

December 2012 Volume 22, Number 12



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RSNA Image Share Enrolls Over 2,000 Patients, Expands Sites

ALSO INSIDE:

Clot-retriever Devices May Improve Acute Ischemic Stroke Outcomes

Technology Takes Imaging to New Level at London Olympics

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Radiology Compensation Rates Drop Slightly in 2011

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See Page 4

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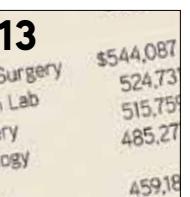
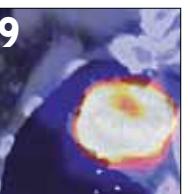
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SNM Names Officers, Awards Honors

Frederic H. Fahey, D.Sc., director of nuclear medicine physics at Children's Hospital Boston and associate professor of radiology at Harvard Medical School, was named president of the Society of Nuclear Medicine (SNM) during its recent annual meeting in Miami Beach, Fla.

Other SNM officers elected for 2012-13 are **Gary Dillehay, M.D.**, professor of radiology at Northwestern Memorial Hospital in Chicago, president-elect, and **Peter Herscovitch, M.D.**, director of the PET Department at the National Institutes of Health (NIH) Clinical Center in Bethesda, Md., vice-president-elect.

Abass Alavi, M.D., and **Steven Larson, M.D.**, known for their substantial research and contributions to the field of nuclear medicine, were awarded SNM's Benedict Casen Prize. Dr. Alavi is a professor of radiology and director of research education at the University of Pennsylvania School of Medicine in Philadelphia.

Dr. Larson is an attending physician in the Department of Radiology at Weill Cornell University Medical Center and a professor in the Department of Radiology at Memorial Sloan Kettering Cancer Center, both in New York. He is also chief of nuclear medicine service, vice-chairman for radiology research, and director of the

Laurent and Alberta Gerschel Positron Emission Tomography Center, and Donna & Benjamin M. Rosen chair in radiology in the Department of Radiology at Memorial Hospital in New York. Dr. Larson chairs the RSNA Molecular Imaging Committee, is a member of the Public Information Advisors Network and was named RSNA Outstanding Researcher in 2004.

Daniel S. Berman, M.D., professor of medicine at the University of California, Los Angeles (UCLA), was awarded the Georg Charles de Hevesy Nuclear Pioneer Award for his contributions to the nuclear medicine profession. Dr. Berman is director of nuclear cardiology/cardiac imaging, professor of imaging, attending physician in the departments of Imaging and Medicine, and co-director of the Artificial Intelligence in Medicine Program at the Cedars-Sinai Medical Center in Los Angeles.

The Paul C. Aebersold Award was given to **Mark M. Goodman, Ph.D.**, a program director of the Center for Systems Imaging (CSI) and professor of radiology and imaging sciences, psychiatry, and hematology and oncology at Emory University in Atlanta.



Fahey Dillehay Herscovitch



Alavi Larson



Berman Goodman

New Interventional Radiology/Diagnostic Radiology Certificate Available from ABR

The American Board of Medical Specialties has approved an application from the American Board of Radiology (ABR) for a new Dual Primary Certificate in Interventional Radiology and Diagnostic Radiology.

Society of Interventional Radiology (SIR) President Marshall E. Hicks, M.D., described the decision as "a seminal event in the history of interventional radiology," while SIR Past-President John A. Kaufman, M.D., called it an important step in the formalizing the interventionalist's clinical role. "Recognition of the interventional radiologist's imaging, technical and periprocedural patient care competencies speaks directly to the specialty's focus on patients, innovation and advanced image-guided techniques," said

Dr. Kaufman, who chaired the SIR/ABR task force that has been developing the certificate since 2005.

The new Dual Certificate in Interventional Radiology and Diagnostic Radiology is ABR's fourth primary certificate and the 37th overall in the U.S.

"Since the early 20th century, board certification—a form of professional self-regulation—has assured the public of the qualifications of medical professionals," said ABR Executive Director Gary J. Becker, M.D. "Only rarely does the house of medicine acknowledge the importance of a new primary specialty certificate in fulfilling these responsibilities. ABR supported



the creation of this primary certificate based on the need to ensure that future trainees acquire the requisite combination of clinical, procedural and interpretive skills necessary for the safe and competent practice of interventional radiology.

