Radiologic Technologist
Participants
Thaddeus A. Wilson, PhD, Memphis, TN (Moderator) Nothing to Disclose

Sub-Events

**SPPH01A  Fundamentals of CT**

Participants
Zheng Feng Lu, PhD, Chicago, IL, (zlu@radiology.bsd.uchicago.edu) (Presenter) Nothing to Disclose

LEARNING OBJECTIVES
1) Explain the underlying physics of CT imaging; 2) Identify the main components of CT systems in diagnostic imaging; 3) Introduce the primary acquisition parameters and the operating modes; 4) Describe radiation dose descriptors for CT imaging.

**SPPH01B  Primer and Clinical Significance of Artifacts in CT**

Participants
Jiang Hsieh, PhD, Waukesha, WI, (jhsieh@wi.rr.com) (Presenter) Employee, General Electric Company

LEARNING OBJECTIVES
1) Identify root-causes of major CT artifacts. 2) Explain approaches used in CT scanner to suppress or eliminate artifacts. 3) Develop appropriate clinical protocols and procedures to avoid or minimize artifacts.

URL
AAPM Medical Physics Tutorial Session 2
Saturday, Nov. 26 2:15PM - 4:15PM Room: E351

CT  PH  SQ

AMA PRA Category 1 Credits ™: 2.00
ARRT Category A+ Credits: 2.00

Participants
Thaddeus A. Wilson, PhD, Memphis, TN (*Moderator*) Nothing to Disclose

Sub-Events

**SPPH02A**  Update on Current and Upcoming Technologies in CT

Participants
Norbert J. Pelc, ScD, Stanford, CA (*Presenter*) Research support, General Electric Company; Research support, Koninklijke Philips NV; Consultant, Varian Medical Systems, Inc; Consultant, NanoX; Scientific Advisory Board, Reflexion Medical Inc; Scientific Advisory Board, Prismatic Sensors AB; Medical Advisory Board, OurCrowd, LP;

**SPPH02B**  CT Dose and Protocol Management in Clinical Practice

Participants
Dominik Fleischmann, MD, Palo Alto, CA, (d.fleischmann@stanford.edu) (*Presenter*) Research support, Siemens AG;

**LEARNING OBJECTIVES**

At the end of this activity, participants will be able to: define the current regulatory develop and assess current technologies for clinical dose monitoring, recording, and analysis; including challenges and limitations develop a protocol management system

**Handout:** Dominik Fleischmann

Global Health - Challenges and Lessons Learned (Sponsored by the Associated Sciences Consortium) (An Interactive Session)

Monday, Nov. 28 8:30AM - 10:00AM Room: S105AB

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

Participants
Alexander Yule, DSc, Cardiff, United Kingdom (Moderator) Nothing to Disclose
Steven P. DeColle, Edmonton, AB (Moderator) Nothing to Disclose

Sub-Events
MSAS21A The Future of Tc-99m Supply

Participants
Francois Couillard, Ottawa, ON, (fcouillard@camrt.ca) (Presenter) Nothing to Disclose

LEARNING OBJECTIVES
1) Understand the Tc-99m supply chain. 2) Assess the short and long-term disruption of supply risks. 3) Assess the potential of technological innovations and advances to create new sources of supply and mitigate risks.

ABSTRACT
With the closure of the Canadian NRU reactor in 2016, the world is losing one of the major producers of Mo-99 used in the production of Tc-99m. What will be the short and long-term consequences on the global supply chain? What innovative solutions are being explored? In this talk, François Couillard will rely on his past industry experience and current involvement in Canada’s Multistakeholder Working Group on Radioisotopes to paint a picture of the situation and discuss the implications for nuclear medicine.
Participants
Kendra Huber, RT, BS, Castle Rock, CO (Moderator) Nothing to Disclose
Dana Aragon, RT, Albuquerque, NM (Moderator) Nothing to Disclose

LEARNING OBJECTIVES
1) Give the audience an understanding of the key safety elements involved in MR center operations. 2) Provide a working knowledge of the components needed for designing a successful Safety program. 3) Demonstrate and explain how a busy MR center can maintain safety and still be efficient. 4) Leave the audience with the ability to translate this lecture to the workplace and make good safety decisions for the staff and patients to whom we provide care.

