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Radiology Gives Front-line Aid to Boston Bombing Victims

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UP FRONT

- 1 First Impression
- 4 My Turn

FEATURES

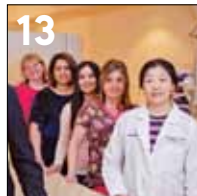
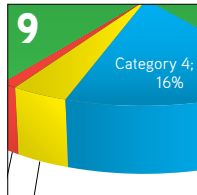
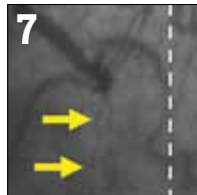
- 5 Radiology Gives Front-line Aid to Boston Bombing Victims
- 7 CCTA Helps Predict Heart Attack Risk
- 9 Research Sparks Debate on Teleradiology Benefits
- 13 Online Tools Take Radiology’s Patient Focus to a New Level

RADIOLOGY’S FUTURE

- 11 Ketogenic Diet Aids Cancer Patients’ Sensitivity to Radiation, Chemotherapy
- 15 R&E Foundation Donors

NEWS YOU CAN USE

- 17 Journal Highlights
- 18 Radiology in Public Focus
- 19 Education and Funding Opportunities
- 20 Residents & Fellows Corner
- 21 Annual Meeting Watch
- 23 The Value of Membership
- 24 RSNA.org



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RSNA News on Facebook can be found at [facebook.com/newsfromRSNA](https://www.facebook.com/newsfromRSNA).



Arger Holland Carson Neumyer Dubbins

AIUM BESTOWS HONORS

The American Institute of Ultrasound in Medicine (AIUM) presented its Joseph H. Holmes Clinical and Basic Science Pioneer Awards to **Peter H. Arger, M.D.**, and **Christy K. Holland, Ph.D.**, at its recent annual meeting in New York. Dr. Arger is professor emeritus of radiology at the University of Pennsylvania Hospital in Philadelphia. Dr. Holland is a professor in the Department of Internal Medicine at the University of Cincinnati.

Paul L. Carson, Ph.D., a past-RSNA third vice-president, received the William J. Fry Memorial Lecture Award. Dr. Carson is a professor in the Department of Radiology at the University of Michigan Medical Center in Ann Arbor.

Marsha M. Neumyer, B.S., R.V.T., CEO and international director of Vascular Diagnostic Educational Services and Vascular Resource Associates, Harrisburg, Pa., received the Distinguished Sonographer Award.

Paul A. Dubbins, M.B.B.S., B.Sc., received an AIUM Honorary Fellowship. Dr. Dubbins is a consultant radiologist at Derriford Hospital in Plymouth, England. He is a former vice-president of the Royal College of Radiologists.

Numbers in the News

2

Percent annual risk of a major cardiac event for those with evidence of coronary artery disease on coronary CT angiography (CCTA), versus a .31 percent annual risk for those whose CCTA results show no evidence of obstructive disease, according to a recent study. **Learn more about CCTA as a tool to predict heart attack risk, as well as how the latest generation of CT scanners can provide excellent image quality at lower radiation doses, on Page 7.**

3

Amount, in millions of dollars, in grant funding awarded this year by the RSNA Research & Education Foundation. **Turn to Page 15 to read more about this year’s funding.**

134

Number of residents who responded to the annual chief resident survey administered by the American Alliance of Academic Chief Residents in Radiology (A3CR2). Survey results indicate residents’ attitudes toward subjects including the new American Board of Radiology core examination. **Read more on Page 20.**

644

Approximate number of imaging professionals who have taken the RSNA Radiology Cares Pledge encouraging physicians to commit to more meaningful engagement in the patient experience, as of early June. The website, RadiologyCares.org, features a wide variety of resources related to patient-centered care. **Read more about the online tools that radiology departments and practices have launched to improve the patient experience on Page 13.**

IHE World Summit Takes Interoperability to a New Level

More than 350 attendees with various levels of expertise in information technology (IT) from across the globe gathered in April in Istanbul, Turkey, for the first annual Integrating the Healthcare Enterprise® (IHE) International World Summit.

RSNA was a primary sponsor of the summit designed to achieve the safe exchange of medical information and improve patient care by enabling the health-care sector and stakeholders to achieve the widespread adoption and implementation of standards-based interoperable IT systems. Leaders from IHE’s 25 national deployment committees met with experts and stakeholders in health IT interoperability and electronic health records.

RSNA has been at the forefront of the IHE movement for more than 15 years. The first IHE meeting took place at RSNA headquarters in Oak Brook, Ill., in 1998, and has grown each year in size, frequency and distribution. IHE Connectathons—face-to-face interoperability testing events—are held annually in various locations in North America, Australia, China, Japan and Korea. Held in conjunction with the world summit, the IHE-Europe Connectathon event in Istanbul included 76 vendors testing 102 systems in six different healthcare domains.

For more information on IHE, go to RSNA.org/ihe.aspx.



The IHE-Europe Connectathon interoperability testing event in Istanbul, Turkey, included 76 vendors testing 102 systems in six different healthcare domains.

Dunnick Honored by JRS, AUR

RSNA President-elect **N. Reed Dunnick, M.D.**, received honorary membership from the Japan Radiological Society (JRS) at the Japan Radiology Congress (JRC) in Yokohama in April. The Association of University Radiologists (AUR) also awarded its Radiology Research Alliance (RRA) Research Innovation and Leadership Award to Dr. Dunnick at its recent annual meeting in Los Angeles.

Dr. Dunnick is the Fred Jenner Hodges Professor and chair of the Department of Radiology at the University of Michigan Health System in Ann Arbor, where he has been since 1992. Dr. Dunnick has served on numerous RSNA committees over the years and is currently president-elect and secretary-treasurer of the RSNA Board of Directors.



Royal College of Radiologists Elects Maskell as President

The Royal College of Radiologists (RCR) has elected **Giles Maskell, F.R.C.P., F.R.C.R.**, as its next president. Dr. Maskell serves as a consultant clinical radiologist at Royal Cornwall Hospital in Truro, Cornwall, England. He will succeed current president Jane Barrett, M.D., at the college’s annual meeting in September 2013.



ACR Elects New Officers

The American College of Radiology (ACR) Council elected **Albert L. Blumberg, M.D.**, president of ACR during the recent ACR 90th Annual Meeting and Chapter Leadership Conference in Washington, D.C.

Dr. Blumberg is vice-chair of the Department of Radiation Oncology, Greater Baltimore Medical Center, and a radiation oncologist with Radiation Oncology HealthCare PA. He serves on the ACR Executive Council and is immediate past-chair of the ACR Commission on Radiation Oncology.

Geoffrey G. Smith, M.D., a radiologist at Casper Medical Imaging, Wyoming, was elected ACR vice-president.

Kimberly Applegate, M.D., M.S., director of practice quality improvement in the radiology department at Emory Healthcare and Emory University School of Medicine in Atlanta, was elected to a two-year term as council speaker.

William T. Herrington, M.D., a radiologist with Athens Radiology Associates, PC, Georgia, was elected to a two-year term as council vice-speaker.



Blumberg

Smith

Help Celebrate the Second Annual International Day of Radiology

On November 8, 2013, join 85 radiology organizations from more than 40 countries in celebrating the advances that radiologic innovations have brought to patients worldwide.

The mission of the International Day of Radiology is to build greater public awareness of the value that radiology research, diagnosis and treatment contribute to safe patient care, and to build understanding of the vital role radiologists perform in healthcare delivery. A major focus in 2013 is on advances in lung disease imaging, research and treatment.

The International Day of Radiology is sponsored by RSNA, the European Society of Radiology (ESR) and the American College of Radiology (ACR), with a dedicated website (IDoR2013.com) and social media activities. Get involved by visiting RSNA.org/IDoR2013 for promotional support materials you can customize for your practice or organization. RadiologyInfo.org, the patient information website co-sponsored by RSNA and ACR, also plays an important role in the initiative, as a comprehensive and easy-to-understand radiology information resource for the public and a turnkey patient communication tool for physicians.

For more information, contact Emma Day at eday@rsna.org.



IN MEMORIAM

David H. Hussey, MD

RSNA past-president **David H. Hussey, M.D.**, passed away on April 17, 2013. He was 75.

A major voice in radiation oncology from the very beginning of his distinguished career, Dr. Hussey was internationally known for his outstanding contributions to patient care, research and training of medical students and residents.

Dr. Hussey's long career included 14 years at MD Anderson Hospital in Houston, where he directed the Fast Neutron Therapy program, and the University of Iowa in Iowa City, where he was head of the radiation oncology division for 15

years. He spent the final years of his career on the faculty of the University of Texas Health Science Center in San Antonio. His research included a clinical evaluation of fast neutron therapy using the Texas A&M Variable Energy Cyclotron.

In his president's address at RSNA 2005, Dr. Hussey urged closer collaboration between diagnostic radiology and radiation oncology. "As a radiation oncologist who was trained first as a radiologist, I understand the role that each specialty



plays individually, as well as the strength of the specialties when they work together," he said.

In addition to his service to RSNA, Dr. Hussey served as president of a number of national organizations, including the American Radium Society and the American Society for Radiation Oncology, and

served as a member of the board of trustees of the American Board of Radiology. He was awarded the RSNA Gold Medal in 2010.

My Turn

Don't Just Fix the Present, Create the Future

The rapidity of changes in radiology over the past several decades has been truly staggering. Whether moving from film to PACS, or moving from tape-recorded dictations sent to transcriptionists to computer-assisted voice recognition, or the journey from stacks of films waiting to be hung on viewboxes to worklists, one can only be impressed by the revolutionary advances that have changed how we practice. However, if we look closer at some of these successes, they are, admittedly, mere adaptations to changes in the world around us.

As I sit here at my PACS workstation, I see a long list of icons on the left, most of which I have neither ever used nor know what they do. Our newest 3D imaging system boasts a bevy of icons that are little more than symbols—possibly only recognizable by cavemen—and unexplainable motions for the right and left mouse button. It makes one wonder why things aren't simpler, similar to what we see on an Apple iMac or MacBook, or iPad, or the user interface screen of *Amazon.com*.

The aforementioned are examples of technology used by millions and "customized for every one of them." It seems that lessons learned there have never made it into the medical arena, let alone radiology. Why must my PACS screen look exactly like yours, especially when we recognize the inefficiency that comes with the lack of customization? How is it that Amazon remembers every purchase I ever made and makes suggestions for what I might want or need, while my

PACS workstation acts every morning as if we've never met before? Why is it that evolutionary and revolutionary changes in Google and Facebook continually affect everyone and yet those changes never make it through to how we practice radiology?

In an era where cost containment is key, but cannot compromise exam quality, I believe we can maintain quality by making certain we have tools that allow us to be efficient and effective and enjoy our working experience. We must convince the companies that are designing the future, to help us create our future.

