



Mentors Play Critical Role for Female, Minority Radiologists

ALSO INSIDE:

LOOK AHEAD: The Future of Abdominal Imaging
The Link Between Osteoarthritis and Running Patterns
Resident & Fellow Committee Focuses on Value
MRI Technique May Aid Asthmatic Patients



Discover the new RSNA Online Learning Center

*Your Trusted Resource for
Radiology Education*

RSNA's newly-upgraded online education platform features an enhanced, mobile-friendly user interface and over 600 courses with SA-CME credit, most of which is free for members.

RSNA[®]
Radiological Society
of North America

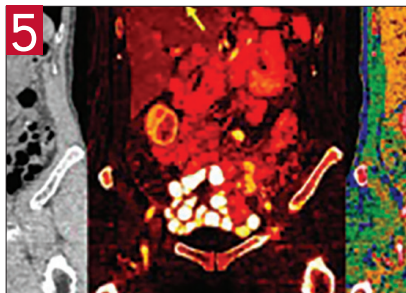


Visit [RSNA.org/learning-center](https://www.rsna.org/learning-center) today.

FEATURES



12 Mentors Play Critical Role for Female, Minority Radiologists



5 LOOK AHEAD: The Future of Abdominal Imaging



8 Research Examines Osteoarthritis and Running Patterns



10 Resident & Fellow Committee Focuses on Value, Opportunity



15 MRI Technique May Aid Asthmatic Patients

UP FRONT

- 2 First Impression
- 4 Numbers in the News

RADIOLOGY'S FUTURE

- 16 R&E Foundation Donors

NEWS YOU CAN USE

- 18 Journal Highlights
- 20 Radiology in Public Focus
- 22 Education and Funding Opportunities
- 22 Value of Membership
- 23 Technology Forum
- 24 Annual Meeting Watch

RSNA MISSION

The RSNA promotes excellence in patient care and health care delivery through education, research and technologic innovation.



EDITOR

Gary J. Whitman, MD

R&E FOUNDATION CONTRIBUTING EDITOR

Theresa C. McLoud, MD

EXECUTIVE EDITOR

Shelley L. Taylor

MANAGING EDITOR

Beth Burmahl

STAFF WRITER

Jennifer Allyn

GRAPHIC DESIGNER

Eriona Baholli-Karasek

EDITORIAL ADVISORS

Mark G. Watson

Executive Director

Karena Galvin

Assistant Executive Director

Marketing and International Affairs

Marijo Millette

Director: Public Information and Communications

EDITORIAL BOARD

Gary J. Whitman, MD

Chairman

Vahid Yaghmai, MD

Vice Chairman

Ezra Bobo, MD

Stephen D. Brown, MD

Carlo Catalano, MD

Daniel A. Hamstra, MD, PhD

Maureen P. Kohi, MD

Laurie A. Loevner, MD

Theresa C. McLoud, MD

Martin P. Torriani, MD

Mary C. Mahoney, MD

Board Liaison

2018 RSNA BOARD OF DIRECTORS

James P. Borgstede, MD

Chairman

Mary C. Mahoney, MD

Liaison for Publications and Communications

Bruce G. Haffty, MD

Liaison for Science

Matthew A. Mauro, MD

Liaison for Education

Curtis P. Langlotz, MD, PhD

Liaison for Information Technology and Annual Meeting

Umar Mahmood, MD, PhD

Liaison for International Affairs

Vijay M. Rao, MD

President

Valerie P. Jackson, MD

President-Elect

Follow us for exclusive news, annual meeting offers and more!



Plenary Speakers Announced for RSNA 2018

The RSNA Board of Directors has announced the plenary speakers who will present at the 104th Scientific Assembly and Annual Meeting.



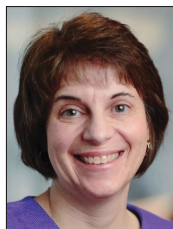
Rao

PRESIDENT'S ADDRESS

Vijay M. Rao, MD

Sunday, Nov. 25, 8:30 a.m.

"How Emerging Technology Will Empower Tomorrow's Radiologist To Provide Better Patient Care"



McCollough

RSNA/AAPM SYMPOSIUM

Cynthia H. McCollough, PhD

Tuesday, Nov. 27, 10:30 a.m.

"CT Technology — and Dose — in the 21st Century"



Recht

ANNUAL ORATION IN DIAGNOSTIC RADIOLOGY

Michael P. Recht, MD

Sunday, Nov. 25, 8:30 a.m.

"Artificial Intelligence, Analytics, and Informatics: The Future is Here"



Forsberg

NEW HORIZONS LECTURE

Flemming Forsberg, PhD

Tuesday, Nov. 27, 1:30 p.m.

"Oscillating Microbubbles — Driving Innovation in Ultrasound"



Berwick

PLENARY LECTURE

Donald M. Berwick, MD, MPP

Monday, Nov. 26, 2 p.m.

"Can Clinicians Lead Radical Redesign?"



Formenti

ANNUAL ORATION IN RADIATION ONCOLOGY

Silvia C. Formenti, MD

Wednesday, Nov. 28, 1:30 p.m.

"Radiotherapy to Convert the Tumor into an In Situ Vaccine"



Aberle

RSNA/AAPM SYMPOSIUM

Denise R. Aberle, MD

Tuesday, Nov. 27, 10:30 a.m.

"Contemporary CT of the Indeterminate Lung Nodule: Where We Are and Why it Matters"



Fei-Fei Li

PLENARY LECTURE

Fei-Fei Li, PhD

Thursday, Nov. 29, 2 p.m.

Charles E. Kahn Jr., MD, MS, Named Editor of *Radiology: Artificial Intelligence*

Now accepting submissions for launch in 2019

Charles E. Kahn Jr., MD, MS, will become editor of the new online journal, *Radiology: Artificial Intelligence*.

Dr. Kahn is professor and vice chair of the Department of Radiology at the University of Pennsylvania's Perelman School of Medicine in Philadelphia. He is also a senior fellow of the Institute for Biomedical Informatics and the Leonard Davis Institute of Health Economics at Penn.

"*Radiology: Artificial Intelligence* is an exciting venture," Dr. Kahn said. "I'm deeply honored for the opportunity to serve as this new journal's editor, and look forward to working with our authors, reviewers and editorial team to present cutting-edge science in this rapidly growing field."

A board-certified radiologist with a clinical specialty in abdominal imaging, Dr. Kahn's research interests include health services, comparative effectiveness, decision support, information standards and knowledge representation.

A graduate of the University of Wisconsin-Madison (UWM), Dr. Kahn earned his medical degree from the University of Illinois College of Medicine in 1985. He completed a diagnostic radiology residency at University of Chicago Medical Center. He received a Master of Science in Computer Sciences from UWM in 2003.

After completing his residency in 1989, Dr. Kahn became an assistant professor of radiology at the University of Chicago. He went on to become an assistant professor of both radiology and medical informatics at the Medical College of Wisconsin (MCW). He became an associate professor of radiology and health services research at MCW in 1993 and a professor of radiology in 1999. From 1994 to 2014, he served as adjunct professor of computer science at the University of Wisconsin-Milwaukee (UWM) and as founding co-director of their interdisciplinary Ph.D. program in biomedical informatics.

Radiology: Artificial Intelligence



Kahn

From 1994 to 2005, he served as director of the Section of Information and Decision Sciences in the Department of Radiology at MCW, and from 1997 to 2000 he was the associate dean and medical director of the Office of Clinical

Informatics. In 2014, he assumed his current role at Penn.

Dr. Kahn has served as an associate editor for *Radiology* and as an associate editor for the *American Journal of Roentgenology (AJR)*. He has been a reviewer for several scientific journals, including *Radiology*, *RadioGraphics*, *Academic Radiology*, *Journal of the American Medical Informatics Association (JAMIA)* and *Artificial Intelligence in Medicine*.

An esteemed communicator, Dr. Kahn has authored or co-authored more than 110 peer-reviewed articles, and given nearly 100 invited lectures.

"With his extensive editorial experience and profound interest in the fields of artificial intelligence and machine learning, Charles Kahn is a natural fit for this role," said Mary C. Mahoney, MD, RSNA Board liaison for publications and communications. "The RSNA Board is excited to see where he takes this important new journal."

Dr. Kahn has received numerous awards and honors. He was the 1993 American Roentgen Ray Society (ARRS) Scholar. He is a fellow of the American College of Radiology (ACR), the Society of Imaging Informatics in Medicine (SIIM) and the American College of Medical Informatics and a recipient of the gold medal of the ARRS. In 2012, he received the RSNA Honored Educator Award.

A longtime member of RSNA, Dr. Kahn served on the RadLex Steering Committee from 2000 to 2017. He is currently chair of the Radiology Informatics Committee that he has been a member of since 2007. He was a member of the Radiology Informatics Subcommittee of the Scientific Program Committee from 2007 to 2013. He joined the Structured Reporting Subcommittee in 2007, serving as its chair from 2013 to 2017. He has served on the RSNA Education and Publications Councils since 2016, as well as the Steering Committee on Content for the Digital Roadmap.

Dr. Kahn has served in many capacities with other professional societies and groups, including ACR, ARRS, AMIA, European Society of Radiology and SIIM. He has served on various committees and working groups for Digital Imaging and Communication in Medicine (DICOM) and was co-chair of the DICOM Standards Committee from 2006 to 2010.

Radiology: Artificial Intelligence will highlight emerging applications of machine learning and artificial intelligence in the field of imaging across multiple disciplines and provide a way to keep practicing physicians and imaging researchers up to date on the best emerging science in this subspecialty.

Beginning in early 2019, the journal will be published bi-monthly and available exclusively online. RSNA members will receive a complimentary subscription as a member benefit. RSNA is currently accepting original research and editorial submissions for the journal at pubs.RSNA.org/Artificial-Intelligence.

Dr. Kahn is among the internationally renowned speakers featured in RSNA's new webinar series on Artificial Intelligence. Read more in Education and Funding on Page 22.

Register for RSNA Spotlight Course on Artificial Intelligence in Paris

Registration is open for the RSNA Spotlight Course, "Practical Applications of Artificial Intelligence (AI)," to be held Sept. 23–24, 2018, in Paris, France.

This two-day course is for radiologists of all subspecialties who want to learn more about AI and its practical application to practice workflows and processes.

With a new *Radiology* journal on AI launching in 2019, new AI webinars and expanded AI programming at RSNA 2018, RSNA is the recognized leader for integrating AI with clinical practice. For more information and to register, visit RSNA.org/Spotlight2018.

RSNA SPOTLIGHT COURSE

Exhibit in the Start-up Showcase at RSNA 2018

**Application Deadline
Oct. 31**

Are you working for an emerging or start-up company in the health care industry? Engage with radiology professionals, network with industry experts and present your

products or services to potential investors as part of the RSNA Start-up Showcase, comprised of 24 kiosks in a specially designated area of the Technical Exhibits Hall at RSNA 2018.

The Start-up Showcase gives emerging companies a turn-key experience to reach important decision makers. Applications are due by Oct. 31 and the showcase is limited to the first 24 participants. Information and eligibility requirements are available at RSNA.org/start-up-showcase.

For questions, contact the RSNA Exhibit Sales Team at sales@rsna.org or 1-630-481-1046.

Stein Receives CAR Gold Medal



Lawrence A. Stein, MD, associate professor, Department of Diagnostic Radiology, McGill University, Montreal, Quebec, received the 2018 gold medal from the Canadian Association of Radiology (CAR) during its recent annual meeting in Montreal.