ABSTRACT
MRI Safety and the need for a comprehensive plan to address this issue have grown to encompass new roles and responsibilities in a Radiology Department. Defining the roles and responsibilities for these tasks makes the process manageable and leads to a better patient outcome and overall quality of your MR process. The first step is to take a fresh look at your physical layout, policies, procedures, forms and educational plan. The progress of technology both in MR and medicine as a whole have added both enhanced tools and new problems to MR staff over the last 5-10 years. MR technologist and support staff is now seeing an upswing of new implants and more patients that have these devices implanted. There are constantly changing trends in fashion and body art coming into MR centers every day. Balancing the need to safely scan each patient with demands for increased thru put can be challenging, stressful and lead to staff burn out and potential accidents. Many MR professionals have studied, written papers and lectured on how to design, implement and control MR Safety in a busy department. The challenges we face aren't new but are more frequent and come in differing levels of complexity. In this lecture we will focus on the roles of individuals and how to ensure your staff has the skill set to address the changing landscape in MR safety today. Tools available include Physics support, updated screening forms and ancillary devices like ferrous metal detectors and wands. The need for a somewhat consistent process across the world goes a long way in ensuring we maintain patient safety while also scanning patients who need this service. Do you need extra staff to accomplish these goals? The answer will vary from site to site and only you and your staff can make this determination. Education is vital and necessary at every level of responsibility in MR. Safety related education should be the focus for all MR technologist and ancillary staff members. Policy should be directed at minimizing the risks and empowering Technologist and MDs to make decisions based on knowledge and understanding.

MSAS22B Non-clinical, Non-research MRI

Participants
Scott B. Reeder, MD, PhD, Madison, WI (Presenter) Institutional research support, General Electric Company Institutional research support, Bracco Group

LEARNING OBJECTIVES
1) Understand what constitutes non-clinical, non-research MRI, and the distinctions from clinical and research MRI activities. 2) Understand the need for procedures surrounding non-clinical, non-research activities. 3) Understand the basic principles that should be considered when approaching non-clinical, non-research MRI activities.

ABSTRACT
Magnetic resonance imaging (MRI) of human subjects is widely performed for clinical and research purposes. Clinical MRI requires a physician order, while research MRI typically requires an approved protocol from a local institutional review board (IRB), as well as informed consent. However, there are several circumstances in which it is appropriate to perform MRI in human subjects that constitute neither clinical nor research activities. Examples include clinical protocol development, training and teaching, and quality assurance testing. We refer to such activities as non-clinical, non-research MRI. The purpose of this talk is to provide and overview of principles and guidelines for appropriate and safe use of MRI in human subjects for non-clinical, non-research purposes.

MSAS22C The Role of the MR Safety Expert (MSRE) in MR Safety Programs

Participants
David W. Jordan, PhD, Cleveland, OH, (david.jordan@uhhospitals.org) (Presenter) Consultant, Petrone Associates, LLC; Consultant, Applied Medical Physics in Radiology, Inc; Advisory Board, Medical Technology Management Institute; Director, Medical Technology Management Institute; Speaker, Medical Technology Management Institute; Travel support, Sectra AB;

LEARNING OBJECTIVES
1) Describe the certification process and requirements for MR Safety Experts (MRSE). 2) Explain the role of the MRSE in the MRI
safety program, relative to the MRI Medical Director, MR Safety Officer, and other staff members. 3) Identify improvement opportunities for consultation with an MRSE in their own clinical practice.

ABSTRACT

Advances in MRI and implantable medical devices have created unprecedented opportunities for sophisticated MRI exams to guide and improve patient care while introducing significant safety challenges. Equipment and device manufacturers have responded by providing detailed technical safety information for their products, but integrating this information and evaluating the safety of a given case or situation is difficult. To assist MR Medical Directors and MRI technologists in making safety decisions, the American Board of MR Safety (ABMRS) has created certification for the MR Safety Expert (MRSE): a clinical scientist
Participants
Steven P. DeColle, Edmonton, AB (Moderator) Nothing to Disclose
Dana Aragon, RT, Albuquerque, NM (Moderator) Nothing to Disclose

Sub-Events

**MSAS23A  Do You See What I See-Improving Patient Outcomes through Peer Learning**

Participants
Susan Walker, Edmonton, AB (Presenter) Nothing to Disclose

**LEARNING OBJECTIVES**

1) Define key components of our successful Quality Assurance Program. 2) Understand lessons learned. 3) Recognize the possibilities with a successful Quality Assurance program.