Radiology is blessed with technologies like CT and MR scanners from some of the leading industrial companies in the world, but these giants are far from being leaders in designing user interfaces that take into account the users. While many smaller companies have come and gone, we recognize that medicine presents unique challenges due to the high fixed costs of a global market

and the governing power of the FDA, which controls our business, unlike other industries where companies answer to no one but to the consumer. We need to find a way to encourage those companies that are designing the future—like Apple, Google, Amazon and Facebook—to help us create *our* future. I think it is necessary not only for our survival but also if we want to continue to be innovators in patient care. Perhaps this is too much to ask for and a bit naïve, but hey, this is "my turn." Let the challenge begin. We are ready!

Elliot K. Fishman, M.D., is professor of radiology and oncology at The Johns Hopkins University School of Medicine and director of Diagnostic Imaging and Body CT at The Johns Hopkins Hospital in Baltimore. He co-chairs the RSNA-ACR Public Information Website (RadiologyInfo.org) committee and is a member of the RSNA Public Information Advisors Network.



THIS MONTH IN THE RSNA NEWS TABLET

Get more of this month's news with the *RSNA News* Tablet edition, available for download through the App Store and Google Play.

July features links to a variety of online tools and resources—patient testimonials, videos, "Ask and Expert" and more—used by radiologists at private practices, hospitals and academic settings to increase interaction with patients and increase satisfaction.

Access the *RSNA News* tablet edition on the App Store at itunes.apple.com/us/app/rsna-news/id444083170?mt=8 and Google Play at <https://play.google.com/store/apps/details?id=air.org.rsna.rsna-news&hl=en>.



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Radiology Gives Front-line Aid to Boston Bombing Victims

Within minutes of the Boston Marathon bombings, healthcare personnel in more than a dozen area hospitals faced a harrowing scene of badly burned bodies, damaged limbs and dangerous shrapnel wounds. In those critical first minutes and the days following, emergency radiology played a frontline role as hundreds of injured patients began pouring into emergency departments (EDs) across Boston.

JUST A FEW MILES from the bombing site, Massachusetts General Hospital (MGH) was one of the facilities that treated victims that day. Laura Avery, M.D., was heading the hospital's Emergency Radiology Division on the afternoon of April 15—Patriot's Day and the date the Boston Marathon is held every year—when she got the news.

"We were already having a busy day," she recalled. "And strangely, my husband, who works in finance in the city, called me with the news first. Then we found out from the ED that there had been a page reporting mass casualties."

The first order of business, Dr. Avery said, was to clear the ED of as many patients as possible before victims started arriving. Fortunately, a number of fourth-year residents quickly showed up at the ED after watching the marathon. "It was pretty impressive to see how quickly we were able to clear out the ED in order to make space for new patients," she said.

The Emergency Radiology Division immediately put staff on alert, blocked off CT scanners, and made sure that technologists were ready with all of the department's most up-to-date portable imaging units. "Everything pretty much worked as planned," Dr. Avery said. "All of these resources were immediately available."

The hospital treated 31 bombing victims, several of whom were taken to an operating room upon arrival. A number of patients received full-body CT scans. Since the radiologists and trauma surgeons were both present during CT scans, communication of the findings was immediate and a course of action could be determined on the spot.

So many personnel responded to the trauma call that part of Dr. Avery's job involved ensuring that each staff member contributed in the best way possible. "There were a lot of people there who wanted



Avery

Brink

Rocha



Kruskal

Brown

"I couldn't be prouder of our imaging staff and it's my sense that's how all the radiology departments around town feel."

Jonathan Kruskal, M.D., Ph.D.



Emergency radiology played a frontline role at more than a dozen area hospitals the day of the Boston bombing. Above: Staff in the Emergency Department at Massachusetts General Hospital, which treated 31 bombing victims, wait for patients and news updates during the afternoon of the bombing.

Image courtesy of Massachusetts General Hospital

to help, so the challenge was to manage the situation by giving as many people as possible the chance to help while avoiding the chaos of overstaffing," she said.

James Brink, M.D., radiologist-in-chief at MGH, called the radiology department's response to the emergency "prompt and efficient" and Dr. Avery said she believed she performed her duties well, particularly as they related to radiology services and allocating manpower.

However, she admitted that she was personally shaken by the emergency since she lives in Boston with her husband and children, and she wasn't entirely sure where her children were at the time of the bombings (she later learned they were safe with their nanny). And since so many people who work at MGH were running in the marathon, watching it, or lived in close proximity, "this was definitely an event that touched all of us personally."

Boston Hospitals Handle High Volume of Scanning

The response at Brigham and Women's Hospital (BWH) was similar to that at Massachusetts General, according to Tatiana Rocha, M.D., the attending emergency radiologist at BWH that afternoon. She helped ensure that the ED was cleared of as many patients as possible before bombing victims began arriving, that three CT scanners were held exclusively for trauma cases with an emergency radiology fellow stationed at each, and that other imaging modalities such as ultrasound and portable X-ray units were available in quantity as well.

Dealing with the bombing victims who came in "wasn't much different from our trauma routine," Dr. Rocha said. "The difference was the volume of imaging." There were two residents and three fellows in the hospital with Dr. Rocha when the bombing victims began arriving, and three additional emergency radiologists were rapidly mobilized to join the effort.

When the initial trauma call came in at Beth Israel Deaconess Medical Center, radiology personnel responded according to the hospital's emergency preparedness plan, said Jonathan Kruskal, M.D., Ph.D., chief of radiology. But, he said there was an "eerie" calm for about 15 minutes or so after that initial call as the ED waited for the first victims to start arriving.

"And then, suddenly, the ambulances started coming," Dr. Kruskal said. "And because there are so many hospitals in the area—Beth Israel Deaconess is located in Boston's Longwood Medical and Academic Area—you just heard sirens for a solid half hour."

More than 20 bombing victims—including seven critically injured patients—were sent to Beth Israel Deaconess, creating an all hands on deck situation, he said. Technologists, residents and faculty who had been taking in the annual Red Sox Patriot's Day game, watching the marathon, and, in some cases, even running the marathon, headed for the hospital to help.

"Everything was incredibly efficient," Dr. Kruskal said. "The equipment worked beautifully. I couldn't be prouder of our imaging staff and it's my sense that's how all the radiology departments around town feel."

At Boston Children's Hospital, the bombing prompted clinicians from various specialties to report for unscheduled duty. "The ED and trauma teams were clearly well prepared for handling such crises and demonstrated amazing leadership," according to Stephen Brown, M.D., the radiologist who was on call at Boston Children's Hospital that day and who serves as the radiology department liaison to the ED.

Calling them "heroes," Dr. Brown recalls how the radiology technologists interacted directly with the acutely injured patients and their family members.

"Seeing terrible injuries is unfortunately not uncommon, particularly for front-line radiography and CT technologists, but these terrible injuries were different," Dr. Brown said. "We viewed multiple radiographs of patients showing scattered and embedded ball bearings and nails, and it was surreal. Despite this awful reality, I will never forget how calmly, professionally and competently our radiology team managed their tasks."

Hospitals to Reexamine Communications Protocol

One consequence of the day's events, Dr. Kruskal said, was that it confirmed to him how invaluable digital radiography (DR) systems are. "Our managers were saying how thankful they were for DR, because it gave immediate images to the ED doctors to act on and triage patients," he said. "That's an important message."

The emergency also demonstrated the importance of enforcing Health Insurance Portability and Accountability Act (HIPAA) rules and other regulations, Dr. Kruskal said. "We wanted to make sure our faculty was very aware of who, and who not, to speak to," about patients, he said, particularly later in the week when the surviving bombing suspect, Dzhokhar Tsarnaev, was brought to the hospital for treatment.

Continued on Page 12

ON THE COVER

BBs are revealed on the X-ray of a Boston Marathon bomb victim and subsequent amputee at Massachusetts General Hospital.



Photo by Bill Greene/The Boston Globe via Getty Images

CCTA Helps Predict Heart Attack Risk

Coronary CT angiography (CCTA) is an effective tool for predicting heart attack risk in patients with suspected coronary artery disease (CAD) and no medically modifiable cardiac risk factors, according to new research.

ANOTHER new study shows that the latest generation of CT scanners can provide excellent image quality at lower radiation doses than those of current scanners. Both studies were published in the May 2013 issue of *Radiology*.

In the first study, lead author Jonathon Leipsic, M.D., and colleagues at the University of British Columbia, Vancouver, correlated CCTA findings with the risk of major adverse cardiac events like heart attacks in 5,262 individuals with suspected CAD but no medically modifiable risk factors. Using data from the CCTA Evaluation for Clinical Outcomes: An International Multicenter Registry, researchers studied the degree of obstruction within specific cardiac blood vessels and within particular segments of those blood vessels.

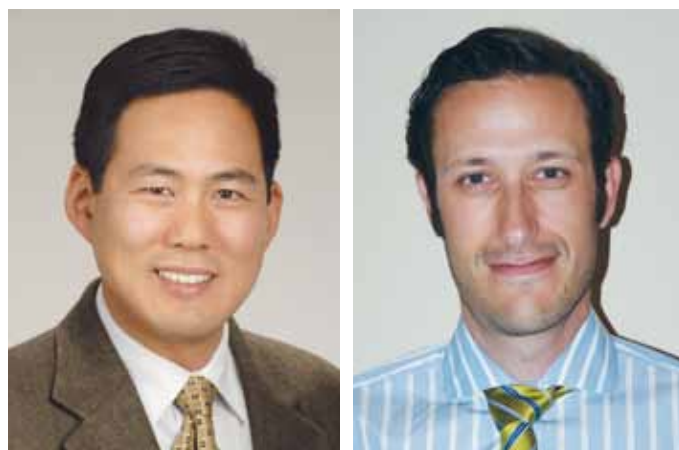
After an average follow-up of 2.3 years, 104 patients had experienced a major cardiac event. More than one-quarter of the patients exhibited obstructive disease or disease related to the buildup of plaque in the arteries, while another 12 percent had non-obstructive disease in which less than half of the vessel was blocked.

"Results show that coronary artery disease is quite common even without risk factors," Dr. Leipsic said. "This scenario comes up often in clinical practice with no good tools to stratify these patients into risk groups."

CAD patients with narrowing of the arteries on CCTA exhibited a much higher risk of an adverse cardiac event, even with no family history. By contrast, the absence of CAD on CCTA was associated with a very low risk of a major cardiac event. For those whose CCTA results showed no evidence of CAD, the annual risk of a major cardiac event was only 0.31 percent compared with 2.06 percent for those with obstructive disease on CCTA.

"Those without coronary artery disease on CCTA have a good prognosis," Dr. Leipsic said.

Dr. Leipsic said the results show a potential role for CCTA as a first line test for patients with unusual chest pain. "When patients without a family history and moderating risk factors come in with atypical pain, we've shown that CCTA can help identify whether they have a good, medium or bad prognosis and guide more appropriate treatment," he said. "Based on the location and severity of obstruction, we can identify patients who would derive benefit from surgical revascularization and those who would benefit from medical therapy such as statins."