Dr. Stein is a former president of CAR. He has served on the RSNA Scientific Program Committee's Gastrointestinal Radiology Subcommittee.

Numbers in the News

30

Number of adults, in millions, who suffer from osteoarthritis. Read about R&E-funded research exploring the link between running patterns and osteoarthritis on [Page 8](#).

500

Number of human bodies that underwent post-mortem CT angiography in a new *Radiology* study. Read more on [Page 21](#).

RSNA Announces New Machine Learning Challenge



RSNA's second annual machine learning (ML) challenge, the RSNA Pneumonia Detection Challenge, invites teams to develop algorithms to identify and localize pneumonia in chest x-rays.

The challenge is based on a publicly available dataset published by the National Institutes of Health that was carefully annotated by multiple expert reviewers. The ML Steering Committee of the RSNA Informatics Committee collaborated with volunteer specialists from the Society of Thoracic Radiology to identify abnormal areas in the lung images and assess the probability of pneumonia. The challenge includes two main phases: training and evaluation. During training, participants use the dataset to develop algorithms that duplicate the performance of the human observers. In the evaluation phase, participants are given a subset of the dataset that is withheld during the training phase and excludes the expert annotations. The challenge launches in July, the evaluation phase will take place in early October and results will be announced in mid-October. The most successful submissions will be recognized at RSNA 2018 in the Machine Learning Showcase.

For complete rules and to register your team, visit RSNA.org/Informatics.

July 2018 • Volume 28, Issue 7
Published monthly by the Radiological Society of North America, Inc.
820 Jorie Blvd., Oak Brook, IL 60523-2251. Printed in the USA.

POSTMASTER: Send address corrections or changes to: *RSNA News*, 820 Jorie Blvd., Oak Brook, IL 60523-2251

Non-member subscription rate is \$20 per year; \$10 of active members' dues is allocated to a subscription of *RSNA News*.

Contents of *RSNA News* copyrighted ©2018, RSNA. RSNA is a registered trademark of the Radiological Society of North America, Inc.

LETTERS TO THE EDITOR

rsnanews@rsna.org
1-630-571-7837 fax

SUBSCRIPTIONS
subscribe@rsna.org
1-888-600-0064
1-630-590-7770

REPRINTS AND PERMISSIONS

permissions@rsna.org
1-630-571-7829
1-630-590-7724 fax

ADVERTISING

llazzaretto@rsna.org
Lisa Lazzaretto
Assistant Director:
Corporate Relations
1-630-571-7818



LOOK AHEAD

The Future of Abdominal Imaging

BENJAMIN M. YEH, MD

“... abdominal imaging is headed toward a point of paradoxically simplified complexity.”

BENJAMIN M. YEH, MD

The breadth and depth of knowledge required to practice abdominal imaging is exploding. Our referring medical subspecialists are demanding increasingly niche evaluations. Into this fray, powerful new diagnostic and therapeutic tools are emerging that promise to help address critical unmet needs, both for radiologists and for our referring colleagues. While speculation on the future is generally fraught with error, areas of certainty come into focus when we recognize ongoing trends.

The Nexus Crisis

More than in any other area of the body, the abdomen encompasses a multiplicity of organs, each of which requires a distinct knowledge base. Abdominal radiologists serve other specialists including colon and rectal surgeons, gynecologists, gynecologic oncologists, urologists, gastroenterologists, vascular surgeons, endocrinologists, neurosurgeons and orthopedists. Each of



BENJAMIN M. YEH, MD, is a professor in the Abdominal Imaging Section in the Department of Radiology at the University of California, San Francisco (UCSF). Dr. Yeh directs the NIH-funded Contrast and CT Research lab at UCSF which explores novel contrast-enhanced imaging techniques for CT, dual energy CT and MRI. Ongoing projects include the development and testing of novel contrast materials, bowel imaging, fibrosis imaging, assessment of contrast material distribution in healthy and diseased tissues and oncologic imaging. Dr. Yeh has served on the RSNA Technical Exhibits and Scientific Program committees and on the editorial boards of *Radiology* and the *Daily Bulletin*. He received the 2003 E-Z-EM, Inc./RSNA Research Seed Grant.

Continued on next page

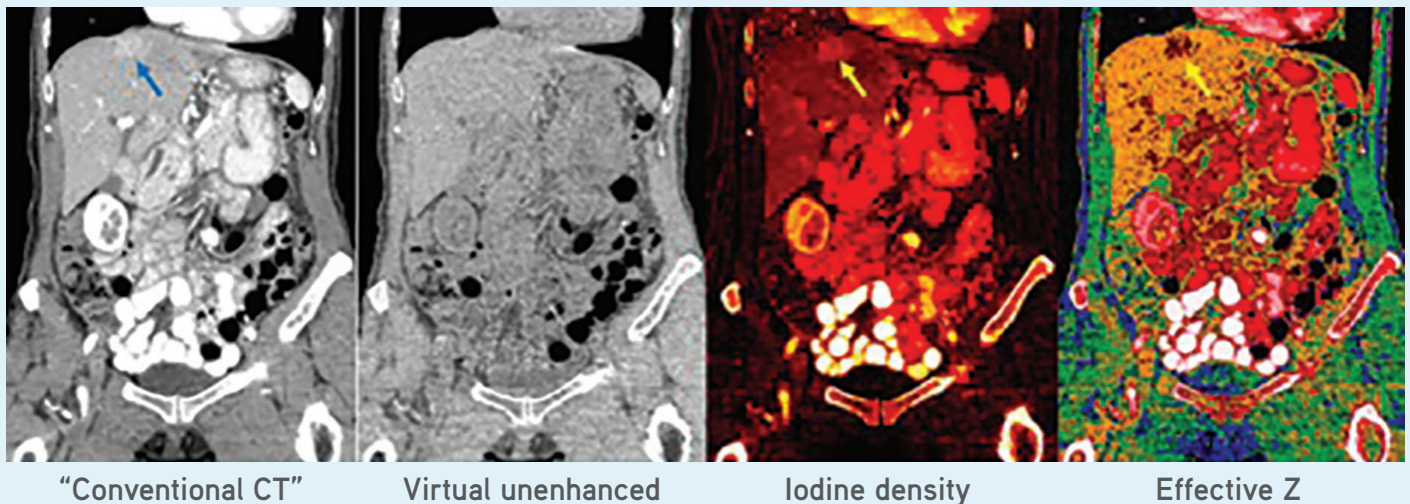


Figure 1: Coronal abdominal multi-energy CT (MECT) with iodine intravenous and barium oral contrast agents. MECT scans are obtained using similar radiation dose and imaging times as conventional CT. The MECT images are routinely displayed as “conventional CT” images (left image), which simulate 120 kVp CT scans, and can also be reconstructed into multiple additional images (three right images). Virtual unenhanced images are simulations of the CT image with iodine and barium digitally subtracted. The iodine density image shows both barium and iodine as bright signal. The effective Z image shows the average apparent atomic number of the imaged atoms in each voxel. A hypervascular lesion is better seen on the iodine density image and the effective Z image than on the “conventional CT” image (arrows). Note that the barium in the bowel is not readily distinguished from the iodine in the vasculature or the solid organ parenchyma and barium and iodine are the same color contrast agent, even in MECT image reconstructions. No second color contrast agent for MECT is currently available.

Continued from previous page

these specialists is pushing the boundaries of understanding and treatment options in their niche field and requires evolving radiological data. At the same time, each referring colleague relies on our guidance to appropriately manage radiological findings in “those other abdominal organs” that are outside their field of expertise.

Imaging Modality Evolution

Not only must we adapt to the needs of our referring colleagues, but our own imaging modalities continue to evolve. Two to three decades ago, there were few abdominal CT and MRI protocols beyond a general-purpose protocol. Our main choices were to consider whether or not to administer contrast material and possibly to acquire arterial or delayed images in addition to the portal venous phase. Now, in many institutions, a general-purpose protocol is used for only a minority of CT and MRI scans. It is common to have 40 to 60 special case abdominal CT and MRI protocols from which to select the one best suited to the patient’s needs.

An Existential Moment

Our specialty’s trend toward complexity comes with both good and bad. The good is undoubtedly job security and

limited turf wars. Few specialists dare interpret CT or MRI scans of the abdomen without a radiologist due to fear of missing important findings in the myriad abdominal tissues that are outside of their fields of expertise. Similarly, artificial intelligence (AI) and computer-aided diagnosis can only assist in a small fraction of tasks in our daily work. The bad is that we as abdominal imagers are pressed to keep up with rapid changes in our specialty and the needs of referring specialties. How do we navigate and thrive in the midst of this rising complexity? Paradoxically, many parallel technological advances will help simplify our workflow, including expert consensus reporting systems, hardware advances, new contrast agents and improved computerized support systems.

Rise of Templates and Expert Consensus Reporting Systems

Advisory documents — such as RSNA’s reporting templates (*RadReport.org*) the American College of Radiology’s (ACR) Reporting and Data Systems (x-RADS) and the Society of Abdominal Radiology’s disease focus panels — aim to distill critical information into user-friendly diagnostic flow diagrams for uniform reporting of findings and

appropriate patient triage. Though these documents are valuable, the proliferation of such guidelines — and their rapid change and intricacy — serves as a barrier to their use. To address this concern, semi-automated report generation systems are increasingly tasked to guide radiologists quickly through these expert reporting systems with high accuracy. RSNA and the ACR recently launched an initiative to codify data elements from the ACR x-RADS datasets for use in reporting and decision support applications. This will align our reporting templates more closely with the guidelines provided by the system.

Advances in Hardware

Along with substantial annual incremental improvements in scanner hardware, we occasionally see major leaps that break through prior limitations in imaging. For example, clinical CT underwent several major leaps, including the introduction of helical scanning in the early 1990s, multi-detector row scanners in the late 1990s, and multi-energy CT (MECT) in the late 2000s. This most recent advance in CT may be the most profound. MECT lets us differentiate imaged materials of similar density, such as iodine contrast

agent from bone and dense tissues. MECT also provides virtual unenhanced images, iodine density maps and a host of alternate image reconstructions that can remove common ambiguities (See Figure 1). MECT technology will further evolve as energy discriminating (photon counting) CT is eventually integrated into clinical machines. Such scanners promise to improve spatial resolution, minimize radiation dose and provide an ability to see different atomic composition (colors) of materials. Much like color television ultimately supplanted black and white models, MECT will in time supplant current single energy CT imaging with far richer information than what is currently available.

New Generation Contrast Agents

Each of our high spatial resolution imaging modalities (CT, MRI and ultrasound (US)) benefits greatly from the use of contrast agents. New contrast agents will expand our ability to visualize anatomy and organ function. For example, current CT iodine and barium CT contrast agents are limited in that they are the same color — they are indistinguishable except by anatomic context, even when using the most modern MECT scanners. Multiple research groups are now developing color contrast agents that are designed to be readily distinguished from each other at MECT.


These new generation contrast agents, instilled into different bodily compartments, promise to provide high spatial resolution, co-registered images of complex anatomy with a single pass of the CT scanner without added radiation dose or imaging time (See Figure 2). Such contrast agents promise to provide intuitively simple displays of complex anatomy at MECT imaging.