**ABSTRACT**

Alberta Health Services (AHS) is Canada's largest province wide, fully-integrated health system, responsible for delivering health services to the over four million people living in Alberta. AHS has implemented a province-wide Quality Assurance program within Diagnostic Imaging including over 130 sites. Radiologists and technologists perform peer learning on randomly selected, de-identified exams from across the province. The goal of the program is to reduce errors and increase quality and patient outcomes through education. This presentation will share our key components of success, lessons learned and the future possibilities of where the program can take improving patient outcomes.

**MSAS23B  Best Practices in Digital Radiography**

Participants
Tracy Herrmann, MEd, RT, Cincinnati, OH, (tracy.herrmann@uc.edu) (Presenter) Spouse, Employee, Siemens AG

**LEARNING OBJECTIVES**

1) Describe social marketing and radiation safety initiatives. 2) Recommend practices necessary to optimize exposure technique and minimize exposure to the patient before, during and after the digital radiography examination. 3) Identify special considerations for digital imaging of pediatric patients. 4) Promote collaboration and radiation safety in the workplace.

**ABSTRACT**

Digital image receptors provide the opportunity for efficient and dynamic practices in medical radiography. However, digital imaging technology also permits overexposure to the patient with little to no effect on image quality. This presentation will describe social marketing and radiation safety initiatives designed to decrease patient dose in computed radiography (CR) and flat panel digital radiography (DR) while maintaining optimal image quality. Best practices before, during and after the digital radiography examination for both pediatric and adult imaging will be shared. Participants will examine collaborative best practices to promote at their workplace.
Participants
Scott J. Emerson, MS, Royal Oak, MI, (scott.emerson@beaumont.edu) (Moderator) Nothing to Disclose
Osama R. Mawlawi, PhD, Houston, TX, (omawlawi@mdanderson.org) (Presenter) Research Grant, General Electric Company; Research Grant, Siemens AG

LEARNING OBJECTIVES
1) Advances in PET/CT imaging. 2) Advances in SPECT/CT imaging. 3) Challenges and opportunities of PET/MR imaging.

ABSTRACT
Nuclear medicine hybrid imaging (PET/CT and SPECT/CT) has undergone several technological advances over the past decade. This lecture will review the evolution of hybrid imaging and describe the technological advances in the field from system design to image generation and data analysis tools. The lecture will cover innovations in detector design, resolution recovery, time of flight imaging, quantitative evaluation, attenuation correction, and reconstruction algorithms. The lecture will also cover PET/MR imaging and its current challenges and opportunities.

URL
Participants
Sonja Dieterich, PhD, Sacramento, CA (Moderator) Scientific Advisor, MGS Research, Inc

LEARNING OBJECTIVES
1) Identify critical anatomical features of major SRS/SBRT targets. 2) Learn techniques used in small field dosimetry and the order of magnitude of treatment uncertainties. 3) Learn essential treatment planning techniques, especially with regards to respiratory motion management. 4) Gain knowledge about treatment delivery devices for SRS/SBRT. 5) Understand resources and safety practices for SRS/SBRT.

ABSTRACT
This session summarizes the highlights of the 2014 AAPM Summer School on SRS/SBRT. The first speaker will highlight critical anatomical structures which physicists and treatment planners need to be aware of in SRS/SBRT. Contouring atlases specific to SRS/SBRT are discussed, e.g. the consensus guidelines published by the spine consortium. The second lecture focuses on the physics of small field dosimetry, which is a special skill set within the field of clinical medical physics. The state-of-the-art recommendation on detector selection and measurement techniques will be discussed, including current recommendations on the use of detector correction factors. The third speaker will summarize treatment planning approaches specific to classic SRS/SBRT targets in the brain, lung, GI and GU regions. The appropriate use of respiratory management techniques for SBRT in lung, liver and pancreas requires the careful and considerate application of complex technology. Current society recommendations and peer-reviewed literature on accepted approaches to respiratory motion management will be summarized. In the last decade, the selection of treatment machines capable of delivering SRS/SBRT treatments with the required spatial and dosimetric accuracy has increased significantly. The speaker will discuss the major technical components of each delivery device, highlighting strength and weaknesses of each system as they apply to SRS/SBRT. SRS/SBRT delivers a high dose with steep dose gradients in 1-5 fractions, using complex technology with image guidance. Both the risk of error and the impact of errors is amplified under these circumstances. The last speaker of this session will discuss selected case reports of errors, including a root cause analysis. Current safety initiatives and recommendations for improved safety practices will be introduced. Resources to guide safe and effective implementation of an SRS/SBRT program will be discussed and shared with the audience.

