Credits™: 1.00  
ARRT Category A+ Credit: 1.00  

**Participants**

- **Moderator**:  
  Christopher E. Comstock MD : Nothing to Disclose  
  Barbara S. Monsees MD (Presenter): Nothing to Disclose  
  Stephen Albert Feig MD (Presenter): Medical Advisory Board, Hologic, Inc

**LEARNING OBJECTIVES**

1) Review the current state of breast density legislation in the U.S. 2) Understand the rationale for passage of laws stipulating dense breast notification, and review the language and requirements of such laws. 3) Review the effects of breast density notification on use of supplemental screening, followup, biopsy and cancer yield.

### SPSC41

**Controversy Session: DTI in Head Injury: Crossing Borders, Clinical Applications, and Legal Ramifications**

**Special Courses**

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AMA PRA Category 1 Credits™: 1.00  
ARRT Category A+ Credit: 1.00  

**Participants**

- **Moderator**:  
  Gordon K. Sze MD : Investigator, Remedy Pharmaceuticals, Inc

**Sub-Events**

#### SPSC41A

**DTI in the Courtroom: Pro**

- Michael L. Lipton MD, PhD (Presenter): Nothing to Disclose

**LEARNING OBJECTIVES**

This presentation will discuss dMRI assessment the legal context, to illustrate the potential and limitations of dMRI, as well as other imaging approaches. The basis and limitation of dMRI will be discussed in the context of the legal standard of evidence.

#### SPSC41B

**DTI in the Courtroom: Con**

- Pratik Mukherjee MD, PhD (Presenter): Research Grant, General Electric Company Medical Advisory Board, General Electric Company

**LEARNING OBJECTIVES**

1) Identify the diffusion tensor imaging (DTI) correlates of traumatic brain injury (TBI). 2) Explain the challenges of applying DTI to the diagnosis of TBI. 3) Summarize the current state of clinical research in DTI of TBI, including the advent of large multi-center trials.

### SPSC42

**Controversy Session: Overreading Outside Examinations: Controversies, Benefits and Pitfalls**

**Special Courses**

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AMA PRA Category 1 Credits™: 1.00  
ARRT Category A+ Credit: 1.00
LEARNING OBJECTIVES

1) Consider and minimize the potential medicolegal risks of agreeing to review outside imaging studies, or failing to agree to review outside imaging studies, when asked to do so by attending physicians. 2) Approach requests to interpret outside examinations as an opportunity to add value to radiologists' professional services and to patient care. 3) Define the role of imaging consultant as an example of tertiary care. 4) Benefit from the experience of other imaging centers to successfully receive reimbursement for radiologic second opinion consultations.

ABSTRACT

Although our professional workflow has developed to conduct imaging examinations and issue reports of their interpretation, we are increasingly asked to interpret examinations performed at other institutions (outside examinations). This session will address common uncertainties regarding potential medicolegal risks inherent in how we respond to these requests. We will review the financial and ethical implications of providing this added service, emphasizing a trend away from 'piece work' as defining our professional responsibilities. We will define the meaning of value added, to management, early diagnosis and prevention of disease. We will review the finite resource model of health dollars and the future role of each of us in using these efficiently. Finally, two specific experiences at different academic centers will be reviewed to reinforce these concepts.

Sub-Events

SPSC42A  What Are the Medicolegal Risks?
Leonard Berlin MD (Presenter): Nothing to Disclose

LEARNING OBJECTIVES

View learning objectives under main course title.

SPSC42B  It's the Right Thing to Do, and It's Not About the Money
Mark E. Schweitzer MD (Presenter): Consultant, MMI Munich Medical International GmbH Data Safety Monitoring Board, Histogenics Corporation

LEARNING OBJECTIVES

1) Review changes in reimbursements for outside readings. 2) Stress concept of value added. 3) Define tertiary care as being an imaging consultant.