"The interventional radiology and diagnostic radiology certificate ensures that board-certified interventional radiologists are trained and qualified to deliver the highest level of care available today, and it demands that this same quality be made available to all future patients," added Dr. Becker, who served as 2009 RSNA president.

Numbers in the News

1.4

Percent decrease in median compensation for interventional radiologists in 2011, according to the latest results from an annual survey. Diagnostic radiologists saw a 0.45 percent decrease. [Read more on Page 13.](#)

25

Approximate number of sites to be added to the RSNA Image Share network in the coming months. [Read more about the project, designed to help patients access their medical images and reports, on Page 11.](#)

75

Estimated percent of dose reduction achieved when using PET/MR instead of PET/CT in lung cancer staging, according to a recent study. [Read more on Page 9.](#)

1,400

Approximate number of imaging exams performed by radiologists at the Olympic Village during the London 2012 summer games. [Learn more about radiology's critical role in Olympic medical services on Page 7.](#)

RSNA IS LARGEST MEDICAL MEETING

RSNA tops the annual list of the 50 largest U.S. medical meetings released by the Healthcare Convention & Exhibitors Association (HCEA). RSNA reported attendance of 59,097 at RSNA 2011. In second place was the Greater New York Dental Meeting, with 53,789 attendees.

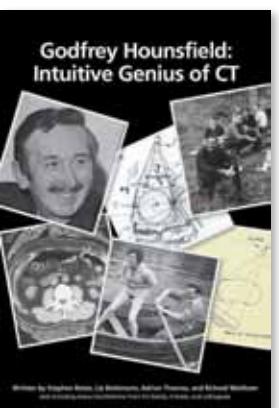
In its report, HCEA noted that average reported professional attendance at medical meetings increased 3.2 percent over 2010, while average reported total attendance increased 2.2 percent. HCEA aims to increase the efficiency and effectiveness of healthcare conventions and exhibits as an educational and marketing medium and foster better understanding and cooperation between industry and healthcare associations.

BIR Hounsfield Biography Marks 40th Anniversary of CT

A mild-mannered and pleasant but determined genius, Sir Godfrey Hounsfield made a great breakthrough in medical imaging with CT in 1972. Read how this mostly self-taught farm boy went on to become a Nobel laureate and changed the world in the new biography, "Godfrey Hounsfield: Intuitive Genius of CT," published by the British Institute of Radiology (BIR) in celebration of the 40th anniversary of Hounsfield's landmark announcement of CT at the BIR Congress.

Written by Stephen Bates, Liz Beckmann, Adrian Thomas and Richard Waltham, the book includes many recollections from the inventor's family, friends and colleagues. All proceeds go to BIR, as designated in Hounsfield's will.

To order, go to BIR.org.UK and click Publications/Book Shop.



Donaldson Awarded Stanford's Prestigious Dean's Medal

2013 RSNA President **Sarah S. Donaldson, M.D.**, was awarded the Stanford University Medical Center's Dean's Medal at an October ceremony at the university in Stanford, Calif. Dr. Donaldson, the Catharine and Howard Avery Professor at Stanford, is one of three recipients of the medal, the medical school's highest honor.

Dr. Donaldson, who joined the university in 1973, serves as associate residency program director of radiation oncology at Stanford Hospital and Clinics and is chief of radiation oncology service at Lucile Salter Packard Children's Hospital at Stanford. As a world-renowned authority on pediatric radia-

tion oncology, Dr. Donaldson has developed therapeutic approaches for pediatric Hodgkin's disease, childhood soft tissue and bone cancers, and lymphomas of the eye, among other disorders.

Dr. Donaldson was elected to the RSNA Board of Directors in 2005 and served as liaison

for publications and communications. Dr. Donaldson has served—and is once again serving—on the Board of Trustees of the RSNA Research & Education Foundation and the Public Information Advisors Network. She was elected RSNA second vice-president in 2003.



RSNA Board of Directors Report

At its September meeting, the RSNA Board of Directors considered new RSNA programs, enhanced collaborations with other radiologic and medical societies and appointed volunteers to RSNA committees for the coming year.