Sub-Events

SPPH22A  Anatomy for Cranial and Spine SRS/SBRT

Participants
Zachary A. Kohutek, MD, PhD, New York, NY (Presenter) Nothing to Disclose

LEARNING OBJECTIVES
1) Describe the anatomy relevant to CNS radiotherapy of brain and spine tumors. 2) Explain the dose constraints for treatment of brain and spine tumors.

SPPH22B  Small Field Dosimetry and Uncertainty

Participants
Sonja Dieterich, PhD, Sacramento, CA, (sdieterich@ucdavis.edu) (Presenter) Scientific Advisor, MGS Research, Inc

LEARNING OBJECTIVES
View learning objectives under the main course title.

ABSTRACT
This lecture lecture focuses on the physics of small field dosimetry, which is a special skill set within the field of clinical medical physics. The state-of-the-art recommendation on detector selection and measurement techniques will be discussed, including current recommendations on the use of detector correction factors.

Active Handout:Sonja Dieterich

SPPH22C  Treatment Planning and Respiratory Motion Management for SBRT

Participants
Kristi R. Hendrickson, PhD, Seattle, WA (Presenter) Nothing to Disclose

LEARNING OBJECTIVES
View learning objectives under the main course title.

SPPH22D  SRS/SBRT Delivery Devices
Participants
James Gordon, PhD, Birmingham, MI (Presenter) Nothing to Disclose

LEARNING OBJECTIVES
View learning objectives under the main course title.

SPPH22E   Safety and Quality for SRS/SBRT

Participants
Stanley H. Benedict, PhD, Sacramento, CA (Presenter) Nothing to Disclose

LEARNING OBJECTIVES
View learning objectives under the main course title.

Active Handout: Stanley H Benedict
Reconfiguring Imaging Services for an Electronic World (Sponsored by the Associated Sciences Consortium)
(An Interactive Session)

Monday, Nov. 28 3:30PM - 5:00PM Room: S105AB

AMAPRA Category 1 Credits ™: 1.50
ARRT Category A+ Credits: 1.50

Participants
Morris A. Stein, BArch, Phoenix, AZ (Moderator) Nothing to Disclose
William A. Undie, PhD, RT, Houston, TX (Moderator) Nothing to Disclose
Steven L. Venable, Houston, TX, (svenable@mdanderson.org) (Presenter) Nothing to Disclose
Richard Rucksdashel, Houston, TX (Presenter) Nothing to Disclose

LEARNING OBJECTIVES
1) Evaluate the patients’ and staff’s expectations of new technologies, facility design, process flow and improved convenience in the efficient delivery of patient care. 2) Tie the operational strategy to the strategic planning of the organization and a patient centric care delivery model. Evaluate the impact and importance of staff satisfaction on patient satisfaction. 3) Appraise different technologies, such as smartphones, www access, and modeling software to configure imaging services and facility design to new delivery methods of imaging services.

ABSTRACT
Patients and staff are able to purchase books, groceries, dinner and conduct their financial business from virtually any location at any time of day. This course focuses on the technologies and implementations to drive a patient centric imaging services model in a world where the patients and caregivers participate in an Electronic World. Appraisal of simulation modeling for workflow analysis and facility design validation, application of tablet and smartphone technologies for data management for the patient and caregiver will be reviewed. The course will comprise an examination of how leveraging the technologies and practice associated with the Electronic World can be used to enhance patient safety, patient and staff satisfaction and delivery of imaging services.
The Integration of Simulation into the Education and Training of Imaging Technologists (An Interactive Session)

Tuesday, Nov. 29 8:30AM - 10:00AM Room: S105AB

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

Participants
David B. Nicholson, Charlottesville, VA (Moderator) Nothing to Disclose
Charlotte Beardmore, MBA, London, United Kingdom (Moderator) Nothing to Disclose

LEARNING OBJECTIVES
1) To understand the changing role of the radiographer in the UK in supporting streamlined patient care. 2) To consider the impact of these changes upon education and training requirements; in relation to higher levels of practice. 3) To consider the importance of impact reporting with changing scope of practice.