An analogy for understanding the value of multi-contrast MECT is PET/CT: PET and CT are each valuable scans, and the two combined is synergistic. Likewise, each added contrast agent color for multi-contrast MECT promises synergistic benefit. But unlike PET/CT, which doubles the dose over that of either PET or CT alone, MECT does not require additional radiation above that of a standard CT scan. MECT also provides perfect image co-registration of the

different contrast agents because the images are derived from a single MECT scan.

Improved Image Displays and AI

Improved image displays will simplify our workflow. Just as clunky alternator film viewers disappeared soon after helical CT scanning arrived, the current iterations of PACS must be replaced by systems that can properly display the huge number of image reconstructions of modern imaging in a rapid and intuitive manner. For example, smart systems with the ability to shift effortlessly between MECT reconstructions (Figure 1) and contrast agent images, as well as fuse with MRI, PET and US images, will increase the accuracy and speed of image interpretation. These systems will also provide essential foundations for intelligent computer-assisted image interpretation systems.

In conclusion, abdominal imaging is headed toward a point of paradoxically simplified complexity. The increasingly detailed and evolving imaging needs of specialist referring colleagues will be met by computerized assistance devices to help abdominal radiologists organize and address the growing niche needs of specialists. At the same time, these tools will help us to provide accurate and helpful patient-specific guidance on findings in organs outside the referring colleague's field of expertise. In parallel, major technological advances such as MECT will provide unprecedented high spatial resolution color detail to evaluate multi-organ disease. Improved computer interfaces that streamline integrative image evaluation will make our workflow more natural and intuitive. 

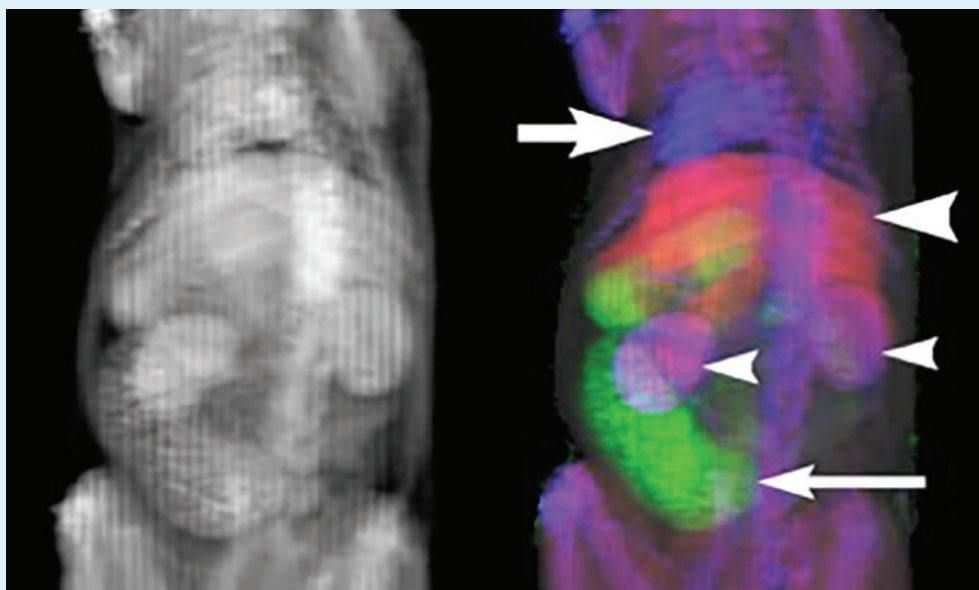


Figure 2: Future advances in multi-energy CT (MECT) enhanced with multiple color contrast agents will make complex abdominal anatomy more intuitive to evaluate. (Left) An oblique coronal conventional average intensity image of a rat CT scan shows multiple contrast-enhanced thoracoabdominal organs in the traditional gray scale. The differentiation of organs is by educated guesswork and is our current state-of-the-art. (Right) The same MECT images are presented in with three different colors. Organ differentiation is now simple and intuitive. Intravenous contrast agent (blue area, large arrow) opacifies the cardiac chambers and vessels, distinct from the hepatic contrast agent (red area, large arrowhead) and bowel contrast agent (green area, small arrow). Combined vascular and hepatic contrast agents (purple area, small arrowheads) opacify the kidneys. Further automated image processing, such as to define organ boundaries and quantify organ volume, is greatly simplified. Image interpretation is made more intuitive for humans and simpler for machines. *Disclaimer: No U.S. Food and Drug Administration approved color MECT contrast agents are currently available. Images courtesy of Yuxin Sun, MS, and Jack Lambert, PhD.*

Research Sheds New Light on Running Patterns and Osteoarthritis

BY MELISSA SILVERBERG

Although forefoot runners have significantly lower load rates than rearfoot runners, there is no significant difference between the two in morphologic knee joint abnormalities or cartilage thickness and T2 relaxation time measurements, according to new research funded by a RSNA Research Resident Grant.



Peter C. Thurlow, MD, combined his personal passion for running with his R&E-funded research on evaluating the relationship between foot-strike patterns in runners and osteoarthritis.

The relationship between physical activity and osteoarthritis onset is unclear and complex, which is one reason Peter C. Thurlow, MD, a radiology fellow at the University of Wisconsin (UW), wanted to investigate the association between foot strike patterns in runners and the presence of early degeneration through both biomechanics and MRI. Osteoarthritis is the most common chronic condition of the joints that affects more than 30 million adults in the U.S. alone.

And as an avid runner, Dr. Thurlow was interested in bringing together his personal and professional passions as part of his research project, “Evaluating the Effect of Foot Strike Patterns on MRI of the Knee.”

Recruiting from running clubs and local gyms, the study brought together 16 forefoot strike runners, 24 rearfoot strike runners and 20 asymptomatic non-runners between 25 and 40 years of age with no knee pain or stiffness, no history of prior knee trauma or surgery and no inflammatory or infectious joint disorders.

Each runner first underwent a 3T MR examination of the knee using a 3-D fast spin-echo sequence to detect morphologic joint abnormalities and measure cartilage thickness and a T2 mapping sequence to evaluate cartilage composition and microstructure. Each runner also underwent biomechanical gait analysis at the Biomechanical Gait Analysis Laboratory at the UW Research Park Clinic.

“The timeframe of how cartilage responds to force is still not well understood. This was a very challenging project,” Dr. Thurlow said.

Findings Surprise Researchers

The study confirmed previous research demonstrating the biomechanical benefits of forefoot strike running, such as lower ground force and lower loading rates, on the knee.

“However, our MRI results showed no benefits of fore-foot running,” Dr. Thurlow said.

“There was no significant difference in morphologic knee joint abnormalities on MRI including cartilage lesions, meniscus tears, and bone marrow edema lesions, and no significant difference in cartilage thickness measurements between forefoot runners and rearfoot runners.”

In fact, forefoot runners had significantly higher cartilage T2 relaxation time on the medial tibial plateau compared to rearfoot runners, suggesting a greater degree of early cartilage degeneration.

Researchers are still analyzing their data to understand the reason behind that finding.

“You would expect that if you put less force on your lower extremity, it would reduce acute and chronic injury from joint generation,” said Richard Kijowski, MD, a professor of musculoskeletal imaging at the UW School of Medicine and Public Health, who supervised Dr. Thurlow’s project. “That was not the case though.”

The results were particularly surprising because of the popular movement toward



Kijowski


barefoot or forefoot running, which has recently been promoted as a safer, more natural way to run.

Researchers said that while the results did not validate their hypothesis, the wealth of data generated by the study opens the door to further work that combines imaging and biomechanics.

“The idea that we can overlap biomechanics and advanced imaging to try to improve outcomes for athletes and the general population in hopes of limiting the development of osteoarthritis is very exciting,” Dr. Thurlow said. “That’s the big target on everyone’s mind.”

Dr. Thurlow is grateful for the RSNA grant that funded the research that helped put him on his current career path.

“The RSNA grant is what started me on the path to musculoskeletal imaging,” Dr. Thurlow said. “It brought me where I am today and I am looking forward to what we can do next.”

For more information about R&E Foundation grants, go to RSNA.org/Foundation. 

“The idea that we can overlap biomechanics and advanced imaging to try to improve outcomes for athletes and the general population in hopes of limiting the development of osteoarthritis is very exciting.”

PETER C. THURLOW, MD



GRANTS IN ACTION

NAME:

Peter C. Thurlow, MD

GRANT RECEIVED:

2014 RSNA Research Resident Grant

STUDY: “Evaluating the Effect of Foot Strike Biomechanisms on MR Imaging of the Knee Using a Novel Multi-component T2 Mapping Sequence.”

CAREER IMPACT:

“The RSNA Resident Research Grant was very beneficial to my future career. The opportunity to gain experience in performing a major scientific research project provided many advantages when applying for jobs as an academic musculoskeletal radiologist. Learning these skills during residency and fellowship offered a great advantage in my career as an independent researcher in the field of radiology.”

CLINICAL IMPLICATION:

“Our research project is the first study to compare both biomechanical parameters and MRI parameters between fore-foot runners and rear-foot runners. A better understanding of the acute and long-term changes that occur within the knee joint in response to physical activity is essential in advancing our understanding of the pathogenesis of osteoarthritis and developing approaches to prevention and treatment.”

RSNA Resident and Fellow Committee Focuses on Value, Opportunities

BY JENNIFER ALLYN

As the options for membership in radiology organizations continue to expand, residents and fellows are looking for organizations that will provide them with the most value and benefits of membership, according to the RSNA Resident and Fellow Committee (RFC), which met at RSNA headquarters in Oak Brook, IL, in April.



The wealth of resources RSNA offers to radiology trainees as they transition into their radiology careers was one topic addressed by the RSNA Resident and Fellow Committee (RFC) during its April meeting at RSNA headquarters.

The committee discussed the tremendous opportunities afforded by RSNA membership and the ways residents, fellows and medical students can become involved at RSNA.

“The current generation of radiologists-in-training place value on tangible benefits of members, including an ease of online educational opportunities,” said Courtney Tomblinson, MD, RFC chair and chief resident in diagnostic radiology at Mayo Clinic Arizona. “Self-directed learning is important, as well as attendance at meetings, such as the RSNA annual meeting, which affords opportunities for both learning and networking in the same setting. The RFC is brainstorming ways to highlight the benefits of RSNA membership so as to encourage residents and fellows to continue membership as they move forward in their careers.”

The RFC discussed many of the opportunities offered at the RSNA meeting and the wealth of meeting-related materials available throughout the year that benefit residents and fellows. Access to the RSNA/American Association of Physicians in Medicine

(AAPM) Physics Modules, educational exhibits and *RadioGraphics* — including the journal’s American Board of Radiology (ABR) Core Exam Study Guide and On-Call Fundamentals — were high on the list of resources that fellows and residents use as they transition into their radiology careers.

Resident and Fellow Symposium to Address Early Career

The transition from training to career will be the topic of this year’s RSNA Resident and Fellow Symposium, which will include a variety of sessions on the early stages of a radiologist’s career (See sidebar). Topics will include the radiology marketplace and personal finance along with a panel discussion featuring radiologists from different career stages sharing insights on early career transition challenges.

“The Resident and Fellow Symposium is our chance to deliver content directed solely toward our trainee membership, based on their recommendations following last year’s symposium and hot topics throughout the

year,” said Courtney Raybon, MD, vice chair of the RFC and diagnostic and interventional radiology resident at Vanderbilt University Medical Center, in Nashville, TN. “Consistently, the most-requested topic is how to land your first — and hopefully — your dream job. We want this year’s symposium to address the best ways to go about doing that and what the pitfalls can be along the way.”