Chen

Leipsic

Researchers are conducting a five-year follow-up on the study subjects to better understand the association between CCTA findings and long-term prognosis.

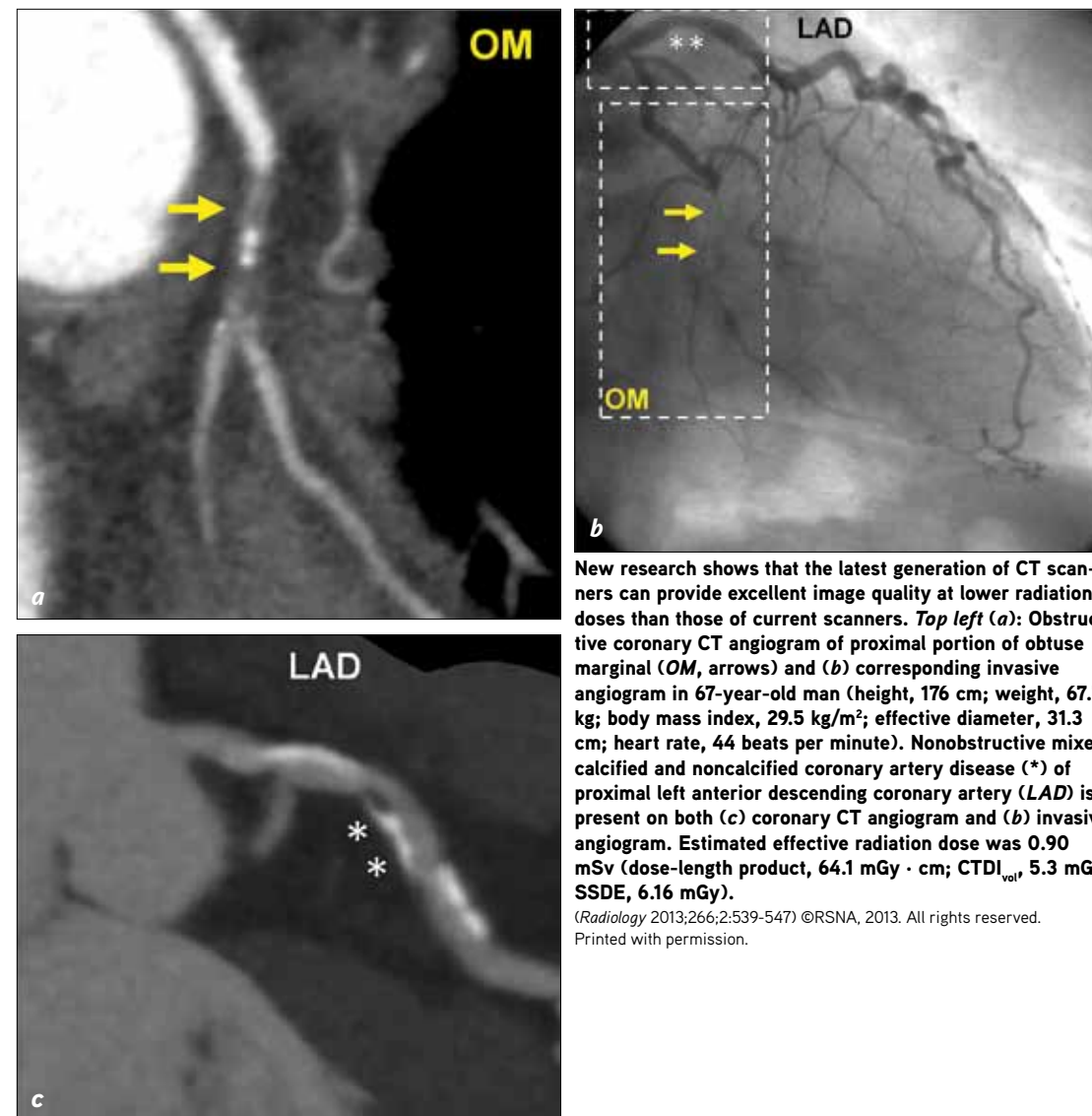
"The important take-home message here is that the value of CCTA is underappreciated," Dr. Leipsic said. "CCTA is the single best noninvasive tool we have for evaluation of the presence or absence of coronary artery disease."

New CT Scanners Reduce Dose, Maintain Image Quality

In the second study, Marcus Y. Chen, M.D., of the National Institutes of Health in Bethesda, Md., and colleagues used the second generation 320-detector row Aquilion ONE CT scanner from Toshiba Medical Systems to perform CCTA on 107 patients with a mean age 55.4 years. The scanner made its U.S.

"CCTA is the single best noninvasive tool we have for evaluation of the presence or absence of coronary artery disease."

Jonathon Leipsic, M.D.



New research shows that the latest generation of CT scanners can provide excellent image quality at lower radiation doses than those of current scanners. **Top left (a):** Obstructive coronary CT angiogram of proximal portion of obtuse marginal (OM, arrows) and (b) corresponding invasive angiogram in 67-year-old man (height, 176 cm; weight, 67.7 kg; body mass index, 29.5 kg/m²; effective diameter, 31.3 cm; heart rate, 44 beats per minute). Nonobstructive mixed calcified and noncalcified coronary artery disease (*) of proximal left anterior descending coronary artery (LAD) is present on both (c) coronary CT angiogram and (b) invasive angiogram. Estimated effective radiation dose was 0.90 mSv (dose-length product, 64.1 mGy · cm; CTDI_{vol}, 5.3 mGy; SSDE, 6.16 mGy).

(*Radiology* 2013;266:2:539-547) ©RSNA, 2013. All rights reserved. Printed with permission.

debut at RSNA 2012 after earning approval from the U.S. Food and Drug Administration (FDA) a month earlier.

"This CT scanner has five times as many detector rows as a standard scanner," Dr. Chen said. "For the study, we used all the available features including the fastest gantry rotation time and the latest version of iterative reconstruction to reduce image noise and preserve image quality."

Researchers compared image quality and radiation exposure in millisieverts (mSv) between the new scanner and an older machine. With the new scanner, the effective radiation dose measured 0.93 mSv compared with 2.67 for the older scanner, without sacrificing image quality, Dr. Chen said.

"When we compared the image quality of the new scanner with the old one, it was better in three of four quality metrics," he said.

The lower radiation dose from the new machine expands the cardiac imaging possibilities for CCTA beyond looking for CAD anatomy, Dr. Chen said. "Since we can significantly reduce radiation, this opens up possible new applications such as cardiac perfusion imaging," he said. "For example, you could perform a stress test in a CT scanner to examine how well the heart muscle is perfused with blood under stress conditions."

The new generation scanner would also have applications outside of the heart, Dr. Chen added. "Cardiac is some of the hardest imaging to perform and if you can do that type of imaging successfully, you can image other parts of the body as well," he said. Researchers are continuing to accrue data and now have information on more than 400 subjects. □

WEB EXTRAS

☑ To access, "Cardiovascular Risk among Stable Individuals Suspected of Having Coronary Artery Disease with No Modifiable Risk Factors: Results from an International Multicenter Study of 5262 Patients," go to radiology.rsna.org/content/early/2013/02/11/radiol.13121669.full.

☑ To access "Submillisievert Median Radiation Dose for Coronary Angiography with a Second-Generation 320-Detector Row CT Scanner in 107 Consecutive Patients," go to radiology.rsna.org/content/early/2013/01/17/radiol.13122621.full.

Research Sparks Debate on Teleradiology Benefits

New research showing that teleradiology services are highly reliable for emergency department (ED) off-hours CT is renewing debate about whether the benefits of teleradiology outweigh what some experts caution are considerable disadvantages.

PRESENTED in March at the European Congress of Radiology (ECR), the retrospective study of more than 1,000 patients over a five-month period at the University College Hospital in London found a lower than 1 percent rate of serious missed interpretations. Staff and teleradiologists agreed in four out of five cases, with only insignificant discrepancies. Findings were also published in the August 2012 edition of the *European Journal of Radiology*.

"I don't have any quality concerns about a teleradiology approach for emergency examinations," said Joachim Hohmann, M.D., lead author of the study and a researcher in the imaging department at the University Hospital of Basel, Switzerland.

In the study of after-hours CT teleradiology service reports, CT studies comprised 437 women and 591 men with a mean age of 51 years and an age range of 0 to 97 years. Research was conducted between December 2009 and April 2010. The interpretations were conducted by a teleradiology service provider with offices in the U.K. and Australia. Exams were read in the U.K. location from 7 p.m. to 9 p.m., and from 9 p.m. to 8 a.m. in Australia. About half the studies involved the head and neck; most others were for the abdomen or chest. On average, between eight and nine studies were read per night.

All the reporting radiologists, teleradiologists and hospital staff had received equivalent training.

Results showed a small rate (0.8 percent) of proven serious misinterpretations by the teleradiology service provider, but this rate was lower than in comparable studies with preliminary in-house staff reports (1.6-24.6 percent), Dr. Hohmann said. "The results of this study support the use of an outsourced after-hours teleradiology reporting service regarding the issue of quality concerns of such an attempt," the authors concluded.

Experts Discourage Reliance on Teleradiology Nevertheless, some experts say significant obstacles exist to widespread use of international teleradiology in the U.S. and warn that reliance on teleradiology companies will drive down reimbursements and lead to commoditization.

Telemedicine in the U.S. has grown substantially since the mid-1990s when transmitting very large images first became feasible on a wide scale. While statistics are scattered, the American Telemedicine Association estimates that half of U.S. hospitals use



Hohmann



Levin



Novelline

some form of telemedicine and that teleradiology likely accounts for a large percentage of the usage. Smaller hospitals routinely send images to be read by specialists at large academic medical centers, and both hospitals and radiology practices use teleradiology providers for after-hours coverage. VRad, one of the largest teleradiology companies, reports 2,700 client facilities and 7 million reads annually.

“Even assuming that the teleradiologists in this study did a great job, I still think that outsourcing night calls is bad for radiologists.”

David Levin, M.D.

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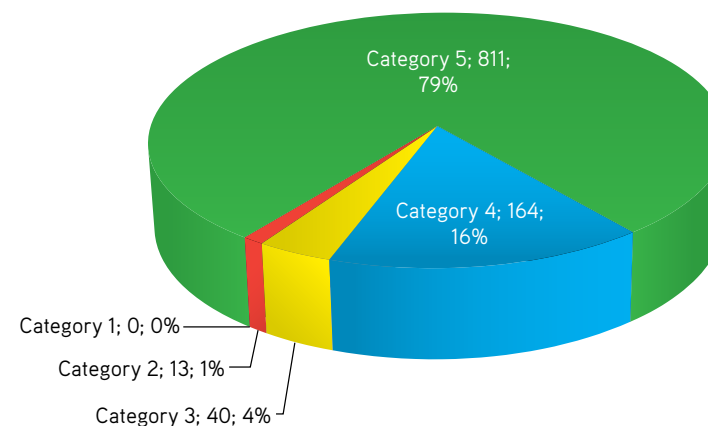


Table 1

Definition of the 5 agreement categories used by the in-house panel for the evaluation of the after-hours teleradiology reports.