Sub-Events

MSAS31A  The Integration of Simulation into the Education and Training of Imaging Technologists

Participants
David B. Nicholson, Charlottesville, VA (Presenter) Nothing to Disclose

LEARNING OBJECTIVES
View learning objectives under main course title.

MSAS31B  Changing Scope of Practice in the UK

Participants
Charlotte Beardmore, MBA, London, United Kingdom (Presenter) Nothing to Disclose

LEARNING OBJECTIVES
View learning objectives under main course title.
LEARNING OBJECTIVES

1) Understand the CT dose concept and the need to minimize unnecessary radiation. 2) Understand the technical factors affecting CT dose and image quality. 3) Understand the special need to minimize the pediatric dose. 4) Learn the methods to optimize CT dose following the principle of ALARA.

ABSTRACT

This lecture will discuss technical factors affecting CT dose and image quality and demonstrate the practical methods for CT dose optimization using phantoms. The cases include chest, abdomen, elbow and brain CT. Pediatric dose reduction is discussed in the context of consistent image quality. Possible pitfalls and misunderstanding on dose reduction are addressed.
Patient Centered Approach to Breast Imaging (Sponsored by the Associated Sciences Consortium) (An Interactive Session)

Tuesday, Nov. 29 1:30PM - 3:00PM Room: S105AB

Participants
Denise D. Collins, MD, Detroit, MI, (denisec@rad.hfh.edu) (Moderator) Nothing to Disclose
Kathleen Kath, Livonia, MI (Moderator) Nothing to Disclose
Denise D. Collins, MD, Detroit, MI, (denisec@rad.hfh.edu) (Presenter) Nothing to Disclose
Patricia A. Miller, MD, Bingham Farms, MI (Presenter) Nothing to Disclose
Lisa Brown, West Bloomfield, MI (Presenter) Nothing to Disclose

LEARNING OBJECTIVES
1) Assess collaborative reviews/relevant clinical practice regarding application to realign workflow. 2) Compare new electronic media designed for patient's needs. 3) Recommend technological innovations/advances that enhance timely diagnosis and reporting. 4) Apply principals of critical thinking from experts and peers. 5) Define new techniques for specific populations of breast patients.

ABSTRACT
Focus on a patient centered approach to healthcare delivery provided an opportunity to develop a new paradigm for delivery of breast imaging care. This course will review assessment of patient needs and our approach to the delivery of personalized healthcare. The program emphasizes screening based on personal and family history, diagnostic evaluation including core biopsy based on patient need, delivery of results to patients in an efficient, empathetic manner, and coordination of radiology care with surgery, oncology and primary care physicians.
Getting What You Pay For: The Commoditization of Radiology Billing

Participants
Patricia Kroken, Albuquerque, NM, (pkroken@comcast.net) (Moderator) Nothing to Disclose
Alexander Yule, DSc, Cardiff, United Kingdom (Moderator) Nothing to Disclose

LEARNING OBJECTIVES
Session attendees will 1) Gain practical industry knowledge that can be compared to their individual practice situations, 2) Understand the issues related to the implementation of ICD-10 and better prepare for the next stages and 3) Be able to compare examples of billing over-automation to their challenges maximizing revenue.

ABSTRACT
Radiology, as a business, increases in complexity each year as it responds to growing regulatory demands, downward revenue pressures and the need to do more with less. This session addresses the impact of ICD-10 after its first year of implementation and how reality matches to initial expectations. Did it live up to dire predictions or meet the promise of improved coding documentation? And what should we expect next? The session also reviews the trend of low-cost, highly automated billing options which have resulted in the commoditization of radiology billing; that is, the selection of billing options based primarily on price (rather than value). Examples of actual problems created by over-automation will be presented and the impact on revenue discussed. Together, the topics covered are timely and reflect common challenges for the business of radiology.

ICD-10 and Radiology: The Good, The Bad & The Ugly

Participants
Melody W. Mulaik, Powder Springs, GA, (melody.mulaik@codingstrategies.com) (Presenter) President, Coding Strategies, Inc;

LEARNING OBJECTIVES
1) The current overall status of ICD-10-CM after one year of implementation. 2) Specific areas of coding and documentation concerns for radiology practices. 3) How to identify specific areas of opportunity to minimize negative financial outcomes.