Social Media Still a Popular Way to Connect

Social media continued to be a hot topic for the committee since trainees tend to use platforms such as Twitter, Facebook, LinkedIn and Instagram to do everything from seeking online education and learning about residency programs across the globe to networking with mentors.

“Social media is popular because of its rapid, dynamic nature that allows trainees to see unknown cases, download journal articles, and learn about scholarships and grant opportunities,” Dr. Tomblinson said. “Additionally, social media creates a more level field where trainees may be comfortable asking questions or seeking advice from leaders in radiology. It is a powerful tool for trainees to learn, grow and meet new colleagues.”

Social media is also one of the tools targeted by the RFC’s newly formed Medical Student Outreach Subcommittee, which is investigating several new initiatives that will tap into the growing number of medical students seeking out the radiology community on social media as an entrance point into the field on local and national levels.


Subcommittees Reach Out to Residents

The RFC Communications Subcommittee is also looking at ways to strengthen the relationships between early radiology trainees and the specialty. The RSNA Resident Representative (R³) program, housed under this subcommittee, gives one delegate from each residency program the opportunity to serve as liaisons to the RFC. Each month the RFC sends out a newsletter to R³ members who spread the word to local radiology residents.

During RSNA 2018, the RFC will host a meet-and-greet for R³ members, designed to welcome them as critical members of the RFC team, to get their feedback and input on what residency programs want from RSNA, and to help R³ members better understand resources available through RSNA to share more effectively with local residents.

Launched at RSNA 2017, the RFC Diversity and Inclusion Subcommittee will work to engage, educate and support residents, fellows and faculty about the opportunities and challenges of diversity and inclusion in radiology training.

Overall, the RFC is highly attuned to making sure all residents, fellows and even medical students are aware of the opportunities and advantages of an RSNA membership.

“RSNA offers not only the opportunity to volunteer for a variety of committees throughout your career that allow you to grow and learn from your peers, but it also provides invaluable leadership experience and phenomenal educational resources to continue your professional and personal growth,” Dr. Raybon said. 

RSNA Resident and Fellow Symposium Topics Set for RSNA 2018

The RSNA Resident and Fellow Symposium will be held Tuesday, Nov. 27, during RSNA 2018. Attendees must be registered for RSNA 2018. Go to RSNA.org/Registration-Packages/.

Topics include:

- **Job Market Update** – Jay R. Parikh, MD
- **Changes in the Radiology Marketplace** – Richard E. Heller III, MD
- **Personal Finance for Radiology Residents** – Ram Chadalavada, MD
- **Transition to Early Career** – Nisha Mehta, MD
- **Career Transition Panel** – *Featuring:*
Lauren P. Golding, MD
Jordan S. Gross, MD
Richard E. Heller III, MD
Lucy B. Spalluto, MD

“The current generation of radiologists-in-training place value on tangible benefits of members, including an ease of online educational opportunities.”

COURTNEY TOMBLINSON, MD



Tomblinson



Raybon

Mentors Play Critical Role for Female, Minority Radiologists

BY JENNIFER ALLYN

Finding a role model who can point you in the right direction is important to anyone in the burgeoning stages of a radiology career. But for female and minority radiology residents and early-career professionals who may face obstacles on a number of fronts, finding the right mentor is an essential step to ensuring fulfillment and longevity in the field.



Rao

However, a lack of diversity in radiology leadership positions is creating a void for young female and minority radiologists looking for a path forward or some daily perspective.

For those fortunate enough to find them, mentorship has become an impactful way to increase diversity throughout radiology, according to Vijay M. Rao, MD, the David C. Levin Professor and Chair of Radiology at Sidney Kimmel Medical College of Thomas Jefferson University and senior vice president and chair of Enterprise Radiology and Imaging at Jefferson Health, both in Philadelphia.

“Mentees like to find mentors who, in addition to sharing gender or race, might also be of the same educational background or who are of the same generation or only one generation removed,” Dr. Rao said. “This can be difficult to find and mentees may lose out on tremendous expertise and guidance by limiting themselves in this way.”

Multigenerational collaboration in clinical, academic and professional radiology settings can be beneficial, no matter what your career stage, Dr. Rao noted. Dr. Rao, RSNA president, cites her own experiences with RSNA, where a diverse variety of volunteers are working at various leadership levels.

Over the last 10 years, roughly 30 percent of RSNA’s major committees have been led by women and 33 percent of the Society’s board members have been women. Dr. Rao is the third female president of RSNA in the past decade.

“Mentorship and leadership go hand in hand,” Dr. Rao said. “True mentoring is more than just answering occasional questions or providing ad hoc help. It’s an ongoing relationship of learning, dialogue

and challenge that can direct female and minority radiologists to experiences and advantages that will benefit them when they move into radiologic leadership.”

A Leadership Pipeline for Female and Minority Radiologists

Creating those leadership opportunities for female and minority radiologists is important personally and to the health of the specialty, according to Reed Omary, MD, the Carol D. & Henry P. Pendergrass Professor and Chairman, Department of Radiology and Radiological Sciences at Vanderbilt University Medical Center in Nashville.

“Why wouldn’t radiology — or any profession for that matter — want to include diverse voices?” Dr. Omary said. “There is value and insight to gain from women and minorities entering our specialty. Radiology will be more successful in the future if we empower women and minorities to be part of, and leaders in, that success.”

Dr. Omary describes mentorship as serving like an “academic care provider” that fosters the health of the mentee, their career and their department.

“Regularly meeting with junior female and minority radiologists, as well as those in my peer group, has made me more aware of their needs and how our departments, medical centers and radiology as a whole can change to address their concerns,” Dr. Omary said. “The future of radiology can be enhanced by developing leadership incubators for women and minority radiologists to prepare them for leadership positions.”

Creating awareness about leadership opportunities in radiology has been the mission of Emory University’s Radiology



Omary



Meltzer



Sadigh



Leadership Academy for nearly a decade. Over nine months, early- to mid-career faculty and staff can participate in teamwork and leadership programming designed to add diverse strength to the radiology department, the university as a whole, and the field.

“Mentoring plays a critical role in the advancement of women in medicine,” said Carolyn C. Meltzer, MD, William P. Timmie Professor and Chair, Department of Radiology and Imaging Sciences, Emory University School of Medicine, Atlanta. “Both senior female and male mentors can help to provide local and national opportunities for young female radiologists to grow professionally and build confidence. Having someone to identify key leadership opportunities and give young radiologists self-assurance to seek those opportunities, can make a huge difference in how diverse radiology leadership becomes.”

Mentoring Enhances Professional and Personal Success

Gelareh Sadigh, MD, a neuroradiology fellow at Emory, who has Dr. Meltzer as a department chair and mentor, points out that mentors also make excellent role models.

“In a strong mentoring relationship, the mentee should look up to the mentor and consciously or unconsciously become more interested and have more respect for the type of work the mentor does,” Dr. Sadigh said. “This is critically important when mentorships are initiated in

medical school before a specialty is selected, because radiology is only an elective for many medical students. Having a radiologist as a mentor can increase awareness and interest in the field.”

Having more than one mentor is also a good option said Katarzyna J. Macura, MD, PhD, professor of radiology, urology and oncology, The Johns Hopkins University, Baltimore.

“For female and minority radiologists, having more than one mentor can be beneficial as each can provide a unique purpose and demonstrate a different skill set or scenario for career advancement,” Dr. Macura said. “Young women should be proactive in seeking mentors who can help them build their networks at a local, national and international level.”

One of Dr. Macura’s mentees is Kristin Porter, MD, PhD, assistant professor, abdominal imaging at University of Alabama at Birmingham. Dr. Macura is not Dr. Porter’s only mentor.

“I have several mentors, including the chair of my department and my section chief,” Dr. Porter said. “Since I have switched institutions, Dr. Macura and I typically only meet in person at annual society meetings, such as RSNA. However, I meet or speak with my mentors at my home institution regularly to make sure that I have identified achievable goals and have a path to complete them.”

With a dearth of female and minority radiologists in leadership positions, finding a local mentor can be challenging, but technology can help maintain mentoring

relationships regardless of location.

Nolan Kagetsu, MD, associate professor of clinical radiology, Icahn School of Medicine at Mt. Sinai, New York, met Dr. Omary online and now they keep in touch by direct Twitter messaging, whether to discuss a pressing daily challenge or to gain perspective on potential research.

“Mentoring can be accomplished in many forums and social media, particularly Twitter, can help connect junior and senior radiologists,” said Dr. Kagetsu, who later met Dr. Omary during a conference. “If you have established a relationship online, when you do meet in person, you have a foundation for forming a mentoring relationship.”

Mentoring Students Early

Mentoring can be successful in creating interest in radiology even before a student is considering a medical career. STEM (science, technology, engineering and math) and STEAM (science, technology, engineering, arts and math) programs in middle and high schools are becoming prominent opportunities where radiologists can envision introducing the specialty to potential students.

“Many radiologists volunteer and engage with pre-college students,” Dr. Macura said. “Early exposure to medical specialties, especially for women, can inspire an interest to pursue that field through further education. And if you have made a connection with that

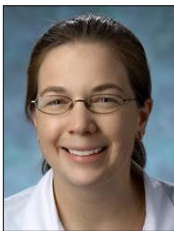
Continued on next page

to be best in a
point of view.
Mentor ['men-
wise and trust
or teacher. to
friend who

Continued from previous page



Macura



Porter



Kagetsu



Gill

student, that can result in a positive mentoring relationship.”

Dr. Meltzer says nearly all STEM fields suffer from lack of women seeking training.

“There is extensive evidence that early socialization, societal constructs and implicit bias contribute to deterring young women from being exposed to design and mechanical learning,” Dr. Meltzer said. “If we can engage girls and young women in early pre-medical education, we could empower them to consider STEM fields, such as radiology.”

Anne Gill, MD, assistant professor of radiology, Emory University School of Medicine, would have appreciated more female role models or even mentors in the medical field while she was a high school student or an undergraduate.

As a nursing technician before starting medical school she developed a mentoring relationship with a nursing manager in the emergency department and they still stay in touch.

“Even though I was early in my medical education and I knew that I was not going to pursue a nursing career, I keep in touch with her because she provides

me with a unique perspective from within medicine, but not from my particular specialty,” Dr. Gill said.

Mentorship Encourages and Emboldens

Most radiologists would agree that mentoring enhances the course to success and improves personal and professional advancement for women and minorities in radiology.

“Mentoring is important to many aspects of career success, including job satisfaction, career commitment, promotions, and ultimately, compensation,” Dr. Macura said. “Studies have shown that connecting with a mentor can allow someone to become more focused on strategies for success and enhance opportunities to advance in their specialty area.”

Dr. Rao would agree that mentoring is a terrific return on investment for both the mentor and mentee.

“Mentoring in radiology creates a culture where everyone is seeking to be a bit better tomorrow than they are today,” Dr. Rao said. “That sense of continued progress can extend from the mentor and mentee to others in their professional circle and department and, hopefully, to the specialty itself.” ❏

“True mentoring is more than just answering occasional questions or providing ad hoc help. It's an ongoing relationship of learning, dialogue and challenge that can direct female and minority radiologists to experiences and advantages that will benefit them when they move into radiologic leadership.”

VIJAY RAO, MD

MRI Technique Shows Promise for Measuring Abnormal Lung Function

BY LYNN ANTONOPOULOS

Canadian researchers have developed a method for using ^1H MRI to measure lung ventilation abnormalities in free breathing patients.