Committee Members, R&E Trustees Appointed

In consultation with the committee chairs, the RSNA Board approved appointments to the Society's many committees. The Board thanks the hundreds of dedicated volunteers who help RSNA to meet its mission.

In the committee appointment process, RSNA aims to maximize volunteer participation in the Society and involve members in training to help ensure that RSNA products, services, programs, and activities meet the needs of trainees now and as they develop professionally. More than 900 members are serving the Society on committees and editorial boards, and as representatives to other organizations.

James P. Borgstede, M.D., will assume the position of chair of the 2013 Research & Education (R&E) Foundation Board of Trustees. Richard D. White, M.D., and Richard L. Morin, Ph.D., were appointed as new Foundation board trustees, and trustees Sarah S. Donaldson, M.D., Richard L. Ehman, M.D., and Valerie P.

Jackson, M.D., were reappointed. G. Scott Gazelle, M.D., Ph.D., and Burton P. Drayer, M.D., were appointed as secretary and treasurer, respectively.

The *RSNA News* Editorial Board welcomes 2007 RSNA President R. Gilbert Jost, M.D., as its new Research & Education Foundation Contributing Editor.

Ongoing Collaboration Supports Molecular Imaging

RSNA is once again a co-sponsor of the World Molecular Imaging Congress (WMIC), to be held Sept. 18-21, 2013, in Savannah, Ga. RSNA's support includes appointment of two representatives, Paul Kinahan, Ph.D., and King Li, M.D., to the WMIC planning committee.



N. Reed Dunnick, M.D.
Chairman, 2012 RSNA
Board of Directors

RSNA also reiterated its commitment to encourage radiology department chairs to consider establishing more medical imaging physics residencies.

New Quality Improvement Certificate

The Board authorized creation of an advanced level certificate in principles of quality improvement. More details about the new certificate will be available at RSNA.org/quality.aspx. RSNA currently offers Quality Essentials Certificates of Completion to annual meeting attendees

who successfully participate in Session II and/or Session III of the Quality Improvement Symposium. The Quality Essentials Certificate: Quality Improvement in Your Practice can also be obtained by scoring 80 percent or higher on the online self-assessment module from this session. The second Quality Essentials course will be available online by June 2013.

I'm excited, as I know you are as well, about what lies ahead for RSNA and our specialty in the coming year.

N. REED DUNNICK, M.D.
CHAIRMAN, 2012 RSNA BOARD OF
DIRECTORS



RSNA continues its support of molecular imaging by once again co-sponsoring the World Molecular Imaging Congress to be held Sept. 18-21, 2013 in Savannah, Ga.

RSNA News

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My Turn

Professionalism Vignettes Spark Discussion of Daily Dilemmas

As one of the specialty's core competencies, professionalism is essential to achieving the central goal of every radiologist: providing patient-centered care.

In 2005, RSNA endorsed the Physicians' Charter stating that "professionalism demands placing the interests of patients above those of the physician, setting and maintaining standards of competence and integrity, and providing expert advice to society on matters of health." This is essential to maintaining the public's trust in physicians and represents the basis of medicine's contract with society.

Although radiologists are called upon to demonstrate professionalism in their day-to-day activities, few have had formal instruction on the topic; programs in teaching and evaluating professionalism among radiology residents have only recently been introduced. Educational innovation is particularly important for teaching professionalism, because traditional teaching methods, by themselves, do not promote active audience participation or facilitate retention of learned material. One such educational innovation is the use of vignettes that describe specific situations and require

the learner to inquire more closely into the dynamics of those situations.

The RSNA Professionalism Committee has developed a series of web-based vignettes that provide thought-provoking scenarios, based on published literature, in an interactive question-and-answer format. Professionalism Committee Chair Marilyn Goske, M.D., says the vignettes "seek to engage radiologists in a meaningful way to consider the importance of professionalism in their daily practice."

Each vignette illustrates a real-life situation with a professional dilemma, followed by a series of multiple-choice questions that draw attention to important, specific teaching points on professionalism. For teaching purposes, we have minimized detail in order to elucidate the relevant principles of professionalism in an online format. Therefore, the answers provided in these vignettes should be considered as "educational beacons" and starting points for discussion rather than policies appropriate to

all contexts, or the only legally appropriate alternatives.