ABSTRACT
Effective October 1, 2015, healthcare organizations replaced the ICD-9 diagnosis and procedure coding system with ICD-10. Although ICD-10 codes are assigned by staff, or handled by an outsourced vendor, the implementation of ICD-10 has impacted radiologists in a variety of ways. For example, due to the structure and granularity of the ICD-10 code set, there is a need for new or additional information in the radiology report to allow proper coding and thus avoid payment denials and/or delays. This session is designed to give radiologists the information they need to ensure that they, and their organization, are doing everything possible to avoid payment delays and/or denials. The information flow process from the receipt of orders to the radiologists’ dictation will be reviewed in detail to identify opportunities for process improvement and individual physician impact. Ample time will be provided for answer attendee questions.

Active Handout: Melody W. Mulaik
Participants
Susan D. John, MD, Houston, TX, (susan.d.john@uth.tmc.edu) (Presenter) Nothing to Disclose

LEARNING OBJECTIVES
1) Define the challenges of promoting a culture of patient-centered care in radiology practices. 2) Understand the value of establishing a multidisciplinary team to enhance patient satisfaction in imaging. 3) Create opportunities to make a positive impact on patients before, during, and after imaging

ABSTRACT
Participants
Keith J. Strauss, FAAPM, FACR, Cincinnati, OH, (keith.strauss@cchmc.org) (Presenter) Research Consultant, Koninklijke Philips NV; Speakers Bureau, Koninklijke Philips NV

LEARNING OBJECTIVES
1) Understand why the thickness of the patient irradiated during an x-ray exam is a better indicator of the required radiographic technique than the patient's age, weight, or BMI. 2) Better understand the growth patterns of children from newborns to adults. 3) Learn simple techniques to use to obtain the patient thickness either before or after the examination. 4) Understand basic dose indices of CT and how to use these to manage patient dose from newborns to adult sized patients. 5) Understand basic dose indices for radiographic/fluoroscopic exams and how to use these to manage patient dose from newborns to adult sized patients.

ABSTRACT
Purpose: To assist radiologic technologists in the process of obtaining the correct radiographic technique for CT, radiographic, or fluoroscopic exams of children regardless of their size or age. Organization of Content: Radiologic technologists need accurate knowledge of the thickness of the pediatric or adult patient to best select the proper radiographic technique for all exams using x-rays. The different rates of growth of the different body parts of the pediatric patient will be investigated. Simple tools and techniques to quickly determine the thickness of the body part imaged will be presented. Armed with the patient size of the body part to be imaged, the radiologic technologist can use available published data to adjust CT technique factors to obtain the desired Size Specific Dose Estimate (SSDE) regardless of the patient's size or age. The size of the patient also determines the proper radiologic techniques for radiographic/fluoroscopic dose management for direct radiography, computed radiography, general fluoroscopy, or interventional fluoroscopy. Dose indices of air kerma and kerma area product will be discussed along with methods to manage radiation dose to the patient during these exams.
Participants
John Leal, Claremont, CA, (jleal@charter.net) (Presenter) Nothing to Disclose

LEARNING OBJECTIVES
1) Gain understanding of the role a Technologist play in the CTA imaging examination. 2) Define strategies for dealing with clinical imaging situations focusing on the diagnostic question. 3) Balancing our responsibilities between diagnostic question, radiation dose, clinical information and exam requests. 4) Understand the process of protocol development for CT Angiography. 5) Recognizing and avoiding pitfalls.

ABSTRACT
Today's CT Technologists are challenged with the rapidly changing environment in Computed Tomography Angiographic imaging. Focusing on the role the Technologist plays in the acquisition of complicated imaging exams, from preparation to post processing; this discussion explores the skill set and technical considerations required in the production of exceptional diagnostic images.
Participants
Michael N. Linver, MD, Albuquerque, NM, (mammomike@aol.com) (Presenter) Scientific Advisory Board, Hologic, Inc; Scientific Advisory Board, Real Imaging Ltd; Scientific Advisory Board, Seno Medical Instruments, Inc

LEARNING OBJECTIVES
1) Discriminate between the subjective negative conclusions of the USPSTF and the true objective data supporting annual screening mammography beginning at 40. 2) Argue successfully in favor of screening mammography when confronted by mammography nihilists. 3) Create useful information for patients regarding the life-saving value of yearly mammography beginning at 40.

ABSTRACT
Early in 2016, the USPSTF reaffirmed their recommendations against screening mammography in women 40-49 and over 73, and recommended screening every 2 years for women 50-73. If fully implemented, as many as 100,000 more women would die prematurely from breast cancer over the next 10 years. The true facts the Task Force twisted or ignored about the real value of yearly screening beginning at 40 will be elucidated. The mythical “harms” of mammography purported by the Task Force will be revealed as overly exaggerated or nonexistent. Talking points radiologists can use in discussing screening guidelines with their patients and clinicians will be reviewed.
Participants
Timothy J. Blackburn, PhD, Dallas, TX, (Timothy.Blackburn@UTSouthwestern.edu) (Presenter) Nothing to Disclose

LEARNING OBJECTIVES

1) Identify key differences between analogue and digital imaging acquisitions. 2) Describe patient dose considerations with digital imaging. 3) List key features of information contained in a digital image beyond the visual image itself. 4) Compare the roles of DICOM, PACS, IHE, and HL7 in the electronic radiology department.

ABSTRACT

While the field of radiology was founded on analogue imaging modalities the current practice is now nearly completely digital. This requires changes in image acquisition systems, workflow, display/interpretation and storage. Digital imaging provides the potential of not only reducing patient dose but being able to maintain an electronic record of exposures. In an ever changing electronic radiology department the role of the radiographer must also change. This lecture will explore digital radiographic image acquisition, transmission, display and storage. Workflow, image analysis, and dose tracking will also be covered. Digital Imaging and Communications in Medicine (DICOM), Picture Archive and Communications Systems (PACS), and Health Level Seven (HL7) standards along with Integrated Healthcare Enterprise (IHE) initiatives will be reviewed.

Active Handout: Timothy J. Blackburn

LEARNING OBJECTIVES
1) Explain the importance and relevance of an MRI-guided approach to prostate cancer treatment (EBRT, HDR brachytherapy). 2) Explain the rationale for GTV-tumour targeted approach versus whole gland prostate treatment. 3) Discuss the interventional program at Princess Margaret Cancer Centre, including demonstration of the innovative MRI-guided HDR brachytherapy suite.

ABSTRACT
With the evolution of advancements in image-guided technologies, radiation therapy treatment accuracies and efficiencies in delivery continue to improve as well as a reduction in associated toxicities. But despite these improvements, local recurrence of prostate cancer remains prevalent. Localized prostate cancer is not limited to the prostate gland. As such, regions of tumor-density within the prostate can serve as the gross tumour volume (GTV). Adopting a tumour-targeted radiation therapy (RT) approach to treat prostate cancer is one that may improve the therapeutic ratio by decreasing normal tissue toxicities while improving local control. This can be accomplished by adopting magnetic resonance imaging (MRI) as the image-guided modality for external beam radiation therapy (EBRT) and high dose rate (HDR) brachytherapy for prostate cancer. MRI provides excellent soft tissue contrast without exposing the patient to ionizing radiation. It also allows for more specialized delineation of anatomic structures and disease, thereby allowing more accurate visualization of the target volume. Interventional radiotherapy using MRI-guidance can increase target precision while allowing for dose escalation and normal tissue avoidance. Our institution employs MRI for interventional prostate HDR and EBRT treatment. Adopting a tumor-targeted method for prostate cancer is an innovative approach to prostate cancer RT treatment.
Participants
Kevin Rush, St. Paul, MN, (kevin.rush@arrt.org)  (Presenter) Nothing to Disclose

LEARNING OBJECTIVES
1) Comprehend and conceptualize the evolution of certification. 2) Comprehend the ARRT’s evolving view of education’s role in certification and registration as it is today. 3) Comprehend and conceptualize the changing dynamics of registration and certification and what will be expected of those certified and registered by the ARRT in future.

ABSTRACT
The American Registry of Radiologic Technologists (ARRT) has instituted several changes involving education. Some of the changes have already begun and some will are slated to be phased in over the next four years. This presentation will discuss the rationale and benefits to the profession underlying these changes. It will also begin to address what R.T.s can expect from ARRT to help them successfully navigate what will be expected of them. This includes a database of academic courses and CE activities maintained by ARRT through a collaborative effort with Recognized Continuing Education Evaluation Mechanisms (RCEEMs), CE sponsors, and academic educators. The database is key to assisting R.T.s in finding education that appropriately aligns with an individual’s requirement whether it be structured education for pursuing post primary certification, content-specific CE as identified by a Continuing Qualifications Requirement’s assessment or discipline-specific biennial CE.
Participants
Bartram J. Pierce, BS, RT, Albany, OR, (pierce.bart@gmail.com) (Presenter) Nothing to Disclose

LEARNING OBJECTIVES

1) Understand the history of gadolinium as a contrast agent and its differing molecular structures. 2) Be familiar with the usefulness of gadolinium in a clinical environment. 3) Recognize that gadolinium chelates may have harmful effects even when used appropriately. 4) Be able to discuss the clinical decision making process of contrast utilization.

ABSTRACT

Gadolinium has proven its clinical effectiveness as an MRI contrast agent for over 25+ years. Thought to be harmless it was used indiscriminately for many years until the discovery of NSF in 2006. This new disease seemed to affect only those patients with poor kidney function and resulted in appropriate screening of individuals receiving gadolinium. This change in practice helped dramatically decrease cases of NSF. Gadolinium was still felt to be harmless in patients with normal renal function. Recently gadolinium has been found in the brain and tissues of patients with normal renal function challenging that notion. This course will look at this history of gadolinium and review the current research surrounding the concept of retained gadolinium in the hopes of continuing the discussion of just how helpful or harmful gadolinium might be.
**Participants**
Nicole B. Dhanraj, PhD, RT, Mangilao, GU *(Presenter)*

**LEARNING OBJECTIVES**
1) Define the term neglected tropical diseases and provide insight into their societal impact. 2) Discuss neglected tropical diseases affecting the Americas and medical imaging’s role in screening, diagnosis and follow-up evaluation. 3) Describe the radiology community’s need to participate actively in containment and eradication of neglected tropical diseases within the resource-limited communities of the Americas.

**ABSTRACT**
Neglected tropical diseases are a diverse group of illnesses with distinct characteristics that thrive mainly among the poorest populations. The World Health Organization (WHO) prioritized 17 neglected tropical diseases that are endemic in 149 countries and affect more than 1.4 billion people, costing developing economies billions of dollars every year. Neglected tropical disease rates also are increasing in the U.S. Gulf States; however, many of these diseases are not new to the region. In May 2013, the 66th World Health Assembly adopted resolution WHA66.12, which calls for intensified, integrated measures and planned investments to improve the health and social well-being of affected populations. For many neglected tropical diseases, diagnostic tests are cumbersome or not widely available. Understanding the role that radiology plays in early diagnosis and disease monitoring, as well as radiologic manifestations of neglected tropical diseases, is critical for treating these conditions at the source and preventing further spread.
Participants
John Cathcart, Newtownabbey, United Kingdom, (j.cathcart@ulster.ac.uk) (Presenter) Nothing to Disclose

LEARNING OBJECTIVES
1) Introduce the concept of applying Imaging to non routine diagnostic applications. 2) Report on Pilot work on Multi planar MR on imaging the Ischial Tuberosity anatomical area whilst sitting. 3) Highlight why understanding this anatomical variation is of relevance in the development of cushions for wheelchair users.

ABSTRACT
Purpose
The purpose of this work was to determine the capability of seated magnetic resonance imaging to visualise anatomy around the ischial tuberosity involved in sitting. Clear visualisation of anatomy enabled understanding of the anatomical variation across normal and spinal cord injury subjects.

Methods
Multiplanar T1 weighted thin slice magnetic resonance imaging was carried out in 3 subjects with spinal cord injury and 4 people without spinal cord injuries, seated in a FONAR 0.6T system. The images were scored for anatomical visualisation, anatomical variation between subjects, and percentage of fat voxels within the gluteus maximus.

Results
Seated magnetic resonance imaging was able to visualise the majority of anatomy around the ischial tuberosity, however, there was significant anatomical variation between all subjects regardless of their spinal cord injury status. It was also shown that mechanical support for sitting is provided by a variety of soft tissues, including gluteus maximus, subcutaneous fat and skin, although the amount and type varied significantly.

Conclusion
Magnetic resonance imaging was shown to be capable of producing high resolution anatomical data of the anatomy involved in sitting. This data may be used to inform clinicians of pressure ulcer risk.

Handout:John Cathcart