The technique may be especially useful in small children and patients who are extremely ill and unable to hold their breath as needed during other, more commonly used imaging methods, said Dante Capaldi, PhD, lead author of the research published in the May issue of *Radiology*.

“Our research demonstrates that straightforward ^1H MRI method at 3T can be used to measure abnormal specific ventilation,” said Dr. Capaldi, of the Robarts Research Institute and Department of Medical Biophysics at Western University, London, Ontario.

Working with a team of researchers funded by the Canadian Respiratory Research Network and the Canadian Institutes of Health, Dr. Capaldi executed a proof-of-concept study using commercially- and clinically-available MRI pulse sequences to rapidly measure abnormalities in free-breathing patients.

The research concept was also acknowledged with a 2017 RSNA Trainee Research Prize for the project, “Measuring Specific Ventilation using Four-dimensional Magnetic Resonance Ventilation Imaging: A Novel Physiological Biomarker of Asthma.” Dr. Capaldi was a PhD trainee on the team led by Grace Parraga, PhD, a scientist at Robarts Research Institute and a professor in the Department of Medical Biophysics at Western University.

“Our RSNA research focused on developing new pulmonary functional imaging biomarkers in patients with asthma and COPD using breath-hold hyperpolarized ^3He and ^{129}Xe MRI, which provided a foundation for this new work,” said Dr. Capaldi, now a clinical resident at Stanford University.

Dr. Capaldi hypothesized that in patients with poorly controlled severe asthma, MRI specific ventilation and gas distribution abnormalities would be highly correlated. They sought to use imaging to measure specific ventilation and to correlate it with previously developed and validated biomarkers.



Capaldi



Parraga

A Team Brainstorming Approach

The researchers recruited 30 subjects between 18 and 85 years of age. Of the participants, 23 had asthma and seven were healthy volunteers. All subjects underwent free breathing ^1H MRI, static breath-hold hyperpolarized ^3He MRI, spirometry and plethysmography.

“We are highly engaged with our patients with severe asthma who traveled long distances to attend clinic and also attended our site for imaging,” Dr. Capaldi said.

Though the team easily acquired data and images, they took an outside-of-the-box approach to generating a pipeline for analysis by brainstorming for ideas with local collaborators and PhD students who had not previously thought about lung imaging. They used software to perform processing and statistical analysis of the data.

The results of the study revealed that both ^1H MRI-derived specific ventilation and hyperpolarized ^3He MRI-derived ventilation were significantly greater in healthy volunteers than in asthma patients. For all subjects, ^1H MRI-derived specific ventilation correlated with plethysmography-derived specific ventilation and hyperpolarized ^3He MRI-derived ventilation percentage.

Correlations were also made with forced expiratory volume in 1 second (FEV_1), ratio of FEV_1 to forced vital capacity, ratio of residual volume to total lung capacity and airway resistance.

WEB EXTRAS

- ☑ Access the *Radiology* study, “Free-breathing Pulmonary MR Imaging to Quantify Regional Ventilation,” at [RSNA.org/Radiology](https://www.rsna.org/Radiology).

“Our research demonstrates that straightforward ^1H MRI method at 3T can be used to measure abnormal specific ventilation.”

DANTE CAPALDI, PHD

In patients with asthma, co-registered ^1H MRI specific ventilation and hyperpolarized ^3He MRI maps showed that specific ventilation was diminished in corresponding ^3He MRI showing distribution abnormalities compared with well-ventilated regions.

The results are promising, according to Dr. Parraga, an author on the study.

“The ventilation abnormalities captured during patient breath-hold clearly and spatially correlated with abnormal specific ventilation measured in asthma patients who were free breathing. From a translational point of view, this means that for patients, conventional MRI can be considered to help measure regional lung function in a physiologically-relevant manner,” she said.

“We showed the exact airways and parenchymal abnormalities from which the abnormal specific ventilation stemmed, and the measurement reflected the same abnormalities observed in patients using inhaled contrast agents in breath-hold,” Dr. Parraga added.

Following up their *Radiology* study, the researchers would like to test their approach in a larger, randomized, controlled treatment study in patients. ☒

RESEARCH & EDUCATION FOUNDATION DONORS



The RSNA Research & Education Foundation thanks the following donors for gifts made **March 21, 2018 through April 24, 2018.**

Visionary Donors

The following individuals are recognized for cumulative lifetime donations.

PLATINUM VISIONARY (\$25,000)

Dr. Peter & Judith Som

SILVER VISIONARY (\$10,000)

Andre Duerinckx & David Adams
Jeffrey Weinreb & Risa Kent

Individual Donors

Donors who give \$1,500 or more per year qualify for the RSNA Presidents Circle. Their names are shown in bold face.

\$1,500 - \$2,499

Luther W. Brady Jr., MD
Lisa & Jonathan Breslau, MD
Michael J. Cooney, MD
Sharon & Irwin Grossman, MD
Betty & O. Wayne Houser, MD
Doug Maynard
Christopher A. Meyer, MD
Robert A. Novelline, MD
Dr. Peter & Judith Som
Jeffrey Weinreb & Risa Kent

\$500 - \$1,499

Nicholas Hilgipre, MD
Jennifer R. Kohr, MD
Sherry & Michael M. Raskin, MD, JD, MBA
Rosemary & Mitchell D. Schnall, MD, PhD
Dean A. Genth & Gary W. Swenson, MD
Ingrid E. & Stephen R. Thomas, PhD
Richard D. White, MD
Alaine & Brian C. Ying, MBBS

\$300 - \$499

Priscila Alvares Kalil, MD
Michele M. Awobuluyi, MD
Zarina Mirabel & Gory Ballester, MD
Janine S. Beeson, MD
Lucie Belanger, MD
Juan A. Bonilla, MD
Renato S. Carvalho, MD
Drs. Karen & James Chen
Steve Cho, MD
William A. Copen, MD
Laura & Kevin M. Cregan, MD
Horacio R. D'Agostino, MD, FACR, FSIR
Peter N. De Maio, MBBS
Pedro J. Diaz-Marchan, MD
Le Uyen Diem, MD
Andre Duerinckx & David Adams
Seamae Erfani & Mohammad Eghtedari, MD, PhD
Tam Huynh, MD & Jeremy J. Erasmus, MD
Lissa McKinley & Robert C. Gilkeson, MD
Daniel J. Gillespie, MD
Arsenio III B. Gonzalez, MD
Yalina I. Gonzalez, MD
Rachel A. Hitt, MD, MPH
Chen C. Hoffmann, MD
Nicole D. Horst, MD

Craig S. Howard, MD
Rainer Huppmann, MD
Gerrit J. Jager, MD, PhD
Leszek J. Jaszczak, MD
Peter B. Johnson, MBBS
Fuad S. Kaffati, MD
Stephane Khazoom, MD
Robert B. Knight, MD
Edward L. Leen, MD
Louis Letourneau, MD
Peter C. Levisay, MD
Angela A. Luong, MD
Boudjema Mansouri, MD
Ulrike & Andreas H. Martin, MD
Patricia A. Miller, MD
William H. Moore, MD
William F. Muhr Jr., MD
Sheenagh Bodkin & Brian L. Murphy, MD
Jeffrey H. Newhouse, MD
Wellington Eddy Reynaldo Paez Zumarraga, MD
Robert R. Penkava, MD
Kevin Pennycooke, MBBS

Thomas Pope, MD & Jennifer Cranny, MD

Myron Y. Prawak, DO
Pamela S. Puder, MD
Janak K. Raval, MD
Ingo Scheppers, MD
Shelley Adamo & Matthias H. Schmidt, MD, MSc
Kathryn & Anthony L. Severt, MD
Jean & John L. Sherman, MD
Samar A. Shigairi, MD
Pratik R. Shukla, DO
Kelly D. Smith, MD
Vera Lucia & Jacob Szejnfeld, MD
Vlastimil Valek, MBS
Francois R. Van Mieghem, MD
Georgina A. Viyella, MD
Susan K. & James R. Weeks Jr., MD
Edward C. Wheeler, MD
Christine M. Wilson, MD
Nina & Ramana V. Yedavalli, MS, MD
Liwei Lu & David M. Yeh, MD

\$299 or Less

Amr S. Abdelaziz, MD
Lotty Andrade & German G. Abdo Sarraz, MD

Yakup Akyol, MD
Chisa Bamba, MD
Steven M. Boker, MD
Ricardo Bracer, MD & Carmen Ponton, MD
William F. Browne, IV, MD
Luis F. Casavantes, MD
Fernando Castillo Fernandez Jr., MD
Amit Chakraborty, MBBS, FRANZCR
Joe M. Chan, MD
Tracy S. Chen, DO, MPH
Joseph M. Chin, MD
Weng Y. Chin, MBBS, FRANZCR
W. Robert Courey, MD
Pedro Augusto N. Daltró, MD
Bonnie C. Davis, MD
Larissa de Andrade Defendi, MD
Liten & Eric DeNaut

In memory of William G. Bradley Jr., MD, PhD

Mattia Di Segni, MD
Gustavo R. dos Santos, MD
Elo E. Efe-Aluta Jr., MBBS
Devrim Ersahin, MD
Ann M. Fenna, MBBS
Stephen E. Fleming Jr., MD
Michael H. Fuchsjaeger, MD
Kimberly Funaro, MD
Peter J. Georgis, MD
Petra Grendarova, MD
Kohe Hamamoto, MD
Marta Hernanz-Schulman, MD
Jose D. Herrera, MD
Stephen J. Hunt, MD, PhD
Ibrahim A. Idakoji, MD, MPH
Martin T. King, MD, PhD
Aram Kocharyan, MD

Lisa & Marc D. Kohli, MD

Tetsuya Kosaka, MD
Jean L. Kraft, MD
Timothy L. Larson, MD
William H. Laxton, MD
Karyn A. Ledbetter, MD
Graciela d. Legal Ayala, MD
Miia Lehtonen, MD
Brian J. Lewis, DO
Fu-Yu Lin, MD
Chi Fai Lo, MBChB
Beatrice L. Madrazo, MD
Vasanthha & Mahadevappa Mahesh, MS, PhD

Ahmad R. Marei, MD
Rocio Marquez, BA
Max J. Martinez Utrera, MD
Guilherme L. Martins, MD
Kamran Masood, MD
Mary Massengill, ARRT
Walter O. McDonald Jr., BS, RT
Laura Miller, MD
Sandra L. Mondro, MD
Juan A. Mora, MD
Kambiz Motamedi, MD
Ximena Susana M. Napoles, MD
Alexis V. Nees, MD
Ogonna K. Nwawka, MD
Leticia Oliveira, MD
David R. Pennes, MD
Aleksandar Peric, MD
Yennory Perez & Jimmy A. Pizarro Jr., MD
Joana P. Ramalho, MD
Victor H. Ramos Pacheco, MD
Brian L. Ravert, MD
Alexie D. Riofrio, MD
E. Russell & Julia R. Ritenour
Christopher Rothstein, MD
Shingo Sakamoto, MD, PhD
David W. Samuelson, MD
Ana Rosa Santana
Gordan Saric, MD, PhD
Scott R. Schultz, MD
Mattias Seghers, MD
Elizabeth & David J. Sheehan, DO
Mark S. Shiroishi, MD
Mark A. Smith, MS, ARRT
Nina M. So, MBBS
Robert M. Steinberg, MD
Eugen Tarta-Arsene, MD, PhD
William H. Taylor, MD, PhD
Dianne & Phuoc T. Tran, MD, PhD
Esther N. Udoji, MD
Jennifer W. Uyeda, MD
V. Vaishnavathi, MBBS
Michael C. Veronesi, MD, PhD
Marco H. Villanueva-Meyer, MD
Barbara N. Weissman, MD & Irving Weissman, MD
Christopher Yurko, MD
Ali Zahiri, MD
Christine & Walter E. Zink III, MD, PhD
Romina Zunino, MD

YOUR DONATIONS IN ACTION

Using PET to Detect Bacterial Infections in Patients

Using funding from an RSNA grant, Mark A. Sellmyer, MD, PhD, a nuclear radiology fellow at the University of Pennsylvania, Philadelphia, and colleagues are working to develop tools designed to detect bacterial infection in patients.

Dr. Sellmyer and colleagues have developed new PET probes based on the small molecule antibiotic trimethoprim. These agents have been shown to detect bacterial infection and the tracer does not accumulate in inflammation or cancer. They also have additional utility as PET probes for tracking genetically engineered cells for cancer therapy.

The RSNA Research & Education (R&E) Foundation supported Dr. Sellmyer's work through the 2016 Philips Healthcare/RSNA Research Resident Grant, and his research was published in the *Proceedings of the National Academy of the Sciences and Molecular Therapy* in 2017.

"The RSNA Research Resident Grant was incredibly important to get these projects off the ground, and I was lucky to be in the right place at the right time with the arrival of my faculty



Researchers at Pendergrass Day 2017, an annual celebration of research and graduation in the UPenn Department of Radiology (from left): Walter R. Witschey, PhD, Mitchell D. Schnall, MD, PhD, Robert H. Mach, PhD, Mark A. Sellmyer, MD, PhD, Mark Alan Rosen, MD, PhD, and David A Mankoff, MD, PhD.

mentors, Robert H. Mach, PhD, and David A Mankoff, MD, PhD," Dr. Sellmyer said.

Based on the study results from his R&E grant, Dr. Sellmyer and the University of Pennsylvania have launched a new clinical protocol for bacterial infection that is currently recruiting patients.

RFAs Available for New R&E Education Grants

Request for Applications (RFAs) are now available for the new RSNA Research & Education (R&E) Foundation education grants. The pre-application process will close on Sept. 3. These grants will be awarded in 2019.

The topics are:

Education Innovation Grant

Amount: Up to \$175,000 per year for up to three years (\$525,000 maximum)

- Point-of-care education



Education Development Grant

Amount: \$30,000 to \$100,000 per year for up to three years (\$300,000 maximum)

Topics:

- Imaging cancer
- Patient education
- Physician burnout
- Gender, racial and ethnic diversity in radiology leadership

RFAs and instructions for the pre-application process are available at RSNA.org/Foundation



The RSNA R&E Foundation provides the research and development that keeps radiology in the forefront of medicine. Support your future—donate today at RSNA.org/Donate.

Journal Highlights

The following are highlights from the current issues of RSNA's two peer-reviewed journals.

Developmental Hip Dysplasia Diagnosis at Three-dimensional US: A Multicenter Study

Developmental dysplasia of the hip (DDH) found in infants is associated with premature osteoarthritis and can result in hip arthroplasties in patients younger than 60 years. Prompt and accurate diagnosis of DDH in infants could substantially reduce the long-term morbidity of DDH.

In an article published online in *Radiology* (RSNA.org/Radiology), Dornoosh Zonoobi, MEng, PhD, University of Alberta, Edmonton, and colleagues studied the accuracy of diagnosis of developmental dysplasia of the hip from geometric properties of acetabular shape extracted from 3D ultrasound (US).

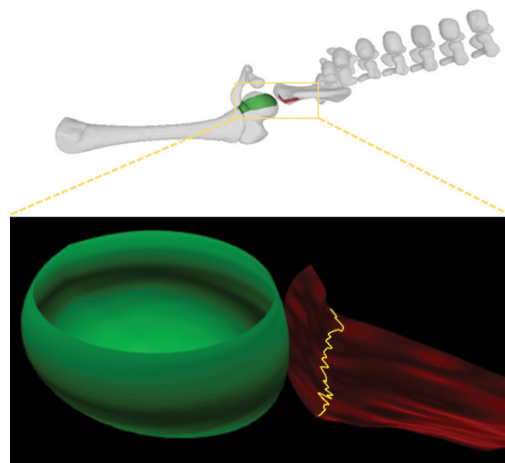
A multi-institutional study was conducted on 1,728 infants who were evaluated for DDH using 3D and 2D US. Custom software automatically calculated indexes including 3D posterior and anterior alpha angle and osculating circle radius from hip surface models.

3D US helped to correctly categorize 97.5 percent dysplastic and 99.4 percent normal hips. No dysplastic hips were categorized as normal. Correct diagnosis was provided at initial 3D US scan in 69.3 percent of the studies diagnosed as borderline at initial 2D US.

The researchers conclude that performance of automatically calculated 3D indexes of acetabular shape (angularity and roundness) was at least equivalent to high-quality 2D US scans performed at tertiary medical centers to diagnose DDH, and it reduced the number of indeterminate borderline scans by over two-thirds.

"Future use of 3D US in longitudinal studies may provide further insight into which acetabular shapes are unlikely to normalize spontaneously over time, helping redefine hip dysplasia in a more prognostically useful way. Eventually 3D US analysis might prevent overtreatment of mild hip dysplasia," the authors conclude.

Radiology



Bottom: Illustration of the extracted acetabulum bone and femoral head surfaces from the seed points. The apex line is marked in yellow. **Top:** Picture of the region segmented from three-dimensional US overlaid on a model of the hip segmented by using CT. Note that model of the hip generated at CT is from a different participant, and is used here to illustrate the anatomic context of the segmented region.

Zonoobi, et al., *Radiology* 2018;287:3 © RSNA 2018.

RSNA Journals Get a New Look

Look for some fresh new changes to your RSNA journals. The websites of *Radiology* and *RadioGraphics* and the print edition of *Radiology* were recently redesigned.

The online redesign for both publications includes a new subspecialty search, an updated article view including figure and reference browsing and streamlined

navigation. The most recently published articles are more easily identifiable and both publications are now optimized for mobile viewing on all devices and platforms.

Starting with the July issue, *Radiology* will debut a new print redesign that features a refreshed cover design, an easier

to browse table of contents and streamlined article layouts.

Visit RSNA.org/Journals to navigate the online updates and email pubsfeedback@rsna.org if you have any questions about the redesigns.



Listen to *Radiology* Editor David A. Bluemke, MD, PhD, discuss this month's research you need to know. Podcasts summarize the importance and context of selected recent articles. Subscribe today at RSNA.org/Radiology-Podcasts and never miss a single episode.

Radiology
PODCASTS

Podcasts include:

- 📻 "CM-101: Type I Collagen-targeted MR Imaging Probe for Detection of Liver Fibrosis," by C.T. Farrar, PhD, and colleagues.
- 📻 "What Patients Want to Know about Imaging Examinations: A Multiinstitutional U.S. Survey in Adult and Pediatric Teaching Hospitals on Patient Preferences for Receiving Information before Radiologic Examinations," by Jay K. Pahade, MD, and colleagues.
- 📻 "Changes in Primary Care Health Care Utilization after Inclusion of Epidemiologic Data in Lumbar Spine MR Imaging Reports for Uncomplicated Low Back Pain," by Jessica G. Fried, MD, and colleagues.

Digital Medical Illustration for the Radiologist

Medical illustrations that help to clarify complex anatomy, pathologic results and procedures and relay complex information in a simple and easily understandable format are sought after in scientific publications. But because existing or accessible best-fit illustrations are not always available, academicians are well served by the ability to produce their own illustrations.

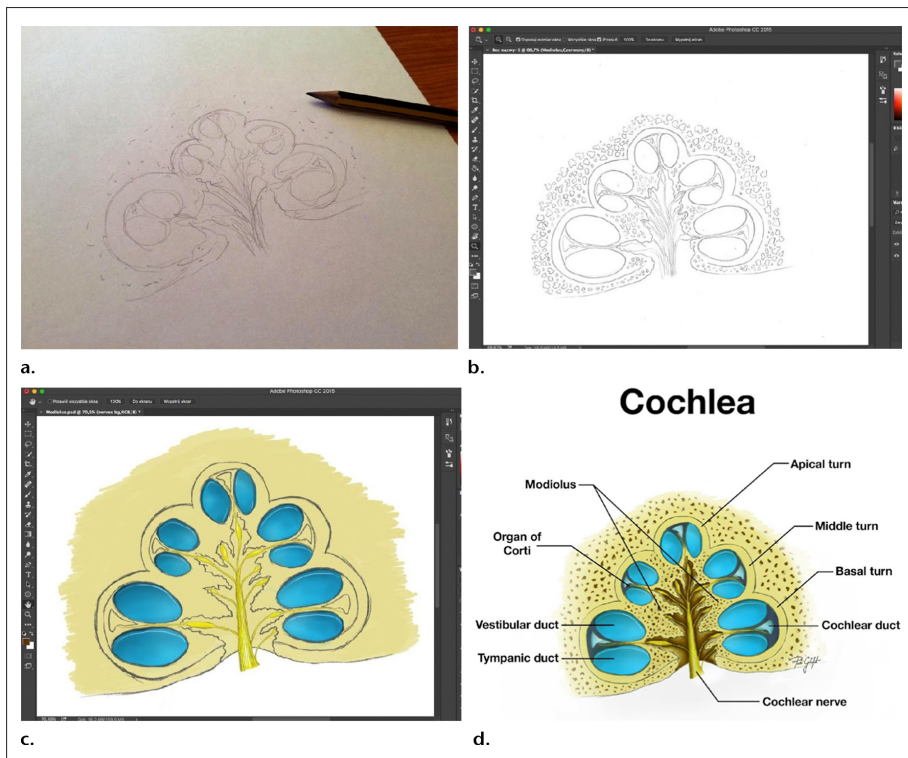
RadioGraphics

In an article in the July-August issue of *RadioGraphics* (RSNA.org/RadioGraphics), Jennifer L. McCarty, MD, University of Arkansas for Medical Sciences, Little Rock, and colleagues discuss how radiologists of all skill levels, including those who do not view themselves as artistically inclined, can create their own high-quality original diagrams.

The choice between newer digital technology (e.g., computers, tablets and styluses) and traditional media (e.g., canvas, paint, pen and paper) depends on the preference of the individual artist.

However, digital illustration programs are accessible to most people and the process can be simplified to an easily approachable level, with illustration complexity left to the artist's discretion. As the artist progresses, the illustrations can transition from simple line drawings to illustrations with solid fills, depth, transparency, highlights, shadows and an increasing number of layers.

"Computer-based artwork is an excellent supplement to educational and research material. Thus, academicians are well served by the ability to create digital illustrations. Most radiologists have access, the tools needed to create high-quality digital medical illustrations, and with a little practice and the right guide, can make their own works of art to share," the authors write.



Conversion of a scanned hand-drawn image to a digital illustration in Photoshop (Adobe Systems, San Jose, Calif). (a, b) Initial pencil sketch of the cochlea (a) is scanned and imported into Photoshop (b). (c) Pen and brush tools are used to convert the scanned sketch to a digital illustration, and brush, marquee, and fill tools are used to add color. (d) Detail and labels are added.

McCarty et al, *RadioGraphics* 2018;38:4 ©RSNA 2018.

This article meets the criteria for *AMA PRA Category 1 Credit*[™]. SA-CME is available online only.



Listen to *RadioGraphics* Editor Jeffrey S. Klein, MD, and authors discuss the following articles from recent issues of *RadioGraphics* at RSNA.org/RG-Podcasts.

RadioGraphics
PODCASTS

- "CT and MR Imaging Features of Artificial Urinary Sphincters, Penile Protheses, and Other Devices in the Male Lower Genitourinary Tract," by Elizabeth T. Chorney, MD, and colleagues.
- "Automated Three-dimensional Breast US for Screening: Technique, Artifacts, and Lesion Characterization," by Jan C. M. van Zelst, MD, MSc and Ritse M. Mann, MD, PhD.
- "Advanced Imaging Techniques in Evaluation of Colorectal Cancer," by Roberto García-Figueiras, MD, PhD, and colleagues.

Radiology in Public Focus

Press releases were sent to the medical news media for the following articles appearing in recent issues of *Radiology*.

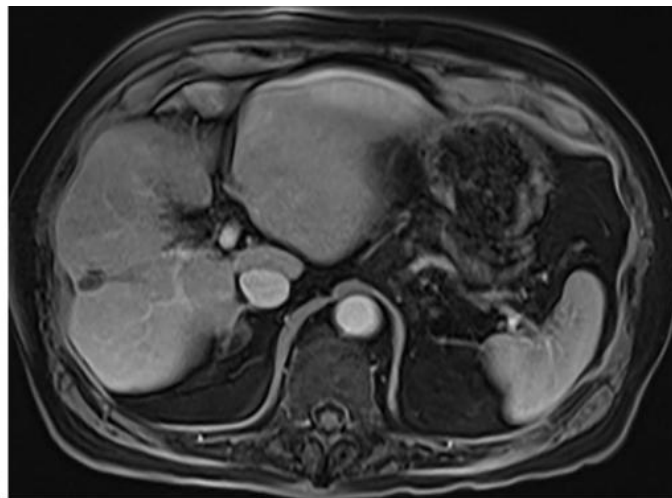
Radiotherapy Offers New Treatment Option for Liver Cancer



a.

Images show (a) a contrast material–enhanced CT scan before yttrium 90 of an 87-year-old man with 4-cm hepatocellular carcinoma in right lobe; (b) Contrast-enhanced MR image at subsequent nine-year follow-up (now aged 96 years) shows complete necrosis.

Salem et al, *Radiology* 2018;287:3 © RSNA 2018.



b.

A novel technique that delivers high doses of radiation to tumors while sparing the surrounding normal tissue shows promise as a curative treatment option for patients with early-stage hepatocellular carcinoma (HCC), according to a new study in *Radiology*.

Researchers studied long-term outcomes in 70 early-stage HCC patients who had undergone radiation segmentectomy (RS) between 2003 and 2016. RS is a targeted form of radioembolization using the radioisotope yttrium-90 (^{90}Y) to destroy tumors. Using cone beam CT, interventional radiologists gain a detailed view of the liver vasculature and can focus delivery of the ^{90}Y to the relevant liver segment.

“Cone beam CT has revolutionized our ability to perform segmental injections isolated to very small tumors, sparing the majority of normal tissue,” said senior author Riad Salem, MD, chief of vascular interventional radiology in the Department of Radiology at the Northwestern University Feinberg School of Medicine in Chicago. “Before cone beam CT, we had the ability to focus radiation, but not with this level of accuracy.”

Researchers analyzed the patients’ responses to treatment based on two commonly used sets of necrosis criteria: the World Health Organization (WHO) and the European Association for the Study of the Liver (EASL).

Based on EASL criteria, 90 percent of patients showed positive response to the therapy, of which 59 percent showed complete response. Based on WHO criteria, 71 percent achieved positive response, of which 16 percent achieved complete response.

Almost three-quarters of patients had no progression of cancer in the target tumor five years after treatment. Median overall survival was 6.7 years, and one-, three- and five-year survival probabilities were 98 percent, 66 percent and 57 percent, respectively. One-, three- and five-year overall survival probability was 100 percent, 82 percent and 75 percent in patients with a baseline tumor size of three centimeters or less.

WEB EXTRAS

Access the study, “Radiation Segmentectomy: Potential Curative Therapy for Early Hepatocellular Carcinoma” at [RSNA.org/Radiology](https://www.rsna.org/Radiology).

Post-Mortem CT Angiography Illuminates Causes of Death

CT angiography is a useful adjunct to autopsy that is likely to increase the quality of post-mortem diagnosis, according to a new study in *Radiology*.

Modern imaging techniques like CT and MRI are often used in forensic pathology. However, post-mortem CT is limited by relatively low soft tissue contrast and poor visualization of the vascular system. Post-mortem CT angiography (PMCTA), was developed to address those limitations by introducing contrast agent into the body.

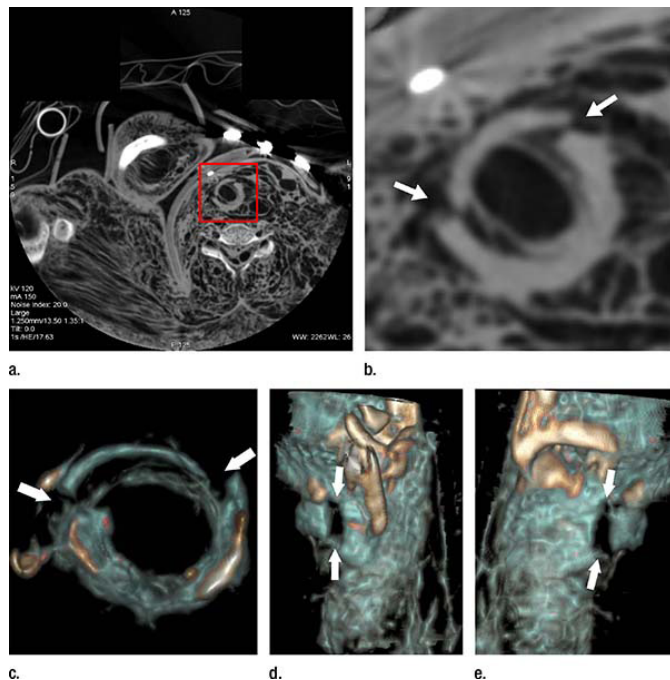
“The idea of the PMCTA is to simulate a post-mortem circulation by establishing a post-mortem perfusion of the vascular system,” said lead author Silke Grabherr, MD, PhD, from the University Center of Legal Medicine Lausanne-Geneva in Lausanne, Switzerland. “Therefore, the heart is ‘replaced’ by a perfusion device, similar to the heart-lung machine that replaces the heart during heart surgery.”

To assess the performance of PMCTA, Dr. Grabherr and colleagues at nine centers in Europe performed conventional autopsies on 500 human bodies that had undergone PMCTA. A total of 18,654 findings were recorded and categorized by anatomic structure and relative importance in the forensic case.

Out of the total findings, PMCTA found 90 percent, compared with 61 percent for autopsies. PMCTA missed only 10 percent of forensically essential findings, while autopsy missed 23 percent.

PMCTA was significantly superior to autopsy at identifying skeletal and vascular lesions, or areas of damage in the bones and blood vessels. PMCTA identified 96 percent of skeletal lesions and 94 percent of vascular lesions, compared with 65 percent for autopsy. These lesions can provide important information in post-mortem examinations, Dr. Grabherr said.

“This means that PMCTA is an excellent choice to investigate such cases and can be used combined with or even independently of conventional autopsy for investigating in these cases,” she said.



(a) Axial cervical postmortem CT scan and (b) zoomed section of the cricoid cartilage (box in a) of a 27-year-old woman who died of strangulation. Three-dimensional volume-rendered reconstructions from cranial (c), left lateral oblique (d) and right lateral oblique (e) views. The postmortem CT scan clearly displays a displaced bilateral fracture of the cricoid cartilage (arrows), which is an important finding because it proves the application of relevant force to the neck. Grabherr, et al, *Radiology* 2018;InPress © RSNA 2018.

WEB EXTRAS

- Access the study, “Postmortem CT Angiography Compared with Autopsy: A Forensic Multicenter Study,” at [RSNA.org/Radiology](https://www.rsna.org/Radiology).

Media Coverage of RSNA

In March, 1,138 RSNA-related news stories were tracked in the media. These stories had an estimated audience reach of 448 million.

Coverage included *U.S. News & World Report*, *WGN-AM* (Chicago), *Seattle Post-Intelligencer*, *Milwaukee Journal Sentinel*, *Drugs.com*, *ScienceDaily*, *Auntminnie.com*, *Radiology Business Journal* and *Applied Radiology*.

Updated Radiation Safety Chart on *RadiologyInfo.org*

RadiologyInfo.org, the RSNA/ACR public information website, recently updated its “Radiation Dose in X-ray and CT Exam” page, including its radiation safety chart. Patients can access information about x-rays, measuring radiation dose, naturally-occurring background radiation and the benefits versus risks of medical imaging. The updated chart compares background radiation with effective radiation dose in adults for various radiology procedures. Access the page in English and Spanish today.

RadiologyInfo.org
For patients

Education and Funding Opportunities

RSNA Launches First Artificial Intelligence (AI) Webinar in August

Beginning this August, RSNA will launch the first in a series of 60-minute webinars on artificial intelligence (AI) featuring internationally renowned experts. RSNA will offer three additional AI webinars throughout the year.

The first webinar, "AI, Why All the Buzz," scheduled for Noon Eastern Time (ET), Wednesday, Aug. 29, will provide an introduction to AI.

Curtis P. Langlotz, MD, PhD, RSNA Board Liaison for Information Technology and Annual Meeting and professor of radiology and biomedical informatics at Stanford University, will serve as a mod-

erator and one of the speakers for the first webinar. Matthew Lungren, MD, assistant professor of radiology at the Stanford University Medical Center, will also speak during the first session.

Upcoming webinars:

- "Current State and Future Perspectives of AI," Oct. 25, 2018, Noon ET; *Moderator*: Paul Chang, MD; additional speakers: Luciano Prevedello, MD, MPH, and Safwan Halabi, MD

- "Future Applications of AI," Dec. 11, 2018, Noon ET; *Moderator*: Adam Flanders, MD; additional speakers: Charles E.

Kahn, MD, MS, Marc Kohli, MD, and Raym Geis, MD

- "AI, an Ally or an Enemy?" A roundtable discussion, February 2019 (date to be announced)]; *Speakers*: Drs. Langlotz, Chang and Flanders

Each webinar is \$35 for members; \$50 for non-members. Registration for the first live webinar will open in late June. If you would like to receive a notification when registration opens please contact ed-ctr@rsna.org.

The webinars will be available on-demand for purchase one month after the live session.



Advanced Course in Grant Writing

Application Deadline July 1

Applications are now being accepted for this course designed to assist participants prepare and submit a National Institutes of Health, National Science Foundation, or equivalent, grant application. This course is beneficial for junior faculty members in radiology, radiation oncology or nuclear medicine programs. The course, held at RSNA Headquarters in Oak Brook, IL, will consist of four 1/2-day sessions:

Session I: Sept. 14–15, 2018,
Session II: Oct. 26–27, 2018,

Session III: Jan. 25–26, 2019,
Session IV: May 3–4, 2019

For more information and an application, visit RSNA.org/AGW.

Introduction to Academic Radiology for Scientists (ITARSc)

Application Deadline July 1

Postdoctoral fellows and early-stage researchers in biomedical engineering and the imaging sciences, who received their degrees within the past six years, are invited to apply for this opportunity held during RSNA 2018. Applications are available at RSNA.org/ITARSc.

Introduction to Academic Radiology (ITAR)

Application Deadline July 15

This program exposes second-year residents to academic radiology and demonstrates the importance of research in radiologic sciences. Successful applicants will be assigned to either a seminar held during the 2018 RSNA annual meeting in Chicago, Nov. 25–Nov. 29, or the ARRS annual meeting in Honolulu, HI, May 5–10, 2019. For more information and an application, visit RSNA.org/ITAR.

Value of Membership

RSNA Weekly Keeps Members Updated

RSNA Weekly, the e-newsletter featuring the latest headlines affecting radiology, can be delivered to your inbox every Tuesday.

RSNA Weekly compiles a selection of current radiology and clinical practice news from a wide variety of news sources. RSNA works with a news service to identify articles that may be of interest to radiologists, allied professionals and their patients.

The free e-newsletter is an RSNA member benefit. Watch your inbox for *RSNA Weekly* to stay up to date on news concerning your profession.

Technology Forum

RSNA's Radiology Informatics Committee Reaches Milestones on Two key Projects

RSNA Image Share Project Concludes

Funding for the RSNA Image Share Network, launched in 2009, ended in March after successfully achieving the project's objectives.

The project provided a model and operating pilot for expanding patient access to images and reports, an evolution that promises to enable better informed medical decisions. Since the project launched, 20 radiology sites have provided more than 35,000 patients access to their images and reports.

Funded partially through a contract with the National Institute of Biomedical Image and Bioengineering (NIBIB), and led by RSNA Integrating the Healthcare Enterprise (IHE) Subcommittee Chair David S. Mendelson, MD, RSNA worked with a consortium of research sites to build and deploy software that connects local radiology systems to the Image Share Network. The network infrastructure was developed by two contracted vendors, lifeIMAGE and Ambra Health.

The Image Share Network is built on interoperability standards defined by IHE and based on HL7, W3C, Oasis and DICOM standards for medical images. To foster the adoption of the Image Share model RSNA partnered in 2015 with Sequoia Project, an organization dedicated to promoting health information exchange, to create a validation testing program. Since then, nine vendors have successfully completed testing and received the Image Share Validation seal.

The image sharing network will remain available and patients will have access to existing accounts for an additional two years. The Image Share Validation testing program will continue to offer conformance testing and the open source software tools developed under the program are available to researchers and product developers on a public code repository (github.com/orgs/RSNA/dashboard).



Mendelson

RadLex® — Refreshed, Expanded and Deployed

RSNA is improving RadLex, the Society's lexicon of radiology terms, to expand its reach, enhance its effectiveness and help imaging prepare for a new set of emerging technologies including clinical decision support and artificial intelligence.

RSNA volunteers began developing RadLex in 2001 to maximize the benefit of emerging technologies like electronic health records and structured reporting for radiologists. Those technologies have become a fundamental part of clinical care, and data standards like RadLex facilitate efficiency, consistency and interoperability in clinical workflows.

In 2016, RSNA collaborated with the German Roentgen Society (Deutsche Röntgengesellschaft - DRG) to develop a comprehensive German translation of RadLex. DRG performed and validated the German translation of 45,509 RadLex terms, which RSNA incorporated into the RadLex ontology. The release will be maintained by DRG and updated in future RadLex releases.

"We are glad for the opportunity to promote such an exemplary project," said

Prof. Thomas Hacklander, chair of the DRG IT Committee. "Thanks to the help of all supporting experts, we are now able to further advance our structured reporting and improve the analysis of our content with artificial intelligence systems."

Additional translations are being planned based on the model established by RSNA and the DRG, according to Kenneth C. Wang, MD, PhD, chair of the RadLex Steering Committee.

The Logical Observation Identifiers Names and Codes (LOINC)/RSNA Radiology Playbook was recently released as part of new versions of LOINC and RadLex Playbook. The Playbook provides a single authoritative source for radiology procedure names that can be used to standardize imaging workflows such as ordering and billing, and to facilitate quality improvement efforts. The project was completed through a five-year partnership with the Regenstrief Institute and funded by a contract with the NIBIB and the U.S. Department of Defense.



Wang

Annual Meeting Watch

Back by Popular Demand: Fast 5 Session Returns to RSNA 2018

Voting for Session Lineup Begins July 10

Cast your vote to help select this year's Fast 5 presentations, back for a second year at the RSNA annual meeting.

RSNA accepted submissions in June for the engaging, fast-paced sessions that offer a perfect opportunity for presenters to share their unique ideas

about non-clinical topics. The Fast 5 Session speakers will be determined by online voting to be held July 10–19.

During the session, five speakers will each give a five-minute presentation accompanied by slides. In keeping with the RSNA 2018 theme, “Tomorrow’s Radiology Today,” the presentations will embrace tomorrow’s medical imaging discoveries.

The Fast 5 Session will be presented on Thursday, Nov. 29, at 1:30 p.m., Central Time (CT) in the Arie Crown Theater at RSNA 2018.

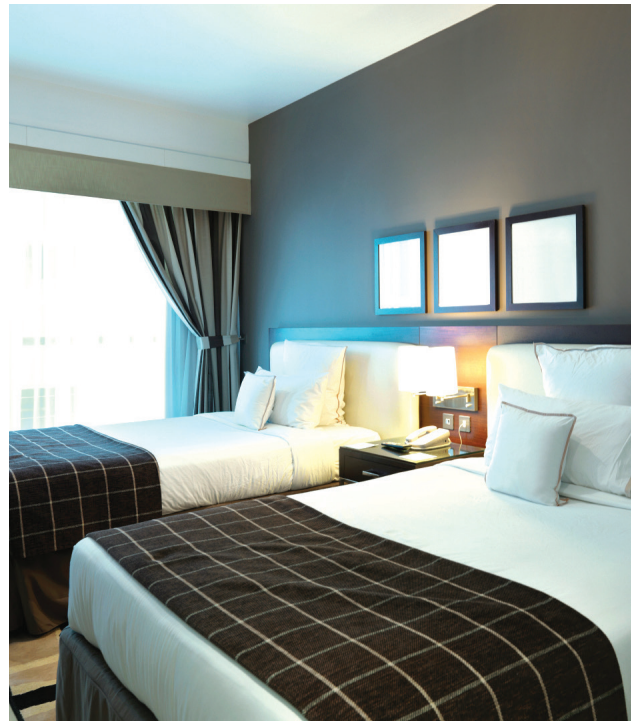
To access this year’s submissions and cast your vote between July 10-19, go to RSNA.org.

Reserve Your Hotel Room through RSNA

Begin planning for RSNA 2018 by reserving your hotel room in Chicago. RSNA has negotiated special room rates for meeting attendees. Additional savings can be earned by reserving your hotel room before Sept. 12. Hotel information is available at RSNA.org/hotel-reservations.

Why reserve with RSNA?

- We offer exclusive rates for RSNA 2018 attendees.
- Our hotel partners offer a wide range of options from economy to 5-star accommodations.
- Earn hotel loyalty points.
- Dedicated customer service professionals work on your behalf to make sure your reservation is right and we assist with any hotel issues, questions or concerns.



**OBSERVE
BEFORE
YOU
RESERVE!**

Experient is the only certified partner to reserve your 2018 RSNA hotel rooms! Be aware of fraudulent and counterfeit websites—only reserve your RSNA hotel reservations through Experient, our trusted partner since 1980.



RSNA has designated ESA Voyages and ACE Marketing as the official international travel agencies offering travel packages to the annual meeting. Contact RSNA hotel services at housing@rsna.org for additional information.

RSNA 2018 Registration Opens July 18

Mark your calendar for July 18 to register for this year’s RSNA annual meeting. Meeting Central (Meeting.RSNA.org) is the comprehensive tool for planning your visit to RSNA 2018 including the meeting program, exhibitor list, and more. Visit RSNA.org/Annual-Meeting to register and for up-to-date information about RSNA 2018.

Important Dates for RSNA 2018

July 18 Registration opens for all attendees

July 18 Program available online in Meeting Central

Oct. 26 Advance Registration Deadline; after this date rates increase \$160 for most categories

Oct. 27 Canceling a hotel reservation as of this date will result in the forfeiture of the hotel deposit equal to one night’s room and tax

Nov. 25 – 30 104th Scientific Assembly & Annual Meeting

RSNA 2018
TOMORROW'S
RADIOLOGY TODAY
NOVEMBER 25-30

Access the RSNA Meeting Program Online in 2018

In order to reduce our environmental footprint, RSNA will transition from a print to a digital meeting program beginning in 2018, offering the most important meeting information in these formats:

- **Meeting Central** (*Meeting.RSNA.org*)

Explore the meeting program, review the roster of technical exhibitors and build your personalized schedule on My Agenda.

- **The RSNA 2018 Meeting App**

Browse the meeting program, access maps to navigate McCormick Place and customize your daily meeting schedule with My Agenda. The app will be available in October via the App Store and Google Play.

While the Program in Brief will no longer be available in print, RSNA will continue to publish the onsite Pocket Guide, an easy-to-use reference to course and event information, floor plans at McCormick Place and transportation and dining, plus subspecialty content brochures in print and online.

The RSNA 2018 Meeting App is sponsored by Google Cloud.



RSNA 2018 HICT Session Call for Abstracts

**Application Deadline
August 1**

The deadline to submit abstracts for the High Impact Clinical Trial (HICT) session at RSNA 2018 is Aug. 1 at noon Central Time. Authors of accepted submissions will be notified Aug. 15.

The session features the latest cutting-edge clinical science and research. It will provide a forum for practice-changing clinical research across radiology with the goal to present the most significant work in the field.

Submissions qualifying for consideration include:

- First presentations of the primary endpoint(s) of a trial
- Presentations of new data or secondary analyses of a trial where the primary data has been presented previously
- A new registry or new data/analyses from a registry
- The latest and “hottest” findings in translational imaging sciences that have immediate clinical implications

For more information, visit RSNA.org/Annual-Meeting.

Register for RSNA 5k Fun Run Supporting R&E Foundation

Nov. 27 at 6:30 a.m



Race your colleagues and fellow attendees to the finish line of the RSNA 5k Fun Run. If you are a runner, casual jogger or walker, you are invited to take part in this race on the Chicago lakefront in support of radiology research and education. Race spots fill up quickly, so register yourself or your team early to receive a limited supply commemorative T-shirt. All proceeds benefit the RSNA Research & Education (R&E) Foundation. Fun run registration opens on July 18 at RSNA.org/Fun_Run.

The Fun Run is sponsored by Konica Minolta Healthcare.



**COMING
NEXT
MONTH**

Next month, *RSNA News* asks the experts how radiology departments can create effective emergency preparedness for events such as hurricanes and tornadoes.



INNOVATION FOR TOMORROW'S RADIOLOGY TODAY

Explore the latest research and interact with **technologies** like **AI**, **3D printing** and **virtual reality** that are transforming the practice of radiology.

Join us!

FREE standard meeting registration for members! Add Virtual Meeting for your best experience. Registration opens July 18.

RSNA.ORG/REGISTER | 1-847-996-5862 | REGINFO@RSNA.ORG

RSNA® 2018
TOMORROW'S
RADIOLOGY TODAY



104th Scientific Assembly and Annual Meeting
November 25–30 | McCormick Place, Chicago