Category	Criteria
5	No disagreement
4	Disagreement over style and/or presentation of the report including failure to describe clinically insignificant features
3	Clinical significance of disagreement is debatable or likelihood of harm is low
2	Definite omission or interpretation of finding with strong likelihood of moderate morbidity but not threat to life
1	Definite omission or misinterpretation with unequivocal potential for serious morbidity or threat to life

In research designed to assess the quality of outsourced after-hours CT teleradiology service reports, five agreement categories were used by the in-house panel for the evaluation of the reports. Above: Distribution of the agreement categories of all 1,028 patients [category; numbers; percentage]. There is a majority of Category 5 reports (no disagreement) and no Category 1 reports (definite omission or misinterpretation with unequivocal potential for serious morbidity or threat to life). The 13 Category 2 reports (definite omission or interpretation of finding with strong likelihood of moderate morbidity but not threat to life) are evaluated in more detail and patients were followed up for a maximum of six months.

Image courtesy of Joachim Hohmann, M.D.

While he acknowledges the usefulness of teleradiology for smaller hospitals and groups lacking subspecialty expertise, David Levin, M.D., professor and chairman emeritus of the Department of Radiology at Thomas Jefferson University Hospital, Philadelphia, said he draws the line after that.

"Even assuming that the teleradiologists in this study did a great job, I still think that outsourcing night calls is bad for radiologists," Dr. Levin said. "My feeling is that it commoditizes the whole field. You're saying to your physician colleagues, 'We're an important part of patient care, but only until 5 p.m. After that, we don't really care what happens to the patients and we'll let guys you don't know read these studies.' I don't like the message it sends."

That reliance on teleradiology companies will drive down reimbursements, said Dr. Levin, who was awarded the RSNA Gold Medal in 2009. "Right now, let's say Medicare pays a radiologist roughly \$70 to read an MR imaging exam," he said. "These companies will read an MR imaging exam for \$30 to \$35. When the word gets out that a board-certified radiologist will read an MR imaging exam for \$35, payers will ask why they should pay \$70. The radiology community is unhappy that these reimbursements have been ratcheting down, but I think these teleradiology companies are part of the reason."

Teleradiology Faces Regulatory Hurdles

Robert Novelline, M.D., a former professor of radiology and director of emergency radiology at Massachusetts General Hospital, Boston, calls the research "a nice addition to the literature" and says it illustrates how dramatically radiology has been changed by access to high-quality transmission of images. But even though excellent images can be read half a world away, there are still significant obstacles to widespread use of international teleradiology in the U.S., he said.

The biggest hurdle is regulatory, he said. Credentialing and licensing requirements can often make it difficult to read studies in the next town, let alone in Australia or India. "If someone is going to read one of our CT scans, he or she has to be board-certified in the U.S., and have a Massachusetts medical license. In addition, that person must have passed all the credentialing

requirements of the Massachusetts General Hospital," Dr. Novelline said. "And in order to bill for the exam, it has to be interpreted on U.S. soil."

Likewise, if Dr. Novelline reads a study remotely for another hospital, he also must be fully credentialed at that hospital. If the facility is in neighboring New Hampshire, he must also hold a New Hampshire medical license. Dr. Novelline predicts that the increasing use of telemedicine may eventually lead to national licensing, as state-based licensing becomes too unwieldy.

There's more to quality of care than accurate reads, Dr. Novelline added. Unlike staff radiologists, teleradiology companies often aren't in a position to influence the quality of the images, even though they're taking legal responsibility for reading them. Nor can they offer the physical proximity often necessary to ensure exam quality.

"We cover several hospitals and our CT technology managers visit each of them to make sure the right protocols are being used," he said. "We check the quality of every exam to make sure it's done correctly and is diagnostic. This is one of the biggest challenges of a teleradiology practice—if the images aren't of high quality, the reader could miss something. If I was reading a bad, non-diagnostic exam, I would need to have it repeated or arrange an alternative examination. It's easy to do that if the patient and the technologist are on site right around the corner."

Dr. Hohmann agrees that teleradiology poses a number of challenges and stresses that compromise is the best approach.

"Taking everything into account, my personal opinion is that we have no choice about whether we want teleradiology or not—it is already here. But we have a choice about how to use and regulate it to its full effectiveness and prevent patients from any potential harm," Dr. Hohmann said. "That means we have to find reasonable compromises between the pros and cons of teleradiology."

WEB EXTRAS

To access the study, "Quality Assessment of Out Sourced After-Hours Computed Tomography Teleradiology Reports in a Central London University Hospital," go to Sciedirect.com/science/article/pii/S0720048X12001866.

Ketogenic Diet Aids Cancer Patients' Sensitivity to Radiation, Chemotherapy

Putting cancer patients on a ketogenic diet that forces the body to burn fats preferentially rather than carbohydrates may sensitize cancer cells to radiation therapy and chemotherapy, according to new research.



WHILE normal cells produce energy by using oxidative metabolism to break down glucose, fatty acids and amino acids, cancer cells are believed to have mitochondrial electron transport chain defects creating increased levels of reactive oxygen species (such as hydroperoxides) and oxidative stress, relative to normal cells. To compensate for the increased oxidative stress, cancer cells appear to depend upon glucose metabolism to remove hydroperoxides.

The high-fat ketogenic diet restricts the amount of glucose in the blood, forcing cancer cells to rely more heavily on oxidative metabolism, according to Bryan Allen, M.D., Ph.D., of the Radiation Oncology Department at the University of Iowa (UI), whose project was funded through a 2010-2011 RSNA Research Resident Grant.

"The ketogenic diet reduces glucose metabolism decreasing the production of the antioxidant co-factor, NADPH, necessary for hydroperoxide metabolism while increasing the cancer cell dependence on mitochondrial oxidative metabolism," Dr. Allen said. "This results in increased oxidative stress in cancer cells, theoretically making them more sensitive to traditional chemotherapy and radiation."

A ketogenic diet, which is 90 percent fat, 8 percent protein and 2 percent carbohydrates, has been used for at least two decades in the treatment of epilepsy and grand mal seizures in juvenile patients. Dr. Allen's research focused on two cancers with poor outcomes: pancreatic and lung.

Researchers conducted animal trials before moving to patients in Phase I clinical trials. In that phase, two patients were placed on the ketogenic diet for five to seven weeks and entered ketosis before undergoing traditional radiation or chemotherapy. A standard of care at UI for pancreatic cancer patients eligible for this trial is radiation and gemcitabine; for lung cancer patients eligible for the trial, a standard care is radiation and carboplatin-taxol, according to Douglas R. Spitz, Ph.D., a professor and director of the Biosciences Program and Free Radical and Radiation Biology Program in the UI Holden Center's Department of Radiation Oncology.

"In this trial, we have two patients who stayed in ketosis for six weeks and they were able to complete a course of radiation and chemotherapy," said Dr.

Spitz, who is Dr. Allen's mentor. "They didn't appear to have any adverse events during the therapy that could be related to the diet."

Physicians Must Monitor Adverse Events

Because the diet is so high in fat, physicians must keep a close eye on patients for possible adverse events. If a patient gets sick, physicians need to examine the patient's lipid levels and blood counts to determine if the diet is the source of the illness. "If there's any evidence that there is problem with the lab tests or is having significant side effects associated with chemo-radiation therapy, we reduce the amount of fat in the person's diet or take them off the protocol," Dr. Allen said.



Allen

“Traditional cancer therapies are based on exploiting the cellular differences between cancer cells and normal cells. A ketogenic diet may further enhance these metabolic differences in lung cancer cells making them more sensitive to traditional chemotherapy and radiation.”

Bryan Allen, M.D., Ph.D.

Still, the idea of putting a sick patient on what would normally be considered an unhealthy diet could be a source of some concern, according to John Michael Buatti, M.D., chair of the radiation oncology department and a clinical investigator who also served as a mentor to Dr. Allen.

"The concept is a little bit counterintuitive to the way most people think about cancer," Dr. Buatti said. "We have always worried about maintaining nutrition and if anything, trying to make sure patients didn't potentially lose weight during their cancer therapy." But for patients battling cancer, the ketogenic diet may offer benefits that researchers say can potentially outweigh its high-fat protocol. "The ketogenic diet, which doesn't necessarily cause weight loss but does manipulate metabolism, had a very profound impact in terms of overall responsiveness of tumors relative to normal tissues in animal models," Dr. Allen said. "It's a very innovative way to approach sensitizing cancers to other therapies and the patients only need to eat the diet for six weeks."

"Traditional cancer therapies are based on exploiting the cellular differences between cancer cells and normal cells," Dr. Allen continued. "A ketogenic diet may further enhance these differences in lung and pancreas cancer cells making them more sensitive to traditional chemotherapy and radiation."

Another benefit of this approach is that it empowers patients to be actively involved in their treatment. "As opposed to just coming in and receiving chemotherapy or radiation therapy, patients are doing something with their diet that can also potentially help their treatment," Dr. Buatti said.

Researchers Plan Phase II of Study

Researchers plan to complete Phase I of the study this year and have submitted their findings in animals to the *Clinical Cancer Research Journal* for review. They are also applying for a renewal of a National Institutes of Health grant to fund Phase II of the study.

Dr. Allen credits the RSNA Research Resident Grant for laying the foundation for this and future research. "The RSNA grant provided the funds to perform many of the preclinical studies (animal studies and metabolic studies) necessary to move the ketogenic diet from the bench to the clinic," he said. "From this initial funding, we determined that a ketogenic diet is tolerable, safe and effective in animals and felt comfortable moving on to a Phase I clinical study." □

GRANTS IN ACTION

NAME:

Bryan Allen, M.D., Ph.D.

GRANT RECEIVED:

RSNA Research Resident Grant

STUDY:

"Sensitization of Lung Cancer to Chemo-Radiation Therapy Using Ketogenic Diets"

CAREER IMPACT:

"The RSNA Research Resident Grant allowed me to obtain preliminary data that will aid in applying for future grants, specifically a National Institutes of Health grant that will greatly assist in my goal of becoming a physician scientist," Dr. Allen said.

CLINICAL IMPLICATION:

"Since ketogenic diets are relatively non-toxic and are well tolerated in human therapy protocols (such as epilepsy), these studies have the potential to allow for both improved cancer control as well as reduced normal tissue toxicity through de-escalation of radiation and/or chemotherapy doses without sacrificing efficacy," Dr. Allen said.

For more information on all R&E Foundation grant programs, go to RSNA.org/Foundation or contact Scott Walter, M.S., Assistant Director, Grant Administration at 1-630-571-7816 or swalter@rsna.org.

Radiology Gives Front-line Aid to Boston Bombing Victims

Continued from Page 6

Efficient communications in a crisis is something that will have to be reexamined, said Drs. Kruskal and Brink. "Communications remain paramount through crises such as this," Dr. Brink said. "We rely on conference calls scheduled throughout the day for managers and directors to call in to a central number to report on their respective activities and coordinate our clinical service provision going forward. Alerts for these calls are communicated largely via email. If Internet or phone services are disrupted, our ability to coordinate our activities is compromised, prompting us to consider alternative means of communicating should these tools fail."

Beeper systems are basically obsolete in these days of rapid communications. "Beeper systems are pretty much limited by the number of people on the list," Dr. Kruskal said. "So we're aggressively looking to see how we can text large groups of people and keep them informed with even larger amounts of information."

Finally, the psychological impact of an event like this on radiology staff needs to be considered. "I don't think many of us slept very well for a couple of days," Dr. Avery said.

Dr. Rocha worked until about 8 p.m. the day of the bombing, but said the emotional toll of that afternoon and night didn't begin to hit until the next day. "The next few days were kind of emotional," she said. "It was a very sad week." The chair of the radiology department commended Dr. Rocha and other radiology personnel for their performance on that day and checked in on their emotional wellbeing.

"That is exactly the way to handle such a traumatic incident," Dr. Kruskal said. "Many radiology staff members saw things the day of the marathon bombings they had never seen before. That can be difficult, and as department leaders we have to be there to provide emotional support—not only for the extreme one-off situation, but on a continuing basis." □

Online Tools Take Radiology's Patient Focus to a New Level

To more fully engage with patients, radiologists are going where their patients are: online.

RADIOLOGISTS at private practices, hospitals and academic settings are responding to consumers' increasing reliance on the Internet by continually expanding their websites and presence on social media like Facebook and Twitter.

Electronic media are a great way to share news and information on imaging services and extend the brand of the institution. In addition to using the Internet for one-way communication, administrators and marketing experts are using a variety of tools to increase interactivity on their websites—from posting patient testimonials and videos to adding online scheduling and patient satisfaction surveys.

Statistics show radiology is headed in the right direction. According to the Pew Research Center, online resources have become a significant source of information for Americans. A national telephone survey of 3,000 adults conducted by the center's 2010 Pew Research Internet & American Life Project revealed that:

- 80 percent of Internet users have searched online for health information
- 25 percent of Internet users have watched an online video on health or medical topics
- 18 percent of Internet users have looked online for other individuals with similar health concerns.

Massachusetts General Helps Patients Connect the Dots

Last year, more than 82,000 users visited *Massgeneralimaging.org*, one of two websites managed by Boston's Massachusetts General Hospital (MGH) Radiology Department to schedule an appointment or learn about the latest advances in medical imaging.

The most often visited pages are those that describe the hospital's imaging procedures and offer information on advances in medical imaging, as well as the 'find a doctor' feature, according to Kristen L. Dean, director of marketing for the hospital's radiology department. For example, type in '3-D mammography' on Google and the MGH page on breast tomosynthesis regularly comes up in the top results of organic searches.

"The online information and personal stories help connect the dots for patients on the vital roles radiology and imaging can play in guiding their treatment decisions and getting them healthy," Dean said.

Using Facebook and Twitter allows MGH Radiology to be more topical and conversational in a



The patient experience is central to the Massachusetts General Hospital Imaging website (*Massgeneral.org/imaging*) which posts firsthand accounts of patients who have undergone imaging procedures. Chris C. Dracopoulos, an 87-year-old patient who needs frequent CT scans, expressed his gratitude for the attention and care he receives at Mass General Imaging Chelsea in an article featured on the website. From left: Dracopoulos with Chelsea staff Lily Nie, R.N.; CT technologist Stacy Martone; and customer service representatives Maria Rosa-Torres, Carmen Henao and Kara Sullivan.

Image courtesy of Massachusetts General Hospital

format designed to both inform and elicit feedback. Recent Facebook posts included updates on the conditions of Boston Marathon bombing patients, information on the department's child life specialist dedicated to helping pediatric patients (which drew 13 comments) and the department's response to a study in *The Lancet* about children and CT scans, which drew 590 Web page views.

Patients "Ask an Expert" at St. Paul Radiology

At St. Paul Radiology in Minnesota, *Stpaulradiology.com* emphasizes both convenience and service. In addition to allowing patients to download instructions on procedure preparation or pay a bill, the site also gives consumers the opportunity to pose a medical question to a staff radiologist.

"Our 'Ask an Expert' feature has been a big hit," said John E. Messerschmidt, director of practice development at St. Paul Radiology. "We typically receive

"Video testimonials offer an authentic and balanced view of the patient experience that people can relate to."

Kristen L. Dean

about one to two questions a day. Depending on the specific clinical question raised, the question will be directed to the most appropriate radiologist. People appreciate getting a response directly from a radiologist."

St. Paul Radiology, which gets 7,000 hits a month, also uses its website to help assess patient satisfaction and allow patients to share their experiences with others. Within 24 hours of leaving a St. Paul Radiology imaging center, patients who share their email address receive a short electronic survey about their experience. The survey includes questions on how the patient was greeted, the scheduling and check-in processes and the likelihood the patient would recommend and/or return to the imaging centers for future needs. If any survey responses do not meet the patient's expectations, the practice's operations director is consulted for follow-up.

"Our patients are in a very unique position to offer us valuable insight and perspective to help guide us in being patient-driven," Messerschmidt said.

Through the online survey as well as a feedback form located on the website, patients can share comments about their visit which are then posted (with permission and without names) on the site's popular "Our Patients Speak" page.

"Patients like seeing the comments," Messerschmidt said. "We've been getting phenomenal reviews. Ninety-eight percent of patients are pleased with our service."

UCLA Radiology Spotlights Patient Experiences

At the University of California, Los Angeles (UCLA), Radiology website, *Radiology.ucla.edu*, which serves a health system with two major hospitals and outpatient and imaging centers, online content complements the department's extensive community outreach activities.

"Twenty to 30 percent of our patients come from outside the L.A. area and use the website to learn about UCLA," said Brenda M. Izzi, R.N., M.B.A., chief administrative officer, UCLA Department of Radiology. "We provide patients with an overview of our services and use *RadiologyInfo.org* to provide additional detail."

RadiologyInfo.org is the public information website developed by RSNA and the American College of Radiology (ACR) (see sidebar). UCLA's radiology website, which is supported by university marketing staff, also features an entire page devoted to patient experiences and success stories.

One professionally produced patient video—complete with music accompaniment and an off-camera narrator—focuses on a new center of excellence at UCLA, a program to treat a condition called hereditary hemorrhagic telangiectasia (HHT). The four-minute video features interviews with patients, the center's director and footage of a diagnostic MR imaging procedure.

Other videos on the website feature interviews with women talking about having uterine fibroids



The University of California, Los Angeles (UCLA), Radiology website, *Radiology.ucla.edu*, features videos of patient experiences including women talking about having uterine fibroids and their decision to seek treatment at UCLA, as well as patients recounting their experiences surviving a stroke and an aneurysm. Each vignette is accompanied by an explanation of the patient's treatment along with images and diagrams.

and their decision to seek treatment at UCLA, as well as patients recounting their experiences surviving a stroke and an aneurysm. Each vignette is accompanied by an explanation of the patient's treatment along with images and diagrams. Rounding out the Web page are links to news stories that have appeared on Los Angeles-area television stations featuring UCLA imaging services. "We get a lot of attention from local news shows looking for human interest stories," Izzi said.

Websites are Works in Progress

All three institutions are continually updating and enhancing their websites, adding new features and streamlining content to ensure functionality and ease of use.

A new branding effort is underway at UCLA, while MGH is preparing its first video patient testimonials for posting. "Video testimonials offer an authentic and balanced view of the patient experience that people can relate to," Dean said. "A patient can say 'I underwent this anxiety-producing procedure but I came out on the other side OK and I want to tell you about it.'"

At St. Paul Radiology, administrators will soon add new educational materials to the website—but only after first soliciting the opinions of former and potential patients through a new patient advisory board.

"We were making decisions on what education materials to put on our website and realized we were working in a silo," Messerschmidt said. "We want to sit down with patient representatives and comb through materials that we provide pre-and post-imaging and ask, 'What's important to you? Do you have the resources you need?'"

"It's taking our patient-focused effort to another level." □

WEB EXTRAS

Massachusetts General Hospital: *Massgeneralimaging.org* offers patients information on imaging procedures, treatments and services, a 'Find a Doctor' feature and more.

St. Paul Radiology: *Stpaulradiology.com* allows patients to download instructions on procedure preparation or pay a bill, as well as pose a medical question to a staff radiologist, among other features.

The University of California, Los Angeles: *Radiology.ucla.edu* features professionally produced patient videos and interviews with patients talking about their conditions and experiences at UCLA, among other features.

RadiologyInfo.org: The RSNA-ACR (American College of Radiology) public information website serves as a resource for patients and a patient-communication tool for referring physicians. Online tools include more than 130 radiologic procedures and disease descriptions, the "Your Radiologist Explains" video series and a library of medical illustrations and anatomical drawings.

Radiology Cares: The Art of Patient-centered Practice (RadiologyCares.org): A library of online resources support RSNA's Radiology Cares campaign designed to help radiology professionals become more meaningfully engaged in the patient experience and to help patients become more comfortable with their radiology experiences. Imaging professionals can also Take the Pledge to practice patient-centered radiology.

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YOUR DONATIONS IN ACTION

With a grant from the RSNA Research & Education (R&E) Foundation, **Nabeel Ali**, a first year medical student at Albany Medical College and an aspiring academic radiologist, is devoting his summer to cardiac imaging research with Udo Hoffmann, M.D., M.P.H., an associate professor of radiology at Massachusetts General Hospital, Boston.



“Recently, our group has described and validated a specific CT signature of atherosclerotic plaque known as the “Napkin-Ring Sign” (NRS), characterized by a center of low-CT attenuation representing a lipid rich core in histopathology surrounded by a rim-like area of high-CT attenuation representing fibrous tissue. Coronary plaques exhibiting such morphology are known to be at high risk for rupture and may identify patients at high risk for future cardiovascular events. We have developed an automated computational algorithm for the detection of the NRS CT signature in cross-sectional images of coronary vasculature imaged by coronary CT angiography under ex-vivo conditions and our preliminary data indicate reasonable accuracy as compared to histology.”

“We plan to improve and mature this algorithm into a robust clinical tool for the non-invasive evaluation of coronary atherosclerotic plaques,” he added. “Further, we will evaluate the effect of different image reconstruction algorithms on our technology’s performance – this could significantly improve risk stratification and treatment of patients.”

Spyridon P. Lazarou, M.D.
 Lynn K. Lecas, M.D. & Alan Arcara
 Jungsuk Lee, M.D.
 Willy J. Loretan, M.D.
 Eyal Lotan, M.D., M.Sc.
 Amalan Mahalingam, M.B.B.S.
Vasanth & Mahadevappa Mahesh, M.S., Ph.D.
 Ana Maliglig, M.D., M.P.H.
 Laurene C. Mann, M.D. & John Loughlin
 Milagros & Danilo J. Martinez, M.D.
 Robert B. Mason, M.D.
 Richard A. Mauceri, D.O.
 Adil R. Mazhar, M.D.
 Suzanne M. McIntyre, M.D.
 Ahmet Memis, M.D.
 Zafiria Metafratzi, M.D.
 Mehran Midia, M.D.
 Kristine M. Mosier, D.M.D., Ph.D.
 R. Laurence Moss, M.D.
 Margie & John R. Muhm, M.D.
 Kieran J. Murphy, M.D.
 Yoshifumi Narumi, M.D.
 Luigi Natale, M.D.
 Alexis V. Nees, M.D.
 Jananne F. & Michael T. Nelson, M.D.
 Edward P. Nicholas, M.D.
 Slavka Nikolic, M.D., M.Sc.
 Cesar H. Nomura, M.D.
 Reuben O. Obaro, M.D.
 Marcia B. Oliva, M.D.

David A. Oppenheimer, M.D.
 Nikolaos Pantelidis, M.D.
 Isabele Parienty-Boyer, M.D.
 Jagdish M. Patel, M.D.
 Ana P. Piana, M.D.
 Erica Poletto, M.D.
 Santhosh Poyyamoli, M.B.B.S.
 Andrés F. Puerta, M.D.
 Frank A. Raia, M.D.
 Alexander Rainer, M.D.
 Kristin & Charles E. Ray Jr., M.D.
 Justo Rodriguez, M.D.
 Trevor A. Rose, M.D.
 Neal H. Rosner, M.D.
 Afrasyaw Rostam, M.B.Ch.B.
 Wilhelm Ruempler, M.D.
 Rafia S. Saleem, M.D.
 Fernando G. Salmon, M.D.
 David J. Schengber, M.D.
 Mark Sellmyer, M.D., Ph.D.
 Gonzalo A. Serrano, M.D.
 Michael E. Shahan, M.D.
 Audrey & W. Caldwell Sims, M.D.
 Aziz L. Slim, M.D.
 Dana H. Smetherman, M.D., M.P.H. & Charles Freeman
 Spencer M. Smith, M.D.
 Bruno Solis, M.D.
 Lyda Grimaldo & Josue Solis Ugalde, M.D.
 Gloria Soto Giordani, M.D.

Robert M. Steinberg, M.D.
 Nathan Stofberg, M.D.
 Garrett W. Stover, M.D.
 Alicia Stratta, M.D.
 Artur Synowiecki
 David Tagni Zukam, M.D.
 Hafsat Ahmed & Nasiru M. Tahir, M.B.B.S.
 Frank A. Raia, M.D.
 Takashi Tanaka, M.D.
 George A. Taylor, M.D.
 Gill M. Taylor-Tyree Sr., M.D.
 Philip Teitelbaum, M.D.
 Malaika C. Thompson, M.D.
 Thomas N. Thompson, M.D.
 Tiffany M. Tucker, M.D.
 Howard R. Unger Jr., M.D.
 Christie & Bradford R. Uricchio, M.D.
 Kalyani Vallurupalli, M.D.
 Deena & Heath Van De Linder, D.O.
 Christos E. Vassiliou, D.O.
 Jennifer T. Wargo, M.D.
 Jerold B. Weinberg, M.D.
 Lewis Wexler, M.D.
 Robin & Clifford R. Wolf, M.D.
 Judith A. Wolfman, M.D.
 Truls Wright-Nilssen, M.D.
 Ching-Lan Wu, M.D.
 Steve L. Yang, M.D.
 Salvina Zrinzo, M.D.

GRANT FUNDING FOR 2013 TOPS \$3 MILLION

Earlier this spring, the RSNA R&E Foundation Board of Trustees, chaired by James P. Borgstede, M.D., approved an all-time high funding level for its 2013 research and education grant awards. “This year we are providing more than \$3 million in grant funding for 85 research and education projects, another record for the Foundation,” Dr. Borgstede said. “As

the chair of the R&E Foundation Board of Trustees, I thank all of our generous donors and I am proud to say 85 percent of contributions to the Foundation are used to fund grants.”

Since its inception in 1984, the Foundation has awarded \$40 million to more than 950 young investors.



Borgstede

RSNA Clinical Trials Workshop Lays Groundwork for R&E Grant Recipient

Before he was awarded a 2013 Research & Education (R&E) Seed Grant, **Chadwick L. Wright, M.D., Ph.D.**, participated in the RSNA Clinical Trials Methodology Workshop where he gained the critical knowledge that strengthened his grant application.

In January 2013, Dr. Wright, an assistant professor, Division of Molecular Imaging and Nuclear Medicine, Department of Radiology, the Ohio State University Wexner Medical Center, Columbus, participated in the workshop that offers clinical investigators a week-long opportunity for one-on-one mentoring and instruction in clinical research design, regulatory issues, biostatistics, ethics and other topics, as well as specific guidance in crafting protocols for imaging clinical trials.

A week later, Dr. Wright submitted a successful application for the grant to fund his project, “PET/CT-Derived Hepatopulmonary Shunt Fraction Following Yttrium-90 Radioembolization.” Dr. Wright credits the Clinical Trials Methodology Workshop for ensuring the success of his grant application.

“I would not have been able to make my proposal as strong without using what I learned in the RSNA Clinical Trials Workshop,” Dr. Wright said. “I hope to be scanning my first post-Yttrium-90 radioembolization patient on our PET/CT scanners starting in July.”

Journal Highlights

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

MR Imaging of Cardiac Tumors and Masses: A Review of Methods and Clinical Applications

While most cardiac masses are initially detected with echocardiography, cardiac MR imaging is becoming an established method for further assessment by providing versatile imaging planes, superior tissue contrast and advanced tissue characterization.

In an article in the July issue of *Radiology* (RSNA.org/Radiology), Manish Motwani, M.B.Ch.B., of the University of Leeds, England, and colleagues provide a detailed description of a core protocol for the MR assessment of cardiac masses and tumors and illustrate the different imaging characteristics of the most common types of mass, with case examples.

Knowledge of the MR imaging features of cardiac neoplasms and other masses is important for establishing an accurate diagnosis, avoiding misinterpretation of normal variants, and staging, directing appropriate therapy and evaluating prognosis in confirmed tumors, according to the authors.

"Cardiac MR imaging features reliably detect thrombus and have been shown to accurately differentiate between benign and malignant tumors," the authors write. "A core protocol of MR sequences as described in this review allows the morphology, anatomy, tissue characteristics, and functional impact of a suspected tumor to be assessed in a single examination."



Left ventricular thrombus in a 55-year-old man with a history of myocardial infarction. A mass was seen at transthoracic echocardiography, which prompted further evaluation with MR imaging. B, There was no uptake of contrast agent in the mass (arrow) at EGE imaging, which suggested it was avascular. The combination of an avascular mass overlying a regional wall motion abnormality with demonstrable infarction confirmed the diagnosis of left ventricular thrombus.

(*Radiology* 2013;268:1:26-43) ©RSNA, 2013. All rights reserved. Printed with permission.

Radiology

Sacroiliitis Associated with Axial Spondyloarthritis: New Concepts and the Latest Trends

MR imaging is the most recent innovation and important change with respect to the previously established classification criteria for axial spondyloarthritis. Along with serving as a biomarker of disease activity, MR imaging allows monitoring and provides guidance for the treatment of affected patients.

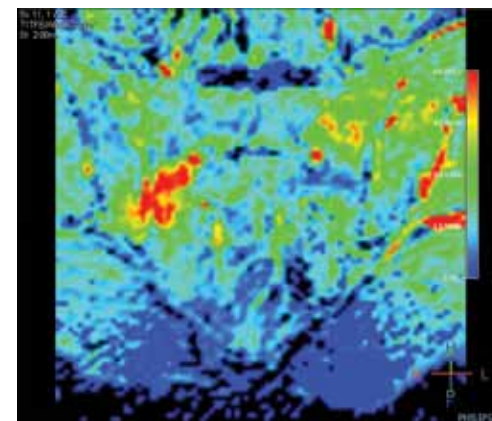
As MR imaging becomes more central to caring for these patients, familiarity with the anatomy, anatomic variants and physiologic changes of the sacroiliac joints is important for correctly interpreting findings and avoiding misdiagnosis, according to an article in the July-August issue of *RadioGraphics* (RSNA.org/RadioGraphics), by Maria Navallas, M.D., of the IDIMAR CRC Mar-Hospital del Mar, Barcelona, Spain. Specifically, the authors discuss:

- Relevant aspects of assessment for spondyloarthritis, with an emphasis on sacroiliitis
- Classification criteria, anatomy and imaging techniques and findings used for diagnosis and follow-up
- MR imaging protocol, common acute and chronic findings and the definition of a positive MR imaging study
- Different methods of monitoring disease activity, including diffusion-weighted imaging and dynamic contrast material-enhanced imaging.

MR imaging has become the new biomarker of disease activity because of its capacity to help detect inflammatory changes, even in advanced stages in which ankylosis of the sacroiliac joint has emerged, according to the authors.

"More important, MR imaging is able to help quantify inflammatory activity, which makes it ideal for monitoring disease activity and for guiding treatment of sacroiliitis," the authors write.

The article is accompanied by two invited Commentaries.



Right-sided sacroiliitis. Color map from computer-assisted diagnostic analysis of dynamic contrast-enhanced MR imaging data clearly depict the areas in which the ROIs were placed.

(*RadioGraphics* 2013;33) ©RSNA, 2013. All rights reserved. Printed with permission.

This article meets the criteria for **AMA PRA Category 1 Credit™**. SA-CME is available in print and online.

RadioGraphics

Radiology in Public Focus

A press release was sent to the medical news media for the following article appearing in a recent issue of *Radiology*.

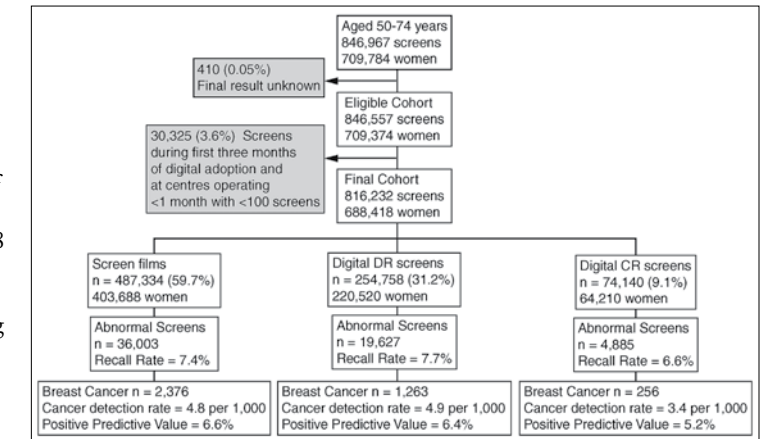
Digital Compared with Screen-Film Mammography: Performance Measures in Concurrent Cohorts within an Organized Breast Screening Program

ALTHOUGH digital direct radiology (DR) is equivalent to screen film mammography (SFM) for breast screening among women aged 50-74 years, the cancer detection rate was lower for computed radiography (CR) in large concurrent cohorts in a recently published study.

Anna M. Chiarelli, Ph.D., of Cancer Care Ontario, Toronto, and colleagues examined concurrent cohorts of women 50-74 years of age screened with DR (220,520 patients), CR (64,210) or SFM (403,688) between 2008 and 2009 and followed the patients for 12 months. Performance was compared between cohorts, with SFM as the referent cohort. Associations were examined by using mixed-effect logistic regression.

DR detected 4.9 cancers per 1,000 mammograms, SFM detected cancer at a rate of 4.8 cancers per 1,000 mammograms and CR detected 3.4 cancers per 1,000 mammograms, results showed.

"Our findings are not consistent with those of earlier studies examining CR; however, our study is larger and compared concurrent cohorts," the authors write. "This study suggests that screening programs offering both DR and CR should monitor the performance of each technology separately and may consider informing women of the potentially lower cancer detection rates with CR."



Mammographic screening examinations in the Organized Breast Screening Program between 2008 and 2009 included in the cohort.

(*Radiology* 2013;268:3:InPress) ©RSNA, 2013. All rights reserved. Printed with permission.

Media Coverage of RSNA

In April, 436 RSNA-related news stories were tracked in the media. These stories reached an estimated 451 million people.

Coverage included *Chicago Tribune*, *The Miami Herald*, *The Edmonton Sun*, *The Calgary Sun*, *Toronto Star*, *Wisconsin State Journal*, *The Daytona Beach News-Journal*, KARE-TV (Minneapolis/St. Paul), Yahoo! News, *U.S. News and World Report* – Online, *MSN.com*, *Reuters.com*, *WebMD* and *iVillage.com*.



ASNR Launches Patient Information Website

The American Society of Neuroradiology (ASNR) recently launched a patient information website aimed at enhancing patients' understanding of neuroradiology procedures and conditions. The site, ASNR.org/patientinfo, informs patients about what to expect during procedures, gives background on specific diseases and explains the neuroradiologist's role in diagnosing and treating various conditions.

JULY OUTREACH PUBLIC INFORMATION ACTIVITIES FOCUS ON SPINE CT

The July RSNA "60-Second Checkup" radio segments focus on CT imaging for spinal injuries and are being distributed to nearly 100 radio stations across the country.

RadiologyInfo.org Posts New "Your Radiologist Explains" Videos

Visit RadiologyInfo.org, the RSNA and the American College of Radiology's (ACR) jointly-sponsored public information website, to view recently posted "Your Radiologist Explains" videos, including:

- Breast lymphoscintigraphy
- Hysterosalpingography
- Sonohysterography

To check out the nearly 60 other video presentations on topics related to X-ray, CT, MRI, ultrasound, radiation therapy and interventional radiology, visit the RadiologyInfo.org Images and Videos gallery.

Education and Funding Opportunities



RSNA/AUR/ARRS Introduction to Academic Radiology Program

SPONSORED BY RSNA, the American Roentgen Ray Society (ARRS) and Association of University Radiologists (AUR), the Introduction to Academic Radiology program:

Applications due
July 15

- Exposes second-year residents to academic radiology
- Demonstrates the importance of research in diagnostic radiology
- Illustrates the excitement of research careers
- Introduces residents to successful clinical radiology researchers

Successful applicants will be assigned to either a seminar held during the RSNA Scientific Assembly in Chicago, December 1-6, 2013 or the ARRS Scientific Meeting in San Diego, May 4-9, 2014.

More information and application forms for this program are available at RSNA.org/Introduction_to_Academic_Radiology.aspx. Questions can be directed to Fiona Miller at 1-630-590-7741 or fmiller@rsna.org.

RSNA Advanced Course in Grant Writing

Applications due
July 31

APPLICATIONS are now being accepted for this course designed to assist participants—generally junior faculty members in radiology, radiation oncology or nuclear medicine programs—prepare and submit a National Institutes of Health (NIH), National Sciences Foundation (NSF) or equivalent grant application. The course, to be held at RSNA Headquarters in Oak Brook, Ill., will consist of four two-day sessions: September 27-28, 2013; February 7-8, 2014; March 21-22, 2014; and April 25-26, 2014.

For more information and an application, go to RSNA.org/AGW or contact Fiona Miller at 1-630-590-7741 or fmiller@rsna.org.



Medical Meetings

July-September 2013

JULY 28-31

The Association for Medical Imaging Management (AHRA), 41st Annual Meeting and Exposition, Minneapolis Convention Center

• www.ahraonline.org

AUGUST 4-8

The American Association of Physicists in Medicine (AAPM), 55th Annual Meeting, Indianapolis

• www.aapm.org

AUGUST 16-18

Latin America Society of Pediatric Radiology (SLARP), 16th Congress, Julio Cesar Turbay Ayala Convention Centre, Cartagena, Colombia

• www.slarp.net

SEPTEMBER 4-7

Sociedad Mexicana de Radiología e Imagen/Mexican Society of Radiology and Imaging (SMRI), XII Curso Annual de Ultrasonido, 12th Annual Ultrasound Course, World Trade Center, Mexico City

• www.smri.org.mx

SEPTEMBER 8-11

Radiology Business Management Association (RBMA), Fall Educational Conference, Seaport Boston Hotel

• www.rbma.org

SEPTEMBER 14-18

Cardiovascular and Interventional Radiological Society of Europe (CIRSE), 28th Annual Congress and Postgraduate Course, Barcelona, Spain

• www.cirse.org

SEPTEMBER 18-21

Canadian Association of Radiation Oncology (CARO), Canadian Organization of Medical Physicists (COMP), 2013 CARO-COMP Annual Scientific Meeting, Hilton Montréal Bonaventure

• www.caro-acro.ca

SEPTEMBER 18-21

World Molecular Imaging Society (WMIS), European Society for Molecular Imaging (ESMI) and the Federation of Asian Societies for Molecular Imaging (FASMI), 2013 World Molecular Imaging Congress (WMIC), Savannah, Ga.

• www.wmicmeeting.org

SEPTEMBER 19-22

European Society of Urogenital Radiology (ESUR), 20th European Symposium of Urogenital Radiology, Harbiye Museum and Cultural Centre, Istanbul, Turkey

• www.esur2013.org

SEPTEMBER 22-25

American Society for Radiation Oncology (ASTRO), 55th Annual Meeting, Georgia World Congress Center, Atlanta

• www.astro.org

FIND MORE EVENTS AT
RSNA.org/calendar.aspx

RSNA Faculty Development Workshop

Registration opens
July 1

REGISTRATION for the RSNA Faculty Development Workshop, a day-long course on the best techniques for designing and delivering radiology education, opens July 1. The workshop will focus on how adults—especially physicians—learn best and how faculty can use test questions to improve their teaching.

The workshop will be led by RSNA Board Liaison for Education Valerie P. Jackson, M.D., Eugene C. Klatte Professor and Chair of the Department of Radiology and Imaging Sciences at the Indiana University School of Medicine in Indianapolis, and David J. DiSantis, M.D., associate residency program director, professor and quality, safety and compliance medical director in the Department of Radiology at the University of Kentucky, Lexington. It will be held September 18 at the Westin O'Hare Hotel, providing convenient access for attendees flying into Chicago. Most participants can fly in and out of Chicago on the same day. RSNA staff and faculty will be on hand to discuss specific questions with participants.

The workshop fee is \$150. Registration, housing and workshop information is available at RSNA.org/Faculty_Development_Workshop.aspx. For more information, contact Jennifer Comerford at jcomerford@rsna.org or 1-630-590-7772.



Jackson



DiSantis

2013 CORE Workshop

Registration deadline
September 26

THE 2013 Creating and Optimizing the Research Enterprise (CORE) workshop will be held Friday and Saturday, Oct. 25 and 26, 2013, in Oak Brook, Ill. The workshop will focus on strategies for developing and/or expanding research programs in radiology, radiation oncology and nuclear medicine departments. The CORE Program features a combination of presentations, case studies and group discussions.

More information and registration is available at RSNA.org/CORE.

Residents & Fellows Corner

Survey: Residents Worried about Effects of Healthcare Reform on Job Prospects

Ninety-nine percent of chief residents responding to a recent survey said they are at least a little worried about the current job market, with 33 percent reporting they are very worried. More than 67 percent reported they have not begun looking for a job. The survey, administered by the American Alliance of Academic Chief Residents in Radiology (A3CR2), elicited responses from 134 chief residents representing 99 unique radiology residency programs.

Nine in 10 respondents felt that, in light of healthcare reform, practices will try to increase their volume to maintain a similar salary despite the lower reimbursement rates. As for the effect of reform on the attractiveness of the radiology specialty, 70 percent believe reform will discourage top-tier medical students from choosing radiology. About

40 percent of respondents felt that the effects of healthcare reform will prompt practices to look for radiologists trained in more than one fellowship.

Views on the new American Board of Radiology Core Examination in Diagnostic Radiology are mixed. Advantages cited by respondents included how the new exam incorporates physics into clinical knowledge, allows residents to synthesize their fund of knowledge earlier in training and provides the same test-taking experience to all trainees. Respondents also noted disadvantages, including the 15-month wait period post-graduation to be board certified, making it more challenging to find a job.

The exam will eventually be administered during the third year of radiology residency. More than half of the respondents reported that their programs

will allow residents to take time out of the call-pool to prepare; a quarter of programs plan to give residents time off service and nearly 70 percent plan to administer an internal board review.

Regarding senior selectives or "mini-fellowships," the survey revealed that 80 percent of programs plan to offer seniors more focused rotations, on average a total of 24 weeks during the year, to provide an additional concentration on knowledge outside of fellowship, supplement their planned fellowship, or fill in gaps of knowledge prior to graduation. Many programs plan for seniors on these rotations to function fully or partially as fellows.

Read the full results of the 2013 Chief Resident Survey, as well as results from previous surveys, at aur.org/Secondary-Alliances.aspx?id=501.

Annual Meeting Watch

Course Enrollment Begins July 10

The RSNA 2013 Advance Registration, Housing and Course Enrollment brochure was mailed in late June to all RSNA members and 2013 non-member meeting registrants and will be available starting July 10 online at RSNA.org/Attendees.aspx. Use this brochure to make the most of your RSNA 2013 experience. With information organized to help you complete your enrollment in just a few steps, find the courses you need, build your schedule and enroll quickly and easily online or via the print form.

Guarantee Your Seat!

Tickets are required for various meeting components, including refresher, multisession, informatics workshops and RSNA tours and events.

All ticketed courses must be confirmed prior to November 27 to guarantee a seat. RSNA ticketed courses fill up fast, so ensure you get the courses you need by enrolling at RSNA.org/register. There is no onsite course ticketing. Registrants without tickets will be allowed entrance into a course after all ticketed registrants have been seated.



BUY BISTRO RSNA TICKETS NOW

Avoid long lines by purchasing Bistro RSNA tickets earlier this year.

Advance tickets to Bistro RSNA—which provides a comfortable setting for attendees to eat, meet, and network during the annual meeting—are only \$20.

Bistro RSNA is located in all Technical Exhibit Halls and the Lakeside Learning Center. The daily lunch menu includes salads, soup, entrée choices, vegetables, pasta and more. Menu price includes full meal, beverage choices and dessert.

Purchase tickets in advance during online registration at RSNA.org/register.

RSNA 2013 Registration

How to Register

There are four ways to register for RSNA 2013:

1 INTERNET (fastest way)

Go to RSNA.org/register

2 FAX (24 hours)

1-888-772-1888

1-301-694-5124

3 TELEPHONE

(Mon.-Fri. 8 a.m. – 5 p.m. CT)

1-800-650-7018

1-847-996-5876

4 MAIL

Experient/RSNA 2013

P.O. Box 4088

Frederick, MD 21705 USA

Registration Fees

	BY NOV. 8	AFTER NOV. 8	
\$ 0	\$100	RSNA/AAPM Member	
0	0	RSNA/AAPM Member Presenter	
0	0	RSNA Member-in-Training, RSNA Student Member and Non-Member Student	
0	0	Non-Member Presenter	
180	280	Non-Member Resident/Trainee	
180	280	Radiology Support Personnel	
825	925	Non-Member Radiologist, Physicist or Physician	
825	925	Hospital or Facility Executive, Commercial Research and Development Personnel, Healthcare Consultant and Industry Personnel	
325	325	One-day registration to view only the Technical Exhibits	

Important Dates for RSNA 2013

July 10	Course enrollment opens
October 25	International deadline to have full conference badge mailed
November 8	Final housing and discounted registration deadline
November 27	Deadline to guarantee a seat for all ticketed courses
December 1-6	RSNA 99th Scientific Assembly & Annual Meeting

Virtual Meeting

\$ 0	RSNA Member-in-Training, RSNA Medical Student Member and Retired RSNA Member
\$100	RSNA/AAPM Member
\$300	Non-Member



Register by November 8 to receive the discounted registration fee and full conference materials mailed to you in advance. International visitors must register by October 25 to receive these materials in advance. Registrations received after November 8 will be processed at the increased fee and conference materials must be obtained at the McCormick Place Convention Center.

For more information about registering for RSNA 2013, visit RSNA.org/Attendees.aspx, e-mail reginfo@rsna.org, or call 1-800-381-6660 x7862.

Hotel Deposits Required

A \$300 deposit is required to confirm your hotel reservation. Reservations may be secured with a major credit card at the time of booking. The credit card must be valid through December 2013 and will be charged by the hotel approximately two weeks before the annual meeting. Registrants may also send a check, money order or wire transfer (payable to RSNA) for the hotel deposit. (Attendees are responsible for all wire transfer fees).

Four new hotels have been added for RSNA 2013:

- The Langham Chicago
- Aloft Chicago City Center
- Fairfield Inn & Suites River North
- Hyatt Place Chicago River North

Searching the RSNA 2013 list for a hotel where you previously stayed, but can't find the name? Please note these new hotel names (former names in parentheses):

- Thompson Chicago (Sutton Place)
- The Wyndham Grand Chicago Riverfront (Hotel 71)



Exclusive Airline Discounts

American Airlines

AA.com offers a 5 percent discount on the lowest applicable published airfare. Use promotional code 31D3AY when booking your reservation with AA.com. You can also call American (1-800-433-1790) and mention the American promotional code to be eligible for discounted fares. Service fees will apply when booking over the phone. Discounts are available on American Airlines, American Eagle and American Connection. Reservations involving any one-world Alliance or codeshare partner airlines must be booked via phone.



United

United.com offers a 2 to 10 percent discount off published fares and class of service. Save an additional 3 percent if booked online. Use promotional code ZNSV777175 when booking your reservation on United.com. You can also call United (1-800-426-1122) or your personal travel agent and mention the United agreement code 777175 and Z code ZNSV to be eligible for discounted fares. Service fees may apply. Discounts are applicable for the following travel dates: November 28, 29 and December 4 through December 8.



Gant Travel Management

RSNA attendees who book air travel through Gant Travel experience the following benefits:

- Fare-checker technology (checking for lower fares until your return flight home)
- Seat-checker technology (checking for the best available seats per your preference)
- Emergency assistance available by phone
- Flight monitoring alerts

For more information, contact Gant Travel at 1-877-613-1192, international +1 011 630-227-3873, or rsna@ganttravel.com.



5K Fun Run

Tuesday, December 3, 6:30 a.m.
Arvey Field, South Grant Park, Chicago

Enjoy a 5K event with your colleagues along Chicago's beautiful Lake Michigan shore and help fuel critical research to enable the best care for our patients. During online registration or onsite at McCormick Place, you can sign up as a runner or walker for the 5K Fun Run. The signup donation of \$40 will benefit the RSNA R&E Foundation and is fully tax deductible. Participants receive a commemorative T-shirt.



The Value of Membership

RSNA 2012 Refresher Courses Now on Sale

For a limited time, RSNA is offering discount pricing on selected refresher courses from past annual meetings. These collections are available at a 25 percent discount until October 31, 2013. Each collection includes an audiovisual presentation, a line-by-line transcript and offers *AMA PRA Category 1 Credit™* for each successfully completed CME test.

• **Breast Imaging/New Technologies:** Two CDs, “Mammographic Interpretation” and “Computer-assisted Decision Systems in Breast and Lung Imaging” explore the effect of new technologies on breast imaging and their implications for clinical practice. The Breast Imaging/New Technologies Collection offers 3.00 *AMA PRA Category 1 Credits™*. \$60 members/\$90 non-members.



• **Neuroradiology:** Two CDs, “Advanced Neurovascular MR Angiography” and “Brain Perfusion Imaging: Techniques and Applications,” assess patients who have, or are at risk for developing, some of the most common neurological conditions. The Neuroradiology Collection offers 2.50 *AMA PRA Category 1 Credits™*. \$60 members/\$90 non-members.



• **Musculoskeletal:** Three CDs, “Emerging Techniques in Musculoskeletal Imaging,” “Imaging of Upper Extremity Entrapment Neuropathies” and “Osteoporosis: Clinical and Imaging Features,” provide a comprehensive review of the hottest areas of musculoskeletal radiology. The Musculoskeletal Collection offers 4.50 *AMA PRA Category 1 Credits™*. \$90 members/\$130 non-members.



To purchase these collections at the discounted rate, go to the RSNA Education Center catalog at [RSNA Education™](http://RSNA.org/education/search/collections) RSNA.org/education/search/collections or call 1-800-272-2920.

RSNA Staff Retirement

In spring 2013, RSNA said goodbye to an employee with nearly 30 years' worth of service to the Society's publications.

Sue Harmon, 28 years

Just four years after joining RSNA in March 1985 as a manuscript editor, Sue became the first managing editor of *RadioGraphics*. Sue held that position until her retirement on May 31, serving under the journal's second editor, William W. Olmsted, M.D., and current editor Jeffrey S. Klein, M.D. In addition to overseeing publication of thousands of articles in the education journal during her tenure, Sue led the journal's expansion to the Web and more recently, mobile devices. Sue also helped the journal's editors implement popular new features such as online CME tests, teaching points, and sections focusing on topics such as resident issues and quality.

“As *RadioGraphics'* first and only managing editor, Sue has made a lasting and indelible impression on the journal,” Dr. Olmsted said. “Through her passion and hard work, creativity and attention to detail, Sue has led the development of an educational platform that serves all of radiology in an era where education and CME in maintenance of certification are so important. The Teaching Points feature in the journal was Sue's idea and is only one example of her creative thinking. I know that Sue Harmon will be really missed by RSNA but her legacy will certainly last through *RadioGraphics'* future.”

“Sue's unflagging devotion to *RadioGraphics* has had a significant impact on the journal's success over nearly 25 years,” Dr. Klein added. “Her talents and efforts on our behalf have set a high standard for all of us who work in publications at the RSNA. Her energy, spirit, and ‘spunk’ will be greatly missed.”



Job Seekers, Employers Benefit from Career Connect

Whether you're looking for that ideal radiology job or the perfect candidate to fill such a position, RSNA's Career Connect is your one-stop resource for the radiology profession.

Job seekers can post resumes for free, create a Search Agent to specify job criteria and receive e-mails when the perfect job becomes available. Job ads are updated daily with the latest job listings in the field.

Employers can post job positions, receive e-mail notification when someone applies to an ad and access a large resume database. Employers can also enhance their candidate search for a minimum fee by placing an ad in the Employer Spotlight that runs along the top of all job search results pages.

For more information on Career Connect go to careers.rsna.org, which features news and updates, answers to frequently asked questions, a feedback/contact button and more.

RSNA.org

Redesigned IHE Website Features News from Around the World

The latest informatics news from North America and around the world is among the highlights of the colorfully redesigned Integrating the Healthcare Enterprise (IHE®) Website, *ihe.net*.

Along with a wide range of tools and resources, visitors to the image-rich site (accessible through the RSNA Informatics portal) can access news about the IHE initiative designed to improve the way healthcare systems communicate with each other and accelerate the adoption of electronic health records (EHRs). Reflecting IHE's global momentum, the easy-to-navigate site also features IHE Worldwide, connecting users to IHE events across the globe.

New to the page, the “IHE Spotlight” introduces visitors to the many expert volunteers who contribute their time to IHE. Other highlights include:

- ▶ **What's New**—Stay up-to-date on the latest IHE information and events from around the world, including Connectathon conferences.
- ▶ **Resources**—Access the familiar roster of tools for vendors and users of healthcare information systems including:
 - IHE Product Registry
 - User Handbooks
 - User Success Stories
 - Connectathon Results Database
 - Integration Profiles
 - Technical Frameworks
 - Testing Tools
- ▶ **Join Today**—A prominent, easy-access form organizations can use to apply for IHE membership



IHE Integrating the Healthcare Enterprise

COMING NEXT MONTH

Read about the upcoming launch of newly redesigned websites for *Radiology* and *RadioGraphics* offering new features including improved navigation and functionality, more in-depth search options and much more.



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