Nanotechnology Holds Potential in Imaging Diagnosis, Treatment of Cancer

**ALSO INSIDE:**

- MR Imaging Plays Key Role in Post-Op Metal-on-Metal Hip Arthroplasty
- Radiologists Urged to Think Beyond Reduction When it Comes to Pediatric Dose
- Radiology Leaders Criticize Congressional Imaging Cuts
- RSNA Journals Use Software to Fight Plagiarism

Submit RSNA 2013 Abstracts by April 10
See Page 23
Radiology Select
Coronary Artery Disease

THE ESSENTIAL COLLECTIONS FOR RADIOLOGIC SCIENCE

A continuing series of selected Radiology articles that highlight developments in imaging science, techniques and clinical practice.

Enrich your personal library with a new series from the finest peer-reviewed journal in the field:

- Radiology Select is a series of Radiology articles focusing on one subspecialty.
- Arranged conveniently into topical collections with author commentaries and educational opportunities.

Volume 3: Radiology Select Coronary Artery Disease Now Available:
- 29 essential Radiology journal articles focusing on cardiac and coronary artery imaging.
- Topics include basic image formation and artifacts on cardiac MR, radiation reduction methods and MR imaging techniques.
- Opportunity to earn up to 12.5 SAM credits and 12.5 CME credits with the Online SAMs Edition.

线上：包含额外的播客、视频以及作者撰写的评论文章。选择此选项以获得CME和SAM积分。

平板：获取数字化的Radiology Select，设备版中包括播客、视频以及客编和作者撰写的评论文章，也可在他们的全新网站上在线阅读。

印刷：专业印刷Radiology Select的文章，随时阅读。

选择最适合您需求的格式：

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

UP FRONT
1 First Impression
3 RSNA Board of Directors Report
4 My Turn

FEATURES
5 MR Imaging Plays Key Role in Post-Op Metal-on-Metal Hip Arthroplasty
7 Radiologists Urged to Think Beyond Reduction When it Comes to Pediatric Dose
9 Nanotechnology Holds Potential in Imaging Diagnosis, Treatment of Cancer
13 RSNA Journals Use Software to Fight Plagiarism

RADIOLOGY’S FUTURE
11 Radiology Leaders Criticize Congressional Imaging Cuts
15 R&E Foundation Donors

NEWS YOU CAN USE
18 Journal Highlights
19 The Value of Membership
19 Residents & Fellows Corner
20 Technology Forum
20 Radiology in Public Focus
21 Education and Funding Opportunities
23 Annual Meeting Watch
24 RSNA.org


RSNA Extends Support of Imaging Physics Residencies

The board of directors of the American Association of Physicists in Medicine (AAPM) has approved $560,000 for new imaging physics residencies, either diagnostic or nuclear medicine. With an additional $280,000 from RSNA, it will be possible to provide matching support for six new imaging residencies.

RSNA supports establishment of new imaging physics residency programs to fulfill projected staffing needs, provide comprehensive education, and prepare physicists to attain the American Board of Radiology (ABR) Qualified Medical Physicist (QMP) designation. Beginning next year, ABR will require medical physicists to complete an accredited two-year residency program in order to take board exams and achieve the QMP designation. According to a recent AAPM manpower assessment, at least 30 new diagnostic imaging medical physicists will be needed annually to meet current demands as well as those beyond 2014.

“Imaging physics residencies perform an important function by training physicists to work in a clinical environment,” said Dr. Schraufnagel, Ph.D., a clinical medical physicist and associate professor of radiology at the Mayo Clinic in Rochester, Minn. “The Mayo Clinic imaging physics residency was started in 1990 and has graduated 13 residents.”

“I encourage others to establish residency programs to ensure the availability of medical physicists with clinical training to support quality, safety and innovation in medical imaging,” said Dr. Schraufnagel, who serves as AAPM secretary.

In 2011, RSNA and AAPM combined a contributed $100,500 toward residents’ salaries at new programs created at MD Anderson Cancer Center in Houston, Duke University, Durham, N.C., and Upstate Medical Physics in Victor, N.Y. In addition to financial support, AAPM offers resources including descriptions of existing residencies, self-study documentation and business models.

Department interest in obtaining funding to create an imaging physics residency can get started at www.aapm.org/education/CertificationFellowships.asp. George S. Bisser, III, M.D., 2012 RSNA President, and N. Reed Dunnick, M.D., RSNA President-elect, will join AAFPPA’s Robert Pirruccello, M.D., Donald Peck, Ph.D., and Charles Willis, Ph.D., in the reviewing applications.

The Commission on Accreditation of Medical Physics Education Programs (CAMPEP) offers more information on the requirements for an imaging physics residency. Go to www.camprep.org/resguidelines.pdf.

Radiologist Marries During RSNA 2012

Amid the refresher courses, scientific sessions and special lectures, one RSNA 2012 attendee fit in another important event—Marius E. Mayerhofer, M.D., Ph.D., an assistant professor at Medical University of Vienna, wed Beatris Krauskopf, Ph.D., LLM, on Thursday, Nov. 29, 2012, during the RSNA annual meeting. After getting engaged in Rome in 2011, the couple agreed that RSNA 2012 would be the perfect opportunity to get married, as many of their friends and colleagues would be in town to celebrate. The couple was in search of a unique, unforgettable experience. “She instantly fell in love with Chicago, just like I did.” Dr. Mayerhofer said. “Both of us think it’s extremely impressive—in particular at nighttime when all the lights are bright—it’s very romantic.”

Their ceremony was held at the Mount Prospect, Ill., home of their officiant, the Rev. Pamela Macdonald. The couple hosted their reception at the Signature Room at the 95th®, atop Chicago’s John Hancock Center. Guests included 2007 RSNA Honorary Member Christian J. Harold, M.D., who postponed his flight to be present.

Numbers in the News

15 Number of “Connections” that have been hosted by the Integrating the Healthcare Enterprise (IHE) Initiative. Turn to Page 25 to learn more about the annual event, which helps participants work toward achieving interoperability in health information technology systems.

25 Minimum number of the 75 CME credits that must now be qualified as self-assessment CME (SA-CME) to meet requirements for Part II of Maintenance of Certification for diagnostic radiologists. Learn about the new requirements, and how RSNA can help physicians meet them, on Page 19.

15 Number of “Connections” that have been hosted by the Integrating the Healthcare Enterprise (IHE) Initiative. Turn to Page 25 to learn more about the annual event, which helps participants work toward achieving interoperability in health information technology systems.

25 Estimated cost, in billions of dollars, of the latest “doc-stop” fix that deters cuts to physician payment rates as mandated by the sustainable growth rate (SGR) formula. Read more about radiology leaders’ reactions to the latest Congressional actions on Page 11.

2,047 Number of retracted papers in the biomedical and life sciences since 1997. Misconduct was the reason for retraction in three-quarters of the cases, according to a study published in the Proceedings of the National Academy of Sciences. Turn to Page 13 to learn more about the tools and tactics editors are using to combat plagiarism in scientific publishing.

2013 Number of papers that have been retracted in the past year.

Apply Now for RSNA Editorial Fellowships

Applications are being accepted for the RSNA William R. Eyler Editorial Fellowship and the RSNA William W. Olmsted Editorial Fellowship for Trainees. Both fellowships offer the opportunity to work with Radiology Editor Herbert V. Kessel, M.D., in Boston and Radiographics Editor Jeffrey S. Klein, M.D., in Orlando, Fla. The Eyler fellowship lasts one month and the Olmsted fellowship lasts one week.

Each fellow will also visit the RSNA Publications and Communications Division at RSNA Headquarters in Oak Brook, Ill. The Eyler fellow will work with the Radiology Editorial team at RSNA 2013. Applications for the Olmsted fellowship are due April 1. The fellowship application deadline is May 1. Learn more at RSNA.org/Publications/editors_fellowships.cfm.

Set Up Group Billing for 2013

Practices or academic institutions with large numbers of RSNA members can take advantage of group billing to receive just one invoice during the next membership renewal cycle. To set up this option, contact the RSNA Membership Department at member_ship@rsna.org or 1-877-776-2636 (630-771-8783) outside the U.S. and Canada.

In Memoriam

RSNA joins the communities of radiation oncology and nuclear medicine in mourning the loss of two renowned physicians: 2005 RSNA Honorary Member Willis, Ph.D., and 2002 RSNA Honorary Member Henry N. Wagner Jr., M.D.

Rolf-Peter Mueller, M.D., Ph.D.

Dr. Mueller died September 19, 2012, at the age of 66. He developed the radiation therapy program in the German Hodgkin Study Group and was a founding member of the German Society for Radiation Oncology. He received the Hermann-Holthusen Ring, the highest award given to young scientists, from the German Roentgen Ray Society. In 1985, Dr. Mueller became the acting head of the Department of Radiation Oncology at the University of Cologne and was appointed director and head of the department in 1987, a position he held until his death.

Henry N. Wagner Jr., M.D.

Dr. Wagner died September 29, 2012, at the age of 85. He was professor emeritus of medicine and radiology at The Johns Hopkins University and founder of the university’s PET center. His pioneering work in imaging neuroreceptors paved the way for research in addiction and drug design and increased understanding of the physiology and pathophysiology of the brain. In 1993 he was awarded the first SNA President’s Award for Outstanding Contributions to Nuclear Medicine. During his 56-year association with Johns Hopkins, Dr. Wagner trained more than 500 radiologists, internists, physicians and scientists.
My Turn

Coordination = Care for Children Worldwide

The idea of forming a world federation of pediatric radiology came to me while attending a one-off international symposium on pediatric imaging organized in Rio de Janeiro in 2009. Pediatric radiologists gathered from all over the world to share their knowledge with colleagues who often struggle to attend meetings of such caliber. We had the beginnings of a global movement.

Yet between us there were tremendous differences in available practices and resources. We needed to coordinate efforts and advocate together for our subspecialty and the care of children worldwide. While diagnostic imaging services in modern medical settings have evolved enormously, even state-of-the-art healthcare can overlook our patients’ unique needs and the training required is simply out of reach for most lower-resource nations who already grapple with multiple challenges. Appropriate diagnostic imaging services are rarely integrated into the health plans of these nations, yet their pediatric populations are huge and these services save lives.

Created in 2011, the World Federation of Pediatric Imaging (WFPI) aims to unite pediatric imaging organizations to form one voice, one message and one network when addressing global challenges in pediatric imaging. How we will achieve our goals is context-dependent: active participation in global forums, for instance, via strong collaboration with the International Atomic Energy Agency, World Health Organization, Society of Radiology, American College of Radiology (ACR) and RSNA and sustained pediatric input into the International Society of Radiology. Mindful of the need for concrete deliverables, we are disseminating best practices and educational content through our own and other organizations’ websites; we’re also making recommendations and offering training, research and meetings while advocating for resource allocation and patient safety.

In lower resource settings, we demonstrate by doing. We provide tele-radiology services for Doctors Without Borders and for a new hospital in South Africa. More than 45 WFPI volunteers from all over the world tele-read some 350 radiographs between July and October 2012. We support a cross-border Ethiopia-South Africa training initiative and will participate in ACG’s project in Haiti. Our locally engaged project coordinators ensure the relevance of our input. The WFPI has evolved faster than we ever imagined. Its foundations have been laid and our dreamers are becoming doers, driven by the conviction that the access to and application of pediatric imaging are essential components of children’s basic healthcare.

The WFPI’s governing council currently represents the four regional founding societies—Society for Pediatric Radiology (North America), European Society of Pediatric Radiology, Latin American Society of Pediatric Radiology, and Asian and Oceanian Society for Pediatric Radiology—and is open to other regions of the world. National and supranational organizations can also join the WFPI. For more information, visit www.wfpiweb.org or contact wfpi.ofice@gmail.com.

This Month in the RSNA News Tablet

Access All-New Video Interviews on RSNA News Tablet Edition

Get more of this month’s news with the RSNA News Tablet Edition, available for download through the App Store and Google Play. March features video interviews with RSNA 2012 presenter Alice Ha, M.D., who discusses the role imaging plays in managing the increasing number of patients developing adverse reaction to metal dyes (ARMs), and also offers a video overview of the IHE North American Connection Conference. Access the RSNA News tablet edition from the App Store at itunes.apple.com/us/app/rsna-news/id440063179?mt=8 and Google Play at play.google.com/store/apps/details?id=org.rsna.rsnanews.

Use RSNA News Tablet Edition

Ronaldo L. Arenson, M.D.
Chairman, 2013 RSNA Board of Directors

New developments for RSNA 2013 include the relocation of the Lakeside Learning Center.
MR Imaging Plays Key Role in Post-Op Metal-on-Metal Hip Arthroplasty

While metal-on-metal hip arthroplasty became quite popular in the 1990s, and initially reported good outcomes, more and more patients are developing what is called adverse reaction to metal debris (ARMD), and imaging is playing an increasingly important role in managing patients, according to research presented at RSNA 2012.

“Second generation metal-on-metal implants have been complicated by adverse reaction to metal debris,” said Alice Ha, M.D., assistant professor of radiology at the University of Washington Medical Center in Seattle, who explained that ARM occurs when implants shed metal particles into the surrounding anatomy. These metal particles have been shown to cause local and systemic damage, and have led to some high-profile FDA hip replacement device recalls.

One condition that falls under the umbrella of ARMD is the development of soft tissue lesions or pseudotumors. Another presenter, Eric Y. Chang, M.D., assistant clinical professor of radiology at the University of California, San Diego, Medical Center, presented research showing that clinical symptoms do not help determine the presence of these pseudotumors in patients who have undergone metal-on-metal hip replacements.

This underscores the value of MR imaging in post-operative evaluation, Dr. Chang said. Interest in this area of research began after he and his colleagues noticed that with MR imaging they were finding pseudotumors in patients with metal-on-metal hip replacements even though many of these patients were not symptomatic.

One problem with metal-on-metal hip replacements is that the prosthesis has been shown to fail earlier than expected, necessitating orthopedic revisions, Dr. Chang said. These revisions are made more difficult, however, because of the presence of these large complex pseudotumors.

Dr. Chang and colleagues performed MR imaging examinations using the metal artifact reduction sequences (MARS) on 192 hips (175 patients) over a 15-month period. Pseudotumors were found in 69 percent of the cases (132 of 192 hips). Researchers also found that while bone marrow edema and tendon tearing were predictors of patient pain, the presence or the size of the pseudotumors was not, indicating that MR imaging is crucial in evaluating these patients.

While imaging is an integral part of patient management, researchers are not sure which patients require revision and which patients will be more difficult to revise based on imaging findings, Dr. Chang said. “We also do not know the natural history of asymptomatic patients with pseudotumors,” Dr. Chang said. “Can they improve or do they invariably worsen? If they can improve, are there imaging findings that can help identify these patients? If they invariably worsen, are there imaging findings that can identify which should go to surgery sooner so the operation can be technically simpler?”

These are questions that we hope to answer to improve patient care.

MR Imaging Helps Assess Muscle Atrophy, Guides Revision Surgery

MARS MR imaging is effective for surveillance of metal-on-metal hip arthroplasties and for diagnosing and characterizing pseudotumors and patterns of muscle atrophy, according to another RSNA 2012 presenter.

Shiraz Sabah, M.B.B.S., B.Sc., London, and colleagues performed MARS MR imaging on 179 patients who had undergone metal-on-metal hip arthroplasties and had unexplained hip pain (or, for control purposes, had excellent function) after a diagnosis of hip arthropathy. Researchers discovered that pseudotumors were common (40 percent) following hip arthropathy and can be symptomatic in 30 percent. In addition, they found, abductor muscle atrophy can indicate poor function.

“We believe that MR imaging permits better planning and timing of revision surgery, with potential for better outcome for patients,” Dr. Sabah said. “MR imaging is particularly useful for assessment of muscle atrophy and can prompt earlier intervention and guide choice of revision prosthesis.”

DECT Screens Patients with Retained Ballistic Projectiles

Dual-energy CT (DECT) can be used to distinguish between ferromagnetic and nonferromagnetic ballistic projectile remnants in patients who have suffered firearm wounds and consequently can determine which patients are suitable candidates for MR imaging, according to research presented at RSNA 2012.

Despite the idea that patients with firearm wounds are unsuitable for MR imaging if they have retained bullet fragments, recent research has shown that most bullets are safe to scan with MR imaging, said Sebastien Winklhofer, M.D., of the University Zurich, Institute of Forensic Medicine. For example, a study presented at the American Academy of Orthopedic Surgeons Annual Meeting demonstrated that MR imaging can safely scan patients with bullet fragments that are non-ferromagnetic.

“The main problem is that most patients do not know whether their retained projectile has ferromagnetic properties,” Dr. Winklhofer said. “Conventional radiographs have the potential to detect any metallic object within the patient; however, they are unable to provide any information on the composition of the object.”

DECT, on the other hand, is used in clinical radiology to assess the composition of different objects and materials. Dr. Winklhofer and colleagues investigated whether DECT had the ability to distinguish between ferromagnetic ballistic projectiles and those that consist of different materials, such as brass or lead.

Researchers examined 11 ballistic projectiles (nine bullets and two shotgun pellets, 5 ferromagnetic and 6 non-ferromagnetic) in an anthropomorphic model of the thorax using a 128-section dual-source CT scanner. Tube voltages were set at 80 kVp, 100 kVp, 120 kVp and 140 kVp and two readers independently assessed CT numbers on images reconstructed with an extended CT scale. Dual-energy indices (DEI) were calculated from both 80/140 and 100/140 kVp pairs.

According to the dual-energy analysis, DECT showed no significant difference regarding CT numbers in the comparison of ferromagnetic and non-ferromagnetic projectiles at any tube voltage. However, the dual-energy analysis showed that for both 80/140 kVp and 100/140 kVp pairs, DECT was able to discriminate between ferromagnetic and non-ferromagnetic with 100 percent accuracy.

“Dual energy CT appears to have the potential to screen patients with retained ballistic projectiles prior to MRI and distinguish between those who are suitable to undergo MRI and those who are not,” concluded Dr. Winklhofer. He cautioned that his study was carried out in a model and is not yet ready for clinical application; he and his colleagues plan to scan a larger number of objects in the future.
Radiologists Urged to Think Beyond Reduction When it Comes to Pediatric Dose

Optimization, not simply reduction, should be the goal when it comes to reducing radiation exposure from CT scans, particularly in pediatric cases, according to new research presented at RSNA 2012.

“We, as radiologists in conjunction with the technologies and physicists are responsible in determining the appropriate factors for every CT examination,” said Charles Glaster, M.D. “From my view, radiologists need to be in the lead and set the parameters so the technologists have a relatively narrow range of techniques they can use in most patients.”

Oversaturation remains an issue across the U.S. and the world as the number of CT examinations in children continues to increase annually. Presenters noted, however, that the number of exams is being reduced at pediatric hospitals. Balancing the risks for a particular patient can be complicated, they added.

Optimization over reduction is the goal of a new protocol presented by David B. Larson, M.D., M.B.A., of Cincinnati Children’s Hospital. He said the CT dose index (CTDI) should be converted to a size-specific dose estimate when imaging children, according to research presented at RSNA 2012.

“Many people are concerned about radiation dose and oversaturation from CT examinations,” said Dr. Tang, an associate scientist in the Department of Medical Physics at the University of Wisconsin-Madison. “We have demonstrated that with PICCS we are able to significantly reduce noise in the images and thus we are able to reduce radiation dose.”

An ultra-low-dose (ULD) CT scan was performed immediately after standard-dose clinical scans were performed on 13 patients. The ULD images were reconstructed with FBIP and PICCS, while the standard scans used only FBIP. All 63 of the high-contrast stones smaller than 2 millimeters were detected in standard dose with FBIP and ULD using PICCS. The ULD scans reconstructed only with FBIP detected 59.

“We have to do real clinical evaluations to establish the true benefit of this new technique,” Dr. Tang said. “We spent a lot of time performing clinical evaluations, but now we ask all radiologists to evaluate many images and make their judgment based on their own clinical observations.”

Evolving Reconstruction Techniques Preserve Quality, Reduce Dose

An iterative reconstruction method known as prior imaging constrained compressed sensing (PICCS) maintains the diagnostic quality of CT images while reducing dose when imaging for ureterolithiasis, according to research presented at RSNA 2012.

Jie Tang, Ph.D., found PICCS provides diagnostic image quality with a 19 percent mean radiation dose in sub-mSv CT scans for ureterolithiasis, which altered back projection (FBIP) images were non-diagnostic.

“Many people are concerned about radiation dose and oversaturation from CT examinations,” said Dr. Tang, an associate scientist in the Department of Medical Physics at the University of Wisconsin-Madison. “We have demonstrated that with PICCS we are able to significantly reduce noise in the images and thus we are able to reduce radiation dose.”

An ultra-low-dose (ULD) CT scan was performed immediately after standard-dose clinical scans were performed on 13 patients. The ULD images were reconstructed with FBIP and PICCS, while the standard scans used only FBIP. All 63 of the high-contrast stones smaller than 2 millimeters were detected in standard dose with FBIP and ULD using PICCS. The ULD scans reconstructed only with FBIP detected 59.

“We have to do real clinical evaluations to establish the true benefit of this new technique,” Dr. Tang said. “We spent a lot of time performing clinical evaluations, but now we ask all radiologists to evaluate many images and make their judgment based on their own clinical observations.”

Dual-energy, Cone-Beam Imaging Maintain Image Quality in other research presented at RSNA 2012, Wojciech Zbijewski, Ph.D., determined that image quality can also be maintained at reduced dose in dual-energy (DE) and cone-beam (CB) CT exams using advanced iterative decomposition methods. These methods are suitable for applications in musculoskeletal, vascular and interventional imaging, Dr. Zbijewski said.

Researchers were concerned with situations where contrast agents such as iodine must be discriminated from bone, Dr. Zbijewski said. “Dual-energy imaging has an easier way of discriminating them than through single-energy, but it is a very specific imaging task that you want to discriminate,” said Dr. Zbijewski, senior research scientist in the Department of Biomedical Engineering, Johns Hopkins University.

“That means potentially you can actually help yourself in terms of reducing the dose by tailoring your reconstruction methods toward just discriminating tissues and not necessarily being concerned about some other aspect of image quality,” he added.

The group found that they could use dual-energy imaging at doses around 3 to 6 mSv. By using the optimized reconstruction methods, they maintained 95 percent discrimination for contrast for 5 milligrams per liter of iodine. Dr. Zbijewski noted the potential for low-dose DE-CBCT will directly benefit iodine-enhanced arthrography.
Nanotechnology Holds Potential in Imaging Diagnosis, Treatment of Cancer

Diamonds, gold and other materials are helping to fuel new breakthroughs in medical nanotechnology for the imaging diagnosis and treatment of cancer patients, according to research presented at RSNA 2012.

Nanotechnology is based on the use of particles that have one or more dimensions measuring 100 nanometers or less. These nanoparticles have a greater surface area per weight than larger particles and are more reactive to some imaging agents and chemotherapy, making them a valuable asset in the burgeoning field of theranostics, the integration of therapeutic and diagnostic medicine.

For example, gold nanoparticles have the potential to detect individual cancer cells circulating in the blood and destroy them with a laser, said Vladimir Zharov, Ph.D., D.Sc., of the Weizmann P Rockefeller Cancer Institute at the University of Arkansas for Medical Sciences in Little Rock. Instead of drawing blood to look for cancer cells, clinicians could attach gold nanoparticles to biological molecules specific to cancer cells and inject them into the patient. Once attached to cancer cells, the gold nanoparticles could be seen with a laser beam and ultrasound transducer.

“If one single tumor cell passes the laser beam, it would produce an acoustic wave visible with conventional ultrasound technology,” Zharov said. “The same laser could be used to create transient nanobubbles due to water evaporation around nanoparticles for physically ‘killing the cancer cells.’”

Additional attachment of conventional drugs to gold nanoparticles—now in Phase II clinical trials in humans—provides enhancement of antitumor therapeutic and diagnostic medicine, according to Dr. Ho, Ph.D., and colleagues who have been studying nanodiamonds—insensitive, carbon-based particles made from the byproducts of mining and refining. Their multifaceted shape makes them ideal for binding with imaging agents and drugs.

“Conceivably, the test can be used to determine the aggressiveness of cancer based on the numbers of tumor cells circulating in the blood,” he said. “By counting the number of cancer cells, we can also predict treatment and see if drugs work or not in real time.”

Researchers are experimenting with various nanoparticles for different imaging applications. At the University of California, Los Angeles, Dean Ho, Ph.D., and colleagues have been studying nanodiamonds—insensitive, carbon-based particles made from the byproducts of mining and refining. Their multifaceted shape makes them ideal for binding with imaging agents and drugs.

“You can load imaging agents like gadolinium onto nanodiamonds,” Dr. Ho said. “Because of the surface facets, nanodiamonds attract water and you get a striking increase in imaging contrast efficiency.”

Nanodiamonds could also improve the effectiveness of chemotherapy drugs like doxorubicin.

“Many tumors are resistant to drugs because the cancer cells pump the drug out,” Dr. Ho said. “Nanodiamonds bind the drug so tightly, it gets stuck in tumor cells longer.”

Recent research highlights the potential of nanodiamonds to significantly reduce toxicity associated with chemotherapy. In a recent study on mice published in Science Translational Medicine, Dr. Ho’s group found that when they bound nanodiamonds to doxorubicin, the mice not only survived what had been a lethal dose, their tumors shrunk as well.

“Nanodiamonds further increase the efficacy of the drug,” he said. “This could make it possible to get the same effects from a lower dose.”

The research team is studying the technology in larger animal models with a push toward additional pre-clinical studies.

Silver Impregnated Central Venous Catheter Lines Reduce Infection Risk in Cancer Patients

Silver line impregnation reduces the incidence of catheter related bloodstream infections (CRBSI) in both single and double lumen long term central venous catheters (CVC), according to presenters at RSNA 2012.

Stivaros M. Stivaros, B.Sc.(Hons), M.B.Ch.B., F.R.C.R., Ph.D., a consultant neuroradiologist and clinical scientist at National Institute for Health Research (NIHR) and a lecturer at the University of Manchester, U.K., summarized the study’s clinical applications, saying that, “central venous catheter related infections have significant impact on patient morbidity and, worst of all, mortality, in cancer patients. In our patient cohort, silver impregnated lines reduced infection risk.”

Dr. Stivaros, also a research team member with The Christie, one of Europe’s largest cancer hospitals (also in Manchester), said the study was intended to assess whether the use of silver impregnation onto the polymer of the CVC reduces CRBSI in the cohort of cancer patients undergoing chemotherapy. Dr. Stivaros, also head of the Biomedical Decision Systems Group at the University of Manchester, collaborated on the research with Hans-Ulrich Laasch, dector of medicine, M.R.C.P., F.R.C.R., chief of intervention at The Christie and supervisor of the procedure team nurses.

Referred over 15 months for CVC insertion in the specialist cancer center, 1002 patients were randomized to receive either a standard or silver impregnated catheter. Except for silver contained in the catheter polymer, both catheters were identical. Patient follow-up continued until line removal and all removed lines were sent for microbiological culture.

Of the 1002 patients randomized, 981 patient follow-ups were evaluated. During the study, specialist nurses from the vascular access team placed 488 standard lines (393 single lumen and 93 silver lines) and 493 silver lines (390 single lumen and 103 double lumen). Of these, 175 catheters were removed for reasons of CRBSI, including 15.8 percent single lumen and 41 percent double lumen standard lines. In the silver impregnated group, the frequency of CRBSI fell to 97 percent single lumen and 35 percent double lumen.

Dr. Stivaros added, “As the additional cost for silver is approximately $50, extrapolating from this study, 10,000 patients all receiving silver impregnated lines would have had an additional $50,000 cost, but this would have saved $200,000 in additional CRBSI related costs, for a savings of $150,000.”
Radiology Leaders Criticize Congressional Imaging Cuts

While Medicare reimbursement rates are fixed for 2013, radiology leaders say the latest round of Congressional cuts targeting imaging are “ Draconian” and could hinder patient access to quality imaging care and stymie research.

In passing the 2012 American Taxpayer Relief Act (ATRA), the so-called “fiscal cliff” legislation, on Jan. 1, Congress bypassed a U.S. Centers for Medicare and Medicaid Services (CMS) proposal to cut overall physician payment rates by 2.5 percent as dictated by the sustainable growth rate (SGR) formula determining Medicare reimbursement rates. Congress has passed such a temporary “doc-stop” fix each year since 2003.

While radiology specialty leaders were pleased cuts were averted and current rates frozen through 2013, they are frustrated that Congress has yet to permanently fix the SGR formula, once again leaving physicians in a state of flux. To help pay for the stop-gap measure, estimated to cost $25 billion over 10 years, Congress approved $810 million in Medicare cuts to advanced medical imaging services and $500 million in cuts to radiation oncology. Both cuts begin on January 1, 2014.

“Extending the deferral of cuts to physician reimbursement rates is welcome but does not remove the Sword of Damocles hanging over the heads of practicing physicians in the U.S.,” said James Thrall, M.D., a nationally recognized expert in radiology and economics. “The piecemeal approach is demoralizing and paralyzes the ability to make plans.”

In addition—particularly in rural areas—could pay the price for the string of imaging cuts that will likely drive imaging services back to hospitals from non-hospital outpatient centers, Dr. Thrall said. Future research. Dr. Thrall and other radiology leaders warn, could be another casualty of the new law. “It is crucial that these Draconian cuts, in addition to the Medical Device Tax, not be allowed to permanently undermine the research and development in our specialty that is critical to all major healthcare delivery,” said William T. Thorwarth Jr., M.D., a nationally recognized expert on radiology economics and reimbursement and RSNA Board Liaison for Publications and Communications.

The Medical Device Tax, which went into effect Jan. 1, imposes on all medical devices a 2.3 percent sales tax that could trickle down to radiologists. The Medical Imaging and Technology Alliance (MITA) condemned the tax, saying it could hinder the development of medical imaging technologies, and ultimately obstruct research.

Considering ACR’s estimate that typical facilities—especially rural practices—operate imaging equipment closer to 50 percent of the time, the new law sets an unsustainable threshold for radiologists, Dr. Thrall said. “As someone personally involved in managing outpatient imaging facilities, I can say it is almost impossible to use equipment 90 percent of the time,” he added.

While pleased that Congress averted proposed Medicare reimbursement rate cuts, radiology leaders are criticizing legislators’ failure to permanently fix the flawed sustainable growth rate (SGR) formula determining those reimbursement rates, once again leaving physicians in a state of flux. “The piecemeal approach is demoralizing and paralyzes the ability to make plans,” said James Thrall, M.D.

In the face of ardent opposition from ACR and the AMA, legislators have chosen the annual stop-gap fix rather than the $300 billion cost of permanently repealing the flawed formula. But without a permanent solution, a similar scenario will undoubtedly unfold on Capitol Hill in 2014.

“It is critical that all physicians, including radiologists, understand that these one-year patches do not avoid impending reimbursement reductions that have been compounding annually for the past decade based on a faulty model—namely, the SGR formula,” Dr. Thorwarth said. “The cost of permanently resolving this issue continues to rise and, in these times of a rising deficit, creates a huge problem.”

Changing Perception Could Aid Imaging

The perception that radiology is a huge driver of healthcare costs is the primary driver of the seemingly never-ending string of imaging-related cuts. Radiology has experienced $6 billion in Medicare cuts for imaging services since 2006, according to ACR. However, a comprehensive analysis that the American College of Radiology (ACR) released this year shows that imaging use is down nearly 5 percent since 2006, and spending on imaging is down 21 percent over the same period. The research by Richard Duerrsiek, M.D., and Jonathan W. Berlin, M.D., appears in the October 2012 issue of the Journal of the American College of Radiology (JACR). (See sidebar.)

Such data could begin to change the perception that imaging is responsible for rapidly rising healthcare costs, experts say. “The debate might argue that imaging was growing too fast a decade ago and some of the initiatives such as imaging reimbursement cuts in the Deficit Reduction Act of 2005 were inevitable, but imaging costs are no longer growing faster compared to other Medicare services,” Dr. Thrall said.

As someone personally involved in managing outpatient imaging facilities, I can say it is almost impossible to use equipment 90 percent of the time.

James Thrall, M.D.
Editors of prominent science journals, including RSNA’s Radiology and RadioGraphics, are relying on plagiarism-detecting software and increased awareness to stem the rising incidence of misconduct such as plagiarism and falsification of data.

The pressure to publish is such that authors will tend to stretch what they’ve already produced and present it as original material.”  
— Jeffrey S. Klein, M.D.

Photograph: Jeffrey S. Klein, M.D.
Individual Donors

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

Aimee & Eric M. Ruben, M.D. 36,000
Amaru & Jeptha C. Cheema, M.D. 32,000
Jim R. Rubin, M.D. 30,000
Patricia H. Salk, M.D. 30,000
Gregory J. Schwarzmuller, M.D. 30,000
Mark E. Wheeler, M.D. 30,000
Frederick A. Mann, M.D. 30,000
McKinsey W. D. Lahey, M.D. 24,000
John S. Zerhouni, M.D. 24,000
Charles L. Nino, M.D. 24,000
Suzanne Freitag & William Abney 20,000
Joanne K. Kemeny, M.D. 20,000
Sam A. Goitein, M.D. 20,000
M. Keith H. Taplin, Jr., M.D. 20,000
William F. Schindler, M.D. 20,000
Thomas H. B. Milford, M.D. 20,000
Charles R. Martin, M.D. 20,000
Nancy D. D. Hauser, M.D. 16,000
Robert S. Smith, M.D. 16,000
Michael Appel, M.D. 16,000
Daniel B. Torack, M.D. 16,000
Robert A. H. Major, M.D. 16,000
William A. D. Cooper, M.D. 16,000
Jeffrey M. Dedrick, M.D. 16,000
John F. Castleden, Jr., M.D. 16,000
Robert A. Fagrell, M.D. 16,000
Anne E. Fitzgibbon, M.D. 16,000
Lee S. Gold, M.D. 16,000
Robert W. Davis, M.D. 16,000
Paul A. McGeer, Jr., M.D. 16,000
Harold E. Spitz, M.D. 16,000
Laura L. C. McLaughlin, M.D. 16,000
Yehuda Ben-Asher, M.D. 16,000
Barry E. Egan, M.D. 16,000
Pamela A. Seidman, M.D. 16,000
Katherine L. Almy, M.D. 16,000
Karen A. Nagle, M.D. 16,000
J. R. Walter, M.D. 16,000
Donald C. Green, M.D. 16,000
Michele C. Bauer, M.D. 16,000
Jeanne M. Besemer, M.D. 16,000
Ann M. B. Smith, M.D. 16,000
Lori A. S. Harkins, M.D. 16,000
Kathleen S. Dess, M.D. 16,000
Kevin J. Durkalec, M.D. 16,000
James J. Grenier, M.D. 16,000
David J. Lifton, M.D. 16,000
William J. Petit, M.D. 16,000
Kathryn P. Nyberg, M.D. 16,000
Laura S. Robinson, M.D. 16,000
William C. Plotz, M.D. 16,000
Lee M. H. Schreinemachers, M.D. 16,000
Philip C. Williams, M.D. 16,000
Raymond F. Lord, M.D. 16,000
Elizabeth A. Alevizos, M.D. 16,000
Mark R. F. Barr, M.D. 16,000
Richard V. Feinberg, M.D. 16,000
Robert J. Good, M.D. 16,000
Michael C. Hargens, M.D. 16,000
Paul B. Caruthers, M.D. 16,000
Mark C. Santilli, M.D. 16,000
Helen W. K. Chang, M.D. 16,000
Joseph R. Egbert, M.D. 16,000
William R. Anderson, M.D. 16,000
Martin J. Steinberg, M.D. 16,000
John T. Croce, M.D. 16,000
Raymond K. DiCarlo, M.D. 16,000
Bruce W. Johnson, M.D. 16,000
Jeffrey A. Freeman, M.D. 16,000
B. Wayne Johnson, M.D. 16,000
Michael A. Haines, M.D. 16,000
J. Daniel Willmore, Jr., M.D. 16,000
John D. Maller, M.D. 16,000
Martin D. Smith, M.D. 16,000
Robert A. Zettler, M.D. 16,000
Gerald H. Schuller, M.D. 16,000
Lawrence A. Goldstein, M.D. 16,000
Lee R. Smith, M.D. 16,000
Jody L. Whitehead, M.D. 16,000
Richard J. Wyse, M.D. 16,000
Janet D. D. Washburn, M.D. 16,000
Louis A. Wolpert, M.D. 16,000
Richard B. Waitzkin, M.D. 16,000
Ross D. Miller, M.D. 16,000
Neil F. Zemel, M.D. 16,000
Jay N. Lalli, M.D. 16,000
R. Dan S. Grady, M.D. 16,000
R. E. Carter, M.D. 16,000
Kenneth D. McCarroll, M.D. 16,000
E. Richard Perl, M.D. 16,000
Michael A. Barak, M.D. 16,000
John W. Duncavage, M.D. 16,000
Kenneth D. McCarroll, M.D. 16,000
E. Richard Perl, M.D. 16,000
Michael A. Barak, M.D. 16,000
John W. Duncavage, M.D. 16,000
Kenneth D. McCarroll, M.D. 16,000
E. Richard Perl, M.D. 16,000
Michael A. Barak, M.D. 16,000
John W. Duncavage, M.D. 16,000
Kenneth D. McCarroll, M.D. 16,000
E. Richard Perl, M.D. 16,000
Michael A. Barak, M.D. 16,000
John W. Duncavage, M.D. 16,000
Kenneth D. McCarroll, M.D. 16,000
E. Richard Perl, M.D. 16,000
Michael A. Barak, M.D. 16,000
John W. Duncavage, M.D. 16,000
Kenneth D. McCarroll, M.D. 16,000
E. Richard Perl, M.D. 16,000
Michael A. Barak, M.D. 16,000
John W. Duncavage, M.D. 16,000
Kenneth D. McCarroll, M.D. 16,000
E. Richard Perl, M.D. 16,000
Michael A. Barak, M.D. 16,000
John W. Duncavage, M.D. 16,000
Kenneth D. McCarroll, M.D. 16,000
E. Richard Perl, M.D. 16,000
Michael A. Barak, M.D. 16,000
John W. Duncavage, M.D. 16,000
Kenneth D. McCarroll, M.D. 16,000
E. Richard Perl, M.D. 16,000
Michael A. Barak, M.D. 16,000
John W. Duncavage, M.D. 16,000
Kenneth D. McCarroll, M.D. 16,000
E. Richard Perl, M.D. 16,000
Michael A. Barak, M.D. 16,000
John W. Duncavage, M.D. 16,000
Kenneth D. McCarroll, M.D. 16,000
E. Richard Perl, M.D. 16,000
Michael A. Barak, M.D. 16,000
John W. Duncavage, M.D. 16,000
Kenneth D. McCarroll, M.D. 16,000
E. Richard Perl, M.D. 16,000
Michael A. Barak, M.D. 16,000
John W. Duncavage, M.
Patients in gynecologic malignancies, MR imaging plays an important role in the journey from initial evaluation of the extent of disease to appropriate treatment selection and follow-up. In a State-of-the-Art article in the March issue of Radiology (RSNA.org/Radiology), Evis Salti, Ph.D., of the Addenbrooke Hospital and University of Cambridge, England, and colleagues highlight the added role MR imaging plays in treatment stratification and overall care of patients with endometrial, cervical or ovarian cancer. The authors specifically describe MR imaging techniques used in evaluation of these patients, including:

- Anatomical MR imaging sequences (T1- and T2-weighted sequences)
- Pulse sequences that characterize tissue on the basis of physiologic features (diffusion-weighted MR imaging)
- Contrast agent-enhanced MR imaging
- MR spectroscopy

MR imaging findings corresponding to the 2009 revised International Federation of Gynecology and Obstetrics staging of gynecological malignancies are also described in detail, highlighting possible pearls and pitfalls of staging. "Advances in MR imaging techniques, along with the growing role of the radiologist as part of the multidisciplinary treatment-planning team, have become central in tailoring treatment options and frequently lead to modifications in the therapeutic approach in patients with gynecological malignancies," the authors write.
RSNA Assists with New MOC Self-Assessment CME Requirement

Along with hundreds of education activities specifically designed to help physicians meet American Board of Radiology (ABR) Maintenance of Certification (MOC) needs, RSNA also helps members fulfill a new self-Assessment CME (SA-CME) requirement for Part II of the MOC program.

Part II of MOC for Lifelong Learning and Self-Assessment for diagnostic radiologists requires physicians to earn 75 AMA PRA Category 1 Credits™ every three years. At least 70 percent of earned CME credit must be in diagnostic radiology or related areas, with the remaining 30 percent in clinically relevant areas of learning.

As of January 1, Part II of the MOC program for diagnostic radiologists requires physicians to earn SA-CME in addition to regular CME credits. SA-CME is designed to enhance a physician’s knowledge and skill as well as provide continuous opportunity for improvement. At least 25 of the 75 CME credits must be qualified as SA-CME to meet requirements for Part II of MOC for diagnostic radiologists.

Residents & Fellows Corner

APDR Issues Position on Resident Duties during Core Exam Prep

The Association of Program Directors in Radiology (APDR) has recommended that radiology residents not be given time off from clinical service to study before the American Board of Radiology (ABR) core qualifying examination administered after the third year of residency.

In an article published in the November 2012 issue of the Journal of the American College of Radiology, Kristen DeStigter, M.D., Martha Mainiero, M.D., Mur- ray Janower, M.D., and Charles Resnik, M.D., note that the practice of giving residents brief absences from call to attend conferences targeted to the core curriculum, the authors state.

Residents must embrace the concept of “lifelong learning” from the beginning and learn to engage in continuous self-study, the authors add. “It is our responsibility to ensure that our residents are trained with the skill set to be successful in their careers, including the ability to achieve a balance between work, study and home life, an important competency that will obviate the necessity for “board frenzy,” they conclude.

Access the article at www.jacr.org/article/S1546-1449(12)00275-X/fulltext.

Technology Forum

2013 IHE® Connectathon Reflects Growing Need for Interoperability

As the benefits of interoperability become ever more apparent, the annual Integrating the Healthcare Enterprise (IHE®) North American Connectathon Conference has expanded its appeal to a wider spectrum of participants from across the globe.

Held Jan. 30 in Chicago, the 15th annual event offered users and developers of health information technology (HIT) systems the opportunity to learn about achieving interoperability and making more effective use of electronic health records (EHRs). Topics covered the unique goals required to achieve meaningful use and IHE’s role in their development, including:

• Connecting clinicians, patients and their families with the tools and resources needed to enable care in a seamless, meaningful, transparent way
• Achieving quality and efficiency of data as related to the delivery of care
• Empowering patients at home and beyond

The mHealth ecosystem that extends access and connectivity to individuals delivering care

The IHE North American Connectathon Conference attracted more than 100 attendees from a wide range of healthcare settings. The conference is the cornerstone of the annual IHE North American Connectathon, health IT’s largest interoperability testing event, held Jan. 28-Feb. 2, in Chicago.

IHE began as an initiative sponsored by RSNA and the Healthcare Information Management and Systems Society (HIMSS) and now includes more than two dozen sponsoring organizations worldwide.

To view a video overview of the IHE North American Connectathon Conference, go to www.youtube.com/watch?v=64ajL4mG6dM.

RadioGraphics

Media Coverage of RSNA

In December, media outlets carried 3,593 RSNA-related news stories. These stories reached an estimated 2 billion people.


Broadcast coverage included NBC Nightly News with Brian Williams, CNN Headline News, NPR, TBS Superstation, WGN-AM (Chicago), WOR-AM (New York), WBZ-TV (Boston), KNTV-TV (San Francisco), KDKA-TV (Pittsburgh), WFSB-TV (Hartford, Conn.), KUTV-TV (Salt Lake City) and WRLV-TV (Raleigh, N.C.).


Coverage of RSNA 2012 will be highlighted in a future issue.

New on RadiologyInfo.org

Visit RadiologyInfo.org, RSNA and ACR’s jointly-sponsored public information website, to read the latest additions to the Diseases and Conditions portion of the site:

• Abdominal Aortic Aneurysm (AAA)
• Cardiac Arrhythmia

March Public Information Activities Focus on Colorectal Cancer

To highlight National Colorectal Cancer Awareness Month in March, RSNA is distributing radio public service announcements (PSAs) encouraging listeners to be screened for colorectal cancer.

In addition, RSNA is distributing the “60-Second Checkup” audio program to nearly 100 radio stations across the U.S. The segments focus on colorectal cancer and screening topics, including CT colonography and standard colonoscopy in patients age 65 and older.
RSNA Introduction to Research for International Young Academics

The RSNA Committee on International Radiology Education (CIRE) seeks nominations for this program that encourages young radiologists from countries outside North America to pursue careers in academic radiology by:

- Introducing residents and fellows to research early in their training
- Demonstrating the importance of research to the practice and future of radiology
- Sharing the excitement and satisfaction of research careers in radiology
- Introducing residents to successful radiology researchers, future colleagues and potential mentors

The program consists of a special four-day seminar held during the RSNA Scientific Assembly and Annual Meeting. CIRE recommends 15 international young academics for consideration by the RSNA Board of Directors each year. Complimentary registration, shared hotel accommodation for the duration of the program, and a stipend to help defray travel expenses are awarded to successful candidates.

Eligible candidates are residents and fellows currently in radiology training programs or radiologists not more than two years out of training who are beginning or considering an academic career. Nominations must be made by the candidate’s department chair or training director. Fluency in English is required. Nomination forms are available at RSNA.org/Iriya.

2013 CORE Workshop

This 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.

World Conference on Interventional Oncology

WCIO 2013 is the leading interventional oncology conference, featuring innovative interventional oncology experts, discussions on current interventional oncology topics, unique live case presentations and the latest scientific advances. WCIO focuses on highlighting a multidisciplinary approach, providing conference participants the opportunity to observe real-world techniques and learn cutting-edge best practices. WCIO 2013 will deliver focused sessions for medical students, residents and fellows, and both interventional oncology experts and less experienced operators and thought leaders, providing a truly dynamic learning and networking experience.

Learn more at www.wcio2013.org

ARLM-approved Courses Offered in 2013

To take advantage of the opportunity to enhance your career and develop as a professional by taking practical leadership courses approved by the Academy of Radiology Leadership and Management (ARLM) throughout the year.

ARLM is sponsored by five participating radiology education societies, including RSNA. The Academy offers courses either online or in-person at meetings throughout 2013. Medical imaging professionals can earn a Certificate of Achievement from ARLM by earning 50 education credits—at least 30 credits in person—and a minimum of three credits in each domain is required. There are no fees beyond costs associated with CME activities, and many of those are free to members of the respective sponsoring societies.

ANZSNM-approved Courses Offered in 2013

ARLM is sponsored by five participating radiology education societies, including RSNA. The Academy offers courses either online or in-person at meetings throughout 2013. Medical imaging professionals can earn a Certificate of Achievement from ARLM by earning 50 education credits—at least 30 credits in person—and a minimum of three credits in each domain is required. There are no fees beyond costs associated with CME activities, and many of those are free to members of the respective sponsoring societies.

Medical Meetings April 2013

Upcoming in-person meetings featuring ARLM-approved courses:
- Association of University Radiologists (AUR) 2013 Annual Meeting, April 9-12, Los Angeles, www.aaur.org

For more information on ARLM, go to www.radleaders.org.
Submit Abstracts by April 10
The online system to submit abstracts for RSNA 2013 is now active. The submission deadline is 12 p.m. Central Time on Wednesday, April 10, 2013. Abstracts are required for scientific presentations, education exhibits, applied science, quality storyboards and quantitative imaging reading room showcase applications.

To submit an abstract online, go to RSNA.org/abstracts.

The easy-to-use online system helps the Scientific Program Committee and Education Exhibits Committee evaluate submissions more efficiently. For more information about the abstract submission process, contact the RSNA Program Services Department at 1-877-776-2227 within the U.S. or 1-630-590-7774 outside the U.S.

Access Highlights of RSNA 2012
Relive high points of RSNA 2012 and access post-meeting content on the Annual Meeting Page on RSNA.org.

- Select content, including Cases of the Day and refresher courses are being transformed into online CME activities and will be posted in the Online Education section.
- Access the Daily Bulletin, RSNA’s official online newspaper.
- Revisit footage of the RSNA 2012 Opening Session: President’s Address by George S. Bisset III, M.D.

Online Tools Help Members Obtain, Track CME Credits
Because tracking CME credits can be just as important as completing the courses, RSNA offers tools to aid members with both.

On the Science & Education page of RSNA.org, members can access an extensive library of opportunities to earn CME and self-assessment module (SAM) credit, including more than 270 corresponding tests for Radiographics CME feature articles. All CME articles/tests are approved for AMA PRA Category 1 Credit™.

New to the page: RSNA offers a full roster of activities that fulfill a new self-assessment CME (SA-CME) requirement for Part II of the American Board of Radiology Maintenance of Certification (MOC) program. Access the materials under Things to Know.

Click CME Tracking on the left-hand side of the page to access these tools:

- CME Repository: Your SA-CME and SAM credits earned are automatically deposited into the RSNA CME Repository. View a comprehensive list of your credits—free to members.
- CMEGateway.org: Print or generate reports of your SA-CME/SAM credits earned from multiple societies.
- CME Repository Tutorial: Learn to navigate the repository and access all your RSNA-awarded credits.

COMING NEXT MONTH
Radiology residents offer perspective on the potential impact of the new American Board of Radiology (ABR) core and certifying examinations in next month’s RSNA News.
Patients are the primary focus

The Radiology Cares campaign helps radiologists

- Align their radiology practices with patients’ needs and best interests.
- Provide optimal patients experiences throughout the continuum of their radiologic care.
- Communicate more effectively with patients and other healthcare providers.

Visit RadiologyCares.org to learn how to become more patient-centered in your practice, then join your colleagues in the radiology community who have committed to putting patients first when you Take the Pledge.