ABSTRACT

We will review the current and anticipated changes in funding for imaging. The importance of this trend away from "piece work" will be emphasized. We will define what value added will mean in the future and how we should work to make ourselves needed in the care and more importantly early diagnosis and prevention of disease. We will review the finite resource model of health dollars and the future role of each of us in using these efficiently.

SPSC42C  Financial Performance—A Tale of Two Cities
James A. Brink MD (Presenter): Nothing to Disclose

LEARNING OBJECTIVES

View learning objectives under main course title.

Controversy Session: Point-of-Care Ultrasound: Is there an Owner or Do We All Just Rent?

Special Courses

US

AMA PRA Category 1 Credits ™: 1.00
ARRT Category A+ Credit: 1.00

LEARNING OBJECTIVES

Moderator
William Eugene Shiels DO: President, Mauka Medical Corporation Royalties, Mauka Medical Corporation Patent holder, Mauka Medical Corporation
Brian D. Coley MD (Presenter): Author with royalties, Reed Elsevier
David Bahner MD (Presenter): Nothing to Disclose
1) Describe the differences between focused and comprehensive ultrasound in the clinical setting. 2) Determine the differences between sonography and sonology and how clinicians are using ultrasound in medical decision making. 3) Delineate the barriers associated with teaching ultrasound in medical school and how medical education is preparing the next generation of clinicians to use this tool in their practice.

**SPSC44**

**Controversy Session: Vertebroplasty: Science or Séance?**

**Special Courses**

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AMA PRA Category 1 Credits ™: 1.00  
ARRT Category A+ Credit: 1.00  
Wed, Dec 3 7:15 AM - 8:15 AM  
Location: S405AB

**Participants**

Moderator
Peter George Kranz MD: Research Consultant, Cephalogics, LLC Research Consultant, Biogen Idec Inc
David F. Kalines MD (Presenter): Research support, Terumo Corporation Research support, Covidien AG Research support, Sequent Medical, Inc Research support, Benvenue Medical, Inc Consultant, General Electric Company Consultant, Covidien AG Consultant, Johnson & Johnson

A. Orlando Ortiz MD, MBA (Presenter): Nothing to Disclose

**LEARNING OBJECTIVES**

1) To discuss the effectiveness of vertebral augmentation in patients with painful osteoporotic vertebral compression fractures. 2) To review the literature and update attendees with an analysis thereof. 3) To discuss the impact of published clinical trials on the practice of vertebral augmentation. 3) To discuss whether patient selection may impact success vertebral augmentation procedures.

**SPSH40**

**Hot Topic Session: Prostate Interventions - Fused US/MRI Guidance**

**Special Courses**

| US | MR | IR | GU | US | MR | IR | GU |

AMA PRA Category 1 Credits ™: 1.00  
ARRT Category A+ Credit: 1.00  
Wed, Dec 3 7:15 AM - 8:15 AM  
Location: E351

**Participants**

Moderator
Peter L. Choyke MD: Researcher, Koninklijke Philips NV Researcher, General Electric Company Researcher, Siemens AG Researcher, iCAD, Inc Researcher, Aspyrian Therapeutics, Inc Researcher, ImaginAb, Inc Researcher, Aura

Moderator
Julia R. Fielding MD: Nothing to Disclose

**LEARNING OBJECTIVES**

1) Learn current clinical applications for MR/US fusion biopsy of the prostate. 2) Describe elements of 2 fusion systems important to the radiologist. 3) Compare use of MR/US fusion systems with visual targeting of prostate cancers.

**Sub-Events**

**SPSH40A**

**Fused MR/US Prostate Biopsy with a Single Vendor System: How and When to Use It**

Andrew B. Rosenkrantz MD (Presenter): Nothing to Disclose

**LEARNING OBJECTIVES**

View learning objectives under main course title.

**SPSH40B**

**Prostate Biopsy Using Two Fused MR/US Systems: Clinical Use and Comparison**

Daniel Jason Aaron Margolis MD (Presenter): Research Grant, Siemens AG

**LEARNING OBJECTIVES**

View learning objectives under main course title.

**Active Handout**

LEARNING OBJECTIVES

1) Understand ongoing key changes to the Resource Based Relative Value System (RBRVS) as they pertain to radiology. 2) Explore the concept of radiology co-management from the perspective of a radiologist and a hospital CEO. 3) Consider one method for value-based incentive compensation of radiologists using quality metrics. 4) Learn new ways to approach specialty management companies. 5) Examine changing radiology employment models.

ABSTRACT

As the health care economic environment evolves, collaboration between radiology departments and hospitals will continue to increase in importance. The Wednesday afternoon Hospital Administrators’ Seminar is designed to explore new ways to increase radiology department and hospital teamwork. Six speakers will cover a broad range of topics including an update on the RBRVS system, radiology and hospital co-management, dealing with specialty management companies, changing radiology employment models, and moving radiology into the world of value-based compensation. Both healthcare administrators and healthcare providers at all levels of training and seniority and encouraged to attend.

Sub-Events

SPHA41A  Introduction
Jonathan W. Berlin MD (Presenter): Stockholder, Nuance Communications, Inc Radiology Advisory Board, Nuance Communications, Inc

LEARNING OBJECTIVES

View learning objectives under main course title.

SPHA41B  Medicare RBRVS Update: Where Do We Go From Here?
Ezequiel Silva MD (Presenter): Nothing to Disclose

LEARNING OBJECTIVES

View learning objectives under main course title.

SPHA41C  Radiologists Are from Mars, Radiology Benefit Managers Are from Venus: Secrets of Dealing with Radiology Benefit Management Companies
Mark D. Hiatt MD, MBA (Presenter): Medical Director, Regence BlueCross BlueShield Board Member, RadSite Former Chief Medical Officer, HealthHelp, LLC

LEARNING OBJECTIVES

1) Define the terms related to managing radiology benefits. 2) Delineate the relationships related to this management. 3) Discuss the interventions radiologists may pursue to improve their relationships with benefit managers.

SPHA41D  Changing Relationships in Radiology
David J. Seidenwurm MD (Presenter): Nothing to Disclose

LEARNING OBJECTIVES

View learning objectives under main course title.

SPHA41E  Question and Answer 1
Jonathan W. Berlin MD (Presenter): Stockholder, Nuance Communications, Inc Radiology Advisory Board, Nuance Communications, Inc, Mark D. Hiatt MD, MBA (Presenter): Medical Director, Regence BlueCross BlueShield Board Member, RadSite Former Chief Medical Officer, HealthHelp, LLC

LEARNING OBJECTIVES

View learning objectives under main course title.
**SPH41F**  
**Radiology and Hospital Co-Management: A Roadmap for the Future**  
Syed Furqan Zaidi MD (Presenter): Nothing to Disclose  

**LEARNING OBJECTIVES**

View learning objectives under main course title.

**SPH41G**  
**Radiology Co-Management: The Hospital CEO Perspective**  
Christopher E. Remark (Presenter): Nothing to Disclose  

**LEARNING OBJECTIVES**

View learning objectives under main course title.

**SPH41H**  
**Moving Radiology Toward Value Based Compensation**  
Kenneth A. Buckwalter MD (Presenter): Nothing to Disclose  

**LEARNING OBJECTIVES**

1) Understand the transition from fee for service to value based purchasing. 2) Define "value". 3) Learn how to differentiate process from quality metrics. 4) Describe how to create a "value matrix".

**SPH41I**  
**Question and Answer 2**  

**LEARNING OBJECTIVES**

View learning objectives under main course title.

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**SPSC50**

**Controversy Session: Predicting Outcome with Cardiac CT - Which Is Best?**

*Special Courses*

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Thu, Dec 4 7:15 AM - 8:15 AM  
Location: E451A

**Participants**

**Moderator**  
Suhny Abbara MD: Research Consultant, Radiology Consulting Group

**Sub-Events**

**SPSC50A**  
**Calcium Scoring**  
John Jeffrey Carr MD, MS (Presenter): Nothing to Disclose

**LEARNING OBJECTIVES**

1) To describe the pathologic basis for calcified coronary plaque as part of advanced atheromatous plaque in the coronary arteries. 2) Review the evidence on how the CT coronary artery calcium score is an independent and powerful predictor of cardiovascular deaths and myocardial infarction in men, women and minority groups. 3) Discuss how the CT coronary artery calcium score can be integrated into the 2014 prevention guidelines as a tool to reduce deaths from heart disease.

**SPSC50B**  
**Coronary CT Angiography (CCTA)**  
Stephan Achenbach MD (Presenter): Research Grant, Siemens AG Research Grant, Bayer AG Research Grant, Abbott Laboratories Speaker, Guerbet SA Speaker, Siemens AG Speaker, Bayer AG Speaker, AstraZeneca PLC Speaker, Berlin-Chemie AG Speaker, Abbott Laboratories Speaker, Edwards Lifesciences Corporation
LEARNING OBJECTIVES

1) To be familiar with the typical data acquisition modes for CCTA. 2) To identify clinical situations in which CCTA is useful. 3) To understand the prognostic value of CCTA.

SPSC50C

Myocardial Perfusion


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.

URL

www.rasf.net http://www.rasf.net/handler.cfm?event=practice,templateandcpid=51323

SPSC50D

Fractional Flow Reserve (FFR) CT

Jonathon Avrom Leipsic MD (Presenter): Speakers Bureau, General Electric Company Speakers Bureau, Edwards Lifesciences Corporation Consultant, Heartflow, Inc Consultant, Circle Cardiovascular Imaging Inc

LEARNING OBJECTIVES

1) To define the role of lesion specific ischemia as defined by invasively measured FFR to guide coronary revascularization. 2) To review the background and science behind derivation of a computational FFR (FFRCT) from a resting coronary CT angiogram. 3) To review the current diagnostic performance and cost effectiveness data for FFRCT

SPSH50

Hot Topic Session: Advances in Prostate Cancer Imaging

Special Courses

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AMA PRA Category 1 Credits ™: 1.00
ARRT Category A+ Credit: 1.00

Thu, Dec 4 7:15 AM - 8:15 AM  Location: E351

Participants

Moderator
David M. Schuster MD : Research funded, Nihon Medi-Physics Co, Ltd Expert Advisory Committee, AIM Specialty Health

LEARNING OBJECTIVES

1) New developments in molecular imaging for the detection, staging, and restaging of prostate cancer. 2) The potential role of PET imaging with acetate for prostate cancer. 3) The potential role of amino acid imaging including FACBC PET in prostate cancer. 4) The contribution that PET-MR can make to the evaluation and understanding of prostate cancer. 5) New developments in PSMA imaging beyond ProstaScint 6) The role of choline based PET in the evaluation of prostate cancer including details of FDA approval.

Sub-Events

SPSH50A

Choline PET

Val John Lowe MD (Presenter): Research Grant, General Electric Company Research Grant, Siemens AG Research Grant, Eli Lilly and Company Advisory Board, Bayer AG

LEARNING OBJECTIVES
SPSH50B  Amino Acid PET Imaging with FACBC
David M. Schuster MD (Presenter): Research funded, Nihon Medi-Physics Co, Ltd Expert Advisory Committee, AIM Specialty Health

LEARNING OBJECTIVES

1) The molecular basis of acetate imaging of prostate cancer. 2) The diagnostic performance and potential role of acetate PET in prostate cancer. 3) The molecular basis of amino acid based imaging and FACBC PET in prostate cancer. 4) The diagnostic performance and potential role of FACBC PET for prostate cancer 5) Current status of clinical trials for acetate and FACBC PET.

SPSH50C  Prostate-specific Membrane Antigen and PET/MR
Matthias Johannes Eiber MD (Presenter): Speaker, Siemens AG Speaker, Astellas Group Speaker, Johnson & Johnson

LEARNING OBJECTIVES

1) The molecular basis of prostate cancer imaging targeting the prostate-specific-membran antigen (PSMA), review of the various PSMA-tracers 2) The diagnostic performance and potential role of PSMA PET/SPECT for primary and recurrent prostate cancer (including the comparison to other tracers) 3) Discuss non-routine applications (e.g. biopsy targeting, radioguided surgery)

SPRG51  RadioGraphics’ Publication Information for Potential Authors

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 accompanying images submitted to RadioGraphics. This course is designed to assist potential authors in the preparation and submission of manuscripts for possible publication. Proper attention to content elements, figure preparation, and format compliance not only reduces delays in processing, but it may also increase the likelihood of favorable reviews and fewer revisions. This course will include a PowerPointTM presentation that provides an overview of the publication process, the essential components of a manuscript submission, and the guidelines for submitting print-quality images. A live demonstration of the steps involved in submitting a manuscript through the RadioGraphics site in ScholarOne Manuscripts will be given. The course will conclude with a question and answer session.

Handout: Lucinda Foulke

SPDL51  RSNA Diagnosis Live™: Musculoskeletal/Pediatric/Interventional Radiology

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 accompanying images submitted to RadioGraphics. This course is designed to assist potential authors in the preparation and submission of manuscripts for possible publication. Proper attention to content elements, figure preparation, and format compliance not only reduces delays in processing, but it may also increase the likelihood of favorable reviews and fewer revisions. This course will include a PowerPointTM presentation that provides an overview of the publication process, the essential components of a manuscript submission, and the guidelines for submitting print-quality images. A live demonstration of the steps involved in submitting a manuscript through the RadioGraphics site in ScholarOne Manuscripts will be given. The course will conclude with a question and answer session.

Handout: Lucinda Foulke
LEARNING OBJECTIVES

1) The participant will be introduced to a series of radiology 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 imaging 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.

SPSH51

Hot Topic Session: Tendon Injections: Which One Works Best?

Special Courses

LEARNING OBJECTIVES

1) Learn the indications of ultrasound-guided percutaneous tendon treatments such as tendon dry needling, autologous platelet-rich plasma and hyperosmolar dextrose injections, among others. 2) Discuss the technical requirements to perform ultrasound-guided percutaneous tendon treatments. 3) Review the state of the science in percutaneous tendon treatments.

ABSTRACT

The range of applications for ultrasound-guided percutaneous tendon treatments, such as dry needling, autologous platelet-rich plasma and hyperosmolar dextrose injections is rapidly increasing in the practice of musculoskeletal intervention. These novel procedures have specific indications and technical demands, which may influence clinical outcomes. This session will highlight common applications and techniques for percutaneous tendon treatments and review the current clinical evidence-based literature.

Sub-Events

SPSH51A

Tendon Fenestration

Jon A. Jacobson MD (Presenter): Consultant, BioClinica, Inc Royalties, Reed Elsevier Equipment support, Terumo Corporation Equipment support, Arthrex, Inc

LEARNING OBJECTIVES

View learning objectives under main course title.

SPSH51B

Platelet-Rich Plasma Therapy of the Tendon

Kenneth S. Lee MD (Presenter): Research Consultant, SuperSonic Imagine Speakers Bureau, Medical Technology Management Institute

LEARNING OBJECTIVES

View learning objectives under main course title.

SPSH51C

Other Tendon Treatments

Mary Margaret Chiavaras MD, PhD (Presenter): Nothing to Disclose

LEARNING OBJECTIVES

View learning objectives under main course title.

SPSH52

Hot Topic Session: Lung Cancer Screening: Update on Policies and Procedures

Special Courses

LEARNING OBJECTIVES

View learning objectives under main course title.
LEARNING OBJECTIVES

1) Describe the ACR perspective on lung cancer screening in regards to policy and practice guidelines.
2) Appraise governmental decisions and policies on lung cancer screening, and their economic impact.
3) Recognize the patient’s perspective of our lung cancer screening activities, and how it can impact screening.

ABSTRACT

The success of the NLST in reducing lung cancer specific mortality has generated great interest in the medical community regarding deployment of CT for lung cancer screening. While guidelines for who should be screened have been developed by many organizations, policies and procedures for performing lung cancer screens have not been fully developed. The radiology community, governmental officials, and patient advocacy groups have been influential in affecting standards, policies and procedures for lung cancer screening. This session will review and update radiologist of these actions.

Sub-Events

SPSH52A Radiologist Perspective: LungRADS - Practice Guidelines, Accreditation and Oversight, Centers of Excellence
Ella A. Kazerooni MD (Presenter): Nothing to Disclose

LEARNING OBJECTIVES

View learning objectives under main course title.

ABSTRACT

see course abstract

SPSH52B Government Perspective: Economics of Screening, USPSTF Recommendation Impact, CMS and 3rd Party Coverage, Regulation/Concerns
Geraldine B. McGinty MD (Presenter): Nothing to Disclose

LEARNING OBJECTIVES

View learning objectives under main course title.

SPSH52C Patient Perspectives
Laurie Fenton Ambrose (Presenter): Nothing to Disclose

LEARNING OBJECTIVES

View learning objectives under main course title.

SPSH53 Hot Topic Session: Imaging of Oncologic Surveillance in the Era of Local Targeted Therapies

Special Courses

AMA PRA Category 1 Credits ™: 1.00
ARRT Category A+ Credit: 1.00

Thu, Dec 4 3:00 PM - 4:00 PM Location: S404AB

Participants

Moderator
David H. Kim MD: Consultant, Viatronix, Inc Co-founder, VirtuoCTC, LLC Medical Advisory Board, Digital ArtForms, Inc

Sub-Events

SPSH53A Surveillance Imaging Following Focal Ablative Therapies (Microwave, Radio-frequency Ablation, Cryoablation)
J. Louis Hinshaw MD (Presenter): Stockholder, NeuWave Medical Inc Medical Advisory Board, NeuWave Medical Inc Stockholder, Cellectar Biosciences, Inc

LEARNING OBJECTIVES
ABSTRACT

Image-guided tumor ablation is a rapidly advancing minimally invasive targeted therapy for the treatment of both malignant and benign tumors. Even if you are not actively involved in performing this procedure, you will almost certainly see follow-up imaging performed to evaluate for both local tumor progression and metastatic disease. Following this discussion, you should have a basic understanding of the typical indications for image-guided tumor ablation and the imaging findings associated with normal evolution of the ablation zone as well as findings suspicious for recurrent disease. Of course, this varies depending on the target organ/disease, as well as the underlying malignancy. For example, colorectal carcinoma metastatic to the liver tends to be relatively hypovascular and similar in attenuation to the avascular ablation zone on portal venous phase imaging. Therefore, the primary indicator of recurrence in this clinical setting is asymmetric change/growth one or more of the ablative margins. In contrast, hepatocellular carcinoma is most frequently hypervascular. Since the ablation zone should be avascular, any evidence of vascular enhancement within/around the ablation zone on follow up imaging can be suspicious for residual or recurrent disease. The imaging findings also vary depending upon the ablation modality utilized, particularly when MRI is used for the imaging follow up and we will go through the signal changes that occur over time following an ablation. In addition, we will discuss standardized nomenclature to describe the follow up imaging for tumor ablation. Although the nomenclature is descriptive and extremely helpful, particularly to ensure consistency and improve reporting for research purposes, the terms are not always intuitive.

SPSH54B Surveillance Imaging Following Arterial-directed Regional Therapies for the Treatment of Liver Tumors (Yttrium and Embolization)

Anne Mara Covey MD (Presenter): Nothing to Disclose

LEARNING OBJECTIVES

1) Review the different criteria to measure radiographic response, including WHO, EASL, RECIST, mRECIST, and understand the appropriate application for each. 2) Understand which imaging modalities are useful to assess treatment response following different arterially directed therapies. 3) Recognize imaging features of treatment effect and be able to differentiate treatment effect from tumor recurrence and other complications related to treatment.

SPSH54

Hot Topic Session: Imaging and Treatment of Neuroendocrine Tumors

Special Courses

AMA PRA Category 1 Credits™: 1.00
ARRT Category A+ Credit: 1.00
Thu, Dec 4 3:00 PM - 4:00 PM Location: E353A

Participants

Moderator
Yusuf Menda MD: Research Grant, Advanced Accelerator Applications

Sub-Events

SPSH54A Radipeptide PET Imaging of Neuroendocrine Tumors

Yusuf Menda MD (Presenter): Research Grant, Advanced Accelerator Applications

LEARNING OBJECTIVES

1) List the different Ga-68 DOTA analogs used in PET imaging of neuroendocrine tumors. 2) Compare Ga-68 DOTA labeled peptides and In-111 Octreotide in imaging of neuroendocrine tumors. 3) Understand the role of peptide PET imaging in management of neuroendocrine tumors.

SPSH54B Radiotracpeptide Receptor Radionuclide Therapy (PRRT): Current Status and Future Opportunities in Theranostics

Richard P. Baum MD, PhD (Presenter): Stockholder, OctreoPharm Sciences GmbH Principal Investigator, AAA Research Consultant, Novartis AG Research Consultant, Ipsen SA Research Grant, ITG-Medical, Inc

LEARNING OBJECTIVES

1) Definition of THERANOSTICS, personalized and precision medicine. 2) Indications for Ga-68 somatostatin receptor [SSTR] PET/CT in neuroendocrine tumors (NET): staging, restaging, detection of unknown primary tumors. 3) Molecular imaging (quantification of receptor density by SUV measurements) for selection of NET patients for PRRT and therapy response evaluation after PRRT by Ga-68 SSTR PET/CT. 4) Indications for PRRT,
methodology and clinical results (survival, PFS in patients with G1 and G2 NET). 5) Possible adverse effects of PRRT and how to reduce/avoid side effects. 6) Future developments: new peptides (e.g. SSTR antagonists, CXCR4), new indications (e.g. diagnosis and treatment of recurrent prostate cancer using Ga-68 PSMA and Lu-177 labeled PSMA ligands).

ABSTRACT

The overexpression of specific receptors on tumors enables peptide-based receptor imaging and radiolabeled therapy (PRRT). 68Gallium is a generator-produced positron emitter for labeling of peptides, e.g. somatostatin analogues (SA) like DOTATOC or DOTATATE for molecular imaging of somatostatin receptors (SSTR) expressing tumors. Since 2004, we have performed over 9,500 68Ga PET/CT studies in patients with neuroendocrine tumors (NET) and have established SSTR PET/CT as the new gold standard for imaging G1 and G2 NET. The same somatostatin-binding peptides can be labeled with 177Lutetium or 90Yttrium for internal radionuclide therapy, a form of personalized treatment (THERANOSTICS approach). Since 1999 we have treated more than 1,200 patients (>4,000 therapy cycles) using 177Lu and/or 90Y labeled peptides. A German multi-institutional registry study with prospective follow up in 450 patients indicates that PRRT is an effective therapy for patients with G1-2 neuroendocrine tumors, irrespective of previous therapies, with a survival advantage of several years compared to other therapies and only minor side effects. Median overall survival of all patients from start of treatment was 59 months. Median progression-free survival (PFS) accounted to 41 months. Median PFS for pancreatic NET was 39 mo and for small bowel NET 51 mo. Grade 3-4 nephro- or hematotoxicity were observed in only 0.2% and 2% of patients, respectively. In patients with progressive NET, personalized PRRT with lower doses of radioactivity given over a longer period of time (Bad Berka Concept) results in excellent therapeutic responses. By this approach, severe hematological and/or renal toxicity can be avoided and quality of life/clinical symptoms can be significantly improved. The concept of THERANOSTICS has now been translated to other malignancies (e.g. prostate cancer using PSMA as ligand). Current state and future perspectives of this fascinating precision treatment of malignancies will be discussed.

URL

http://www.prrtinfo.org

**SPSH54C**

Imaging and Therapy of Neuroendocrine Tumors with MIBG

**Matthias Schmidt MD (Presenter): Nothing to Disclose**

**LEARNING OBJECTIVES**

1) To understand the molecular basis for imaging and therapy of neuroendocrine tumors with metaiodobenzylguanidine (MIBG). 2) To be able to define indications for imaging of neuroendocrine tumors (i.e. pheochromocytoma, paraganglioma and neuroblastoma) with MIBG and when to consider other radiopharmaceuticals. 3) Learn to read typical and difficult cases imaged with metaiodobenzylguanidine. 4) To understand the historical development of I-131-mIBG therapy and its current use in neuroendocrine tumors and high-risk neuroblastoma. 5) To address important aspects how to deliver I-131-mIBG therapy with different aspects concerning adult versus pediatric patients.

**SPFR61**

**Friday Imaging Symposium: A Guided Tour for Managing Incidental Findings: Adnexal, Thyroid, Pediatric, Adrenal and Chest**

**Special Courses**

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Fri, Dec 5 12:30 PM - 3:00 PM   Location: E253CD

**Participants**

Moderator
Lincoln L. Berland MD : Consultant, Nuance Communications, Inc Stockholder, Nuance Communications, Inc

**LEARNING OBJECTIVES**

1) Appreciate the scope, variety and nature of the problem of incidental findings on imaging studies in multiple contexts and the special challenges each present. 2) Better apply a system for managing incidental adnexal lesions, including when to follow or further evaluate lesions based on their features, size and on patient factors. 3) Apply criteria for diagnosing and following incidental adrenal lesions, including when and how to reference information from an ACR White Paper addressing this topic. 4) Assess how new knowledge and techniques developed since publication of the Fleischner criteria in 2005 will lead to changes for managing incidental pulmonary lesions.

**Sub-Events**

**SPFR61A**

Chest

Reginald F. Munden MD, DMD (Presenter): Nothing to Disclose

**LEARNING OBJECTIVES**
SPFR61B  
**Adnexal**
Susan M. Ascher MD (Presenter): Nothing to Disclose

**LEARNING OBJECTIVES**

View learning objectives under main course title.

SPFR61C  
**Adrenal**
William W. Mayo-Smith MD (Presenter): Author with royalties, Reed Elsevier Author with royalties, Cambridge University Press

**LEARNING OBJECTIVES**

View learning objectives under main course title.

SPFR61D  
**Thyroid Nodules**
Edward G. Grant MD (Presenter): Research Grant, Bracco Group Research Grant, General Electric Company Medical Advisory Board, Nuance Communications, Inc

**LEARNING OBJECTIVES**

View learning objectives under main course title.

SPFR61E  
**Pediatrics**
R. Paul Guillerman MD (Presenter): Nothing to Disclose

**LEARNING OBJECTIVES**

1) Recognize common or vexing incidental findings encountered in pediatric body imaging, such as lymphoid hyperplasia, brown fat, ectopic thymus, pulmonary nodules, small bowel intussusceptions, duodenal inversum, intraperitoneal free fluid, infantile ovarian cysts, urachal remnants, renal cysts, renal collecting system ectasia, neonatal adrenal masses, testicular microlithiasis, osteochondral irregularities, and hypercellular marrow. 2) Understand the clinical implications of these incidental findings to distinguish which of them can be dismissed and which of them warrant additional investigation or follow-up.