The vignettes will be issued bimonthly and cover such diverse topics as "Disclosure of Radiologic Error" to a patient, "The Disruptive Physician" and "Sexual Harassment in the Workplace."

It is our hope that these vignettes will increase radiologists' awareness of important issues and principles in professionalism in preparation for facing such difficult professional problems in real life.

Peruse our professionalism website and access the vignettes at RSNA.org/Professionalism. We welcome your feedback.

Stephen Chan, M.D., is an academic radiologist at New York's Columbia University and a member of RSNA's Professionalism Committee



Renew RSNA Membership Now

RSNA membership renewal is due by December 31 to avoid interruption of your subscription to *RSNA News* and many other benefits:

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Renew online at RSNA.org/renew or by mail with the invoice sent to you early in October. For more information, please contact membership@rsna.org or 1-877-RSNA-MEM (1-877-776-2636) or 1-630-571-7873 outside the U.S. and Canada.

Meaningful Use Stage 2 Criteria Finalized; Effective Date Postponed

The Centers for Medicare and Medicaid Services (CMS) recently published a final rule that specifies the Stage 2 criteria that eligible professionals, eligible hospitals, and critical access hospitals must meet in order to continue to participate in the Medicare and Medicaid Electronic Health Record (EHR) Incentive Programs. All providers must achieve meaningful use under the Stage 1 criteria before moving to Stage 2.

Stage 2 criteria become effective in 2014, one year later than originally called for in the American Recovery and Reinvestment Act. Stage 2 criteria include using secure electronic messaging to communicate with patients on relevant health information, recording electronic notes in patient records, making imaging results accessible through certified EHR technology and reporting cancer and other cases to specialized registries.

For more on Meaningful Use and the Stage 2 criteria, go to www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/Stage_2.html. Read about radiology's reaction to Stage 2 in the September 2012 issue of *RSNA News* and an update on the final rule at rsnanews.RSNA.org.

Clot-retriever Devices May Improve Acute Ischemic Stroke Outcomes

Approximately 85 percent of strokes are ischemic. A new generation of devices that remove clots from blocked brain arteries while restoring blood flow could dramatically increase survival and recovery rates for acute ischemic stroke patients, according to new research.

WHILE clot-busting thromolytic drugs are often the first treatment option in acute ischemic stroke, they are not suitable for all patients and aren't always effective. In those cases, mechanical clot removal is another option.

The standard mechanical clot remover, the Merci Retrieval System, from Stryker in Kalamazoo, Mich., uses a small, corkscrew-shaped coil to remove blood clots. However, a new generation of devices that rely on a self-expanding stent are outperforming the mechanical system, according to two studies published in the August 26 online edition of *The Lancet*.

In the new generation of systems, the stent is inserted into the blocked artery via a thin catheter and compresses and traps the clot. The entire device is then removed—and with it, the clot—thereby reopening the blocked blood vessel.

Although other systems are on the market, *The Lancet* studies focused on the Solitaire Flow Restoration Device from Covidien of Mansfield, Mass., and Stryker's Trevo Pro Retrieval System, which received approval from the U.S. Food and Drug Administration in March 2012 and August 2012 respectively. Findings from both studies were reported at the 2012 European Society of Cardiology meeting in Munich.

One study featured findings from the Solitaire With the Intention for Thrombectomy (SWIFT) trial, which compared the Solitaire device to the Merci in 113 stroke patients at 18 hospitals. Patients received either Solitaire or Merci therapy within eight hours of stroke onset.

The Solitaire device opened more vessels when used as the first line of treatment, necessitating fewer subsequent attempts with other devices or drugs, said Reza Jahan, M.D., an associate professor of radiology at the University of California, Los Angeles (UCLA), and a researcher on the study. Led by Jeffrey L. Saver, M.D., director of the UCLA Stroke Center, the SWIFT trial was conducted at 21 sites including the stroke center. (See sidebar)

"Solitaire was much better at successfully pulling the clot out," Dr. Jahan said. "No other retrievers have a design that allows immediate resumption of blood flow."

In the second study, 86 percent of patients treated with Stryker's Trevo device achieved the targeted reperfusion rate compared with 60 percent of those treated with the company's Merci. Patients'

chances of having a fully independent life after a stroke was 40 percent for Trevo-treated patients treated and 22 percent for those treated with Merci. The study comprised 178 patients with large vessel occlusions.

Solitaire Enables Quick, Successful Recanalization

Another researcher who investigated Solitaire also discovered the device to be highly effective. "A main advantage of the Solitaire is that it enables fast recanalization with a high success rate," said researcher Pasquale Mordini, M.D., of the Department of Diagnostic and Interventional Neuroradiology, University of Bern in Bern, Switzerland.

In findings published in the June 21, 2012 online issue of the *American Journal of Neuroradiology*, Dr. Mordini and colleagues studied the device in 14 patients with basilar artery occlusion (BAO), a type of stroke associated with a poor clinical outcome and high mortality. Recanalization is a major prognostic factor for good outcome in BAO.

Successful recanalization was achieved in all patients in the study. Median procedure time to maximal recanalization was 47 minutes and there were no device-related complications, he said.

"Our study and other research has shown a procedure time of less than 60 minutes with recanalization success in 80 percent to 100 percent of cases, which has not been achieved with previous mechanical devices," Dr. Mordini said. "Therefore, I think stent retrievers will become a mainstay of mechanical thrombectomy in acute stroke treatment."

I think stent retrievers will become a mainstay of mechanical thrombectomy in acute stroke treatment."

Pasquale Mordini, M.D.



Jahan

Patient Selection is Focus of New Study

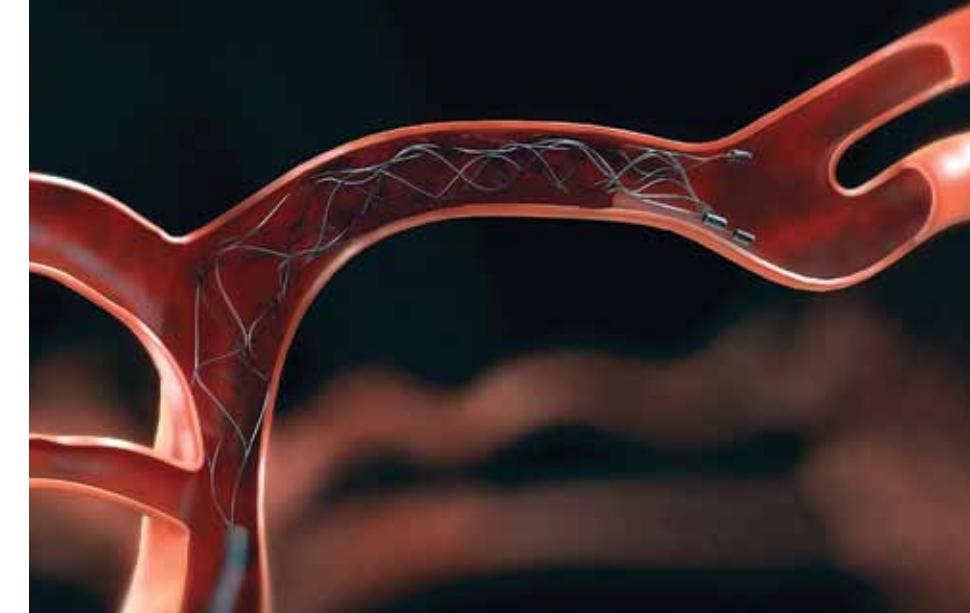
While Solitaire is becoming more common in practice as interventionists receive training, additional studies are needed, researchers say. A second-stage study by Dr. Jahan and colleagues will use multimodality imaging techniques to learn more about patient selection for the device.

"In our next study, SWIFT PRIME, we're going to use multimodality CT-MR imaging to select patients who might benefit from Solitaire, just as we would in everyday practice," Dr. Jahan said. "If the at-risk area of the brain has died, it's too late to intervene with Solitaire. However, if the area of the brain is still viable, that's a patient we would want to treat." □

WEB EXTRAS

To access abstracts of the studies from *The Lancet* cited in this article, go to:

- "Solitaire Flow Restoration Device Versus the Merci Retriever in Patients with Acute Ischaemic Stroke (SWIFT): a Randomised, Parallel-group, Non-inferiority Trial"—www.thelancet.com/journals/lancet/article/P11S0140-6736%2812%2961384-1/abstract.
- "Trevo Versus Merci Retrievers for Thrombectomy Recanalization of Large Vessel Occlusions in Acute Ischaemic Stroke (TREVO 2): a Randomised Trial"—www.thelancet.com/journals/lancet/article/P11S0140-6736%2812%2961299-9/abstract.
- To access an abstract of "Experimental Evaluation of Immediate Recanalization Effect and Recanalization Efficacy of a New Thrombus Retriever for Acute Stroke Treatment In Vivo," published in the *American Journal of Neuroradiology*, go to ajnr.org/content/early/2012/07/26/ajnr.A3275.abstract?rss=1
- To view a video of the Solitaire Flow Restoration Device in use at the UCLA Stroke Center, go to rsnanews.RSNA.org.

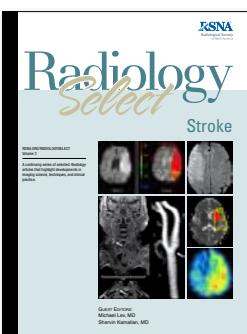


A new generation of devices, such as the Solitaire™ FR Revascularization Device, (above), that rely on a self-expanding stent, are outperforming the standard mechanical system, according to two studies published in the August 26 online edition of *The Lancet*.

Solitaire is a trademark of Covidien company. Copyright © Covidien. Used with permission.

RADIOLOGY SELECT, VOLUME 2 FOCUSES ON STROKE

Stroke is the focus of Volume 2 of *Radiology Select*, a continuing series of *Radiology* articles that highlight developments in imaging science, techniques and clinical practice. For information on obtaining the print, online and tablet editions of *Radiology Select*, go to RSNA.org/Journals.aspx and click *Radiology Select*.



MOBILE STROKE UNITS SPEED DRUG TREATMENT TO PATIENTS

Stent retrievers are just one way that medical researchers are working to speed lifesaving treatment to stroke victims.

German researchers have demonstrated the effectiveness of Mobile Stroke Units (MSUs)—specialized ambulances equipped with a CT scanner, a point-of-care laboratory and a telemedicine connection that transmits information to the hospital—in getting critical treatment to stroke victims already at the emergency site.

A study examining MSUs in the May 2012 edition of *The Lancet Neurology* found a dramatic advantage of pre-hospital stroke diagnostic work up and treatment.

"Treatment success is strongly dependent on the time frame of drug adminis-

tration," said lead researcher Silke Walter, M.D., senior physician in the Department of Neurology at the University Hospital of the Saarland in Homburg, Germany.

"The earlier the therapy is applied, the more patients can be saved from permanent disability."

To that end, MSUs have the potential to cut the time from the initial emergency call to treatment decision in half, according to new research.

In the study of 100 patients, Dr. Walter and colleagues found that median time from the emergency call to the therapy decision was 35 minutes for stroke patients who had pre-hospital treatment in MSUs compared with 76 minutes for patients who received conventional hospital treatment. Safety endpoints were similar across the groups.

"The halved time until therapy decision results in a much earlier beginning of thrombolysis which is directly linked to a better outcome with reduced disability," Dr. Walter said.

Although cost is an obstacle to widespread adoption of MSUs, the long-term cost benefits are substantial, she said.

"It is important to invest in the first hour after stroke symptom onset in order to rescue stroke patients and save money by preventing lifelong disability."

Access an abstract of the study at www.thelancet.com/journals/lanneurol/article/P11S1474-4422%2812%2970057-1/abstract.

Technology Takes Imaging to New Level at London Olympics

Radiologists who worked around the clock treating athletes at the 2012 London Olympics left with a clear picture of the increasingly critical role the specialty will play in providing imaging services to competitors at future Olympic Games.

ADVANCES in state-of-the-art technology and imaging techniques have propelled radiology into a central role on the medical teams working to treat athletes and return them to their sport as quickly as possible, said Philip O'Connor, M.D., director of the NIHR Leeds Musculoskeletal Biomedical Imaging Unit, Chapel Allerton Hospital, Leeds, West Yorkshire, England.

"Radiology is not only essential to medical services for the Olympics, it's likely that radiologists will become incorporated into the medical teams that some of the larger countries take to future games," Dr. O'Connor said.

Dr. O'Connor served as imaging leader for a team of about 100 volunteers including sports radiologists, radiographers and radiographic assistants who operated MR, CT and ultrasound scanners and X-ray equipment in the Olympic Village Polyclinic sponsored by GE Healthcare. In terms of sheer output, radiology dramatically increased its role since the 2008 Beijing Olympics, Dr. O'Connor said.

Radiologists performed more than 800 MR imaging exams, 400 ultrasound, 372 X-ray, and 80 CT exams during the London Games. By the end of the closing ceremony, radiologists had performed more than 1,400 imaging exams in all—twice the number of the 2008 Olympics, Dr. O'Connor said.

"The workload was huge, with scanners running constantly from 7 a.m. to 11 p.m.," said Dr. O'Connor, who spent nine weeks in London serving as the only full-time Olympic radiologist for the games, which hosted 10,000-plus athletes from 200 countries.

Along with the satisfaction gained from aiding athletes, radiologists' Olympics experiences will also serve as the basis of future research. A diagnostic and therapeutic impact study conducted at the games will be used for a series of research papers, as well as lectures for the Royal College of Radiologists, the British Institute of Radiology and the International Society for Magnetic Resonance in Medicine (ISMRM) technologists section, Dr. O'Connor said.

Dr. O'Connor also worked with *British Journal of Radiology* Editor Prof. Charles Hutchinson, M.D., to develop a special Olympic section of the August 2012 issue of the journal highlighting the roles of radiologists, radiographers and clinical staff. (See sidebar).



Webb

Connell

Portable Ultrasound, Electronic Health Records Aid Athletes

Since the last Olympics, advances in state-of-the-art medical technology allowed radiologists to diagnose potential injuries earlier and monitor treatment more efficiently—a huge asset for imagers and athletes alike.

Radiology is not only essential to medical services for the Olympics, it's likely that radiologists will become incorporated into the medical teams that some of the larger countries take to future games."

Philip O'Connor, M.D.

Equipment such as handheld ultrasound and flat-panel detectors for radiographic systems have improved dramatically in terms of size, portability, wireless capabilities and price, according to Lori Webb, a clinical analyst with MD Buyline, which provides healthcare organizations with objective, evidence-based information for their acquisition and management of medical technology.

Webb, who worked in sports medicine as a contracted radiographer for an NFL team in the late 1990s, found "the depth and breadth of imaging modalities" in the Olympic Village Polyclinic to be "a far cry from the portable X-ray unit, film processor and view box I used 16 years ago during the Atlanta Falcons' home games.

"Despite this, the goal has remained the same," Webb said. "Get the medical imaging procedure done quickly and accurately, get the results to the right people and get the athlete back in the game if the results support that decision."

David Connell, M.D., a musculoskeletal radiologist at the Olympic Park Medical Centre in Melbourne, Australia, who treated many gold medalists at the London games, said the athletes were surprised by the quality of the imaging equipment.

"For many athletes, this was the first time they had experienced this level of imaging sophistication," Dr. Connell said. "Many teams were bowled over by the high-quality service."

The 2012 games also ushered in the transition to electronic medical records, marking the first time in Olympic history that paper charts were not used for U.S. athletes. Electronic imaging records were stored in the GE Healthcare Centricity Practice Solution, a RIS/PACS system that is in compliance with meaningful use guidelines.

"Using electronic medical records has given radiologists and other physicians simultaneous access to the athletes' medical information when needed, enhancing their ability to care for the athletes," said Webb.

Radiologists Learn Value of Teamwork

The intensity of the polyclinic and sheer number of athletes and ailments treated by the radiologists taught volunteers a number of lessons on everything from techniques to teamwork.

"Seeing such a broad spectrum of injuries was amazing," Dr. O'Connor said. "And seeing the injuries that athletes could compete with was amazing."

"We also got a real feel for sport-specific injuries, having days when we would see four or five of the exact same injury because a new sport had come into the program," he added. "For example, during the judo and weightlifting, we saw 14 acute ulnar collateral ligament injuries of the elbow."

Although they're not athletes, Dr. O'Connor said he also realized "how well radiologists can get on when they come together as a team with a common non-competitive aim."

"Radiologists acted in a volunteer capacity and helped engender a lot of goodwill to the spirit of the games," Dr. Connell agreed. □



Radiologists at the 2012 London Olympics performed more than 1,400 imaging exams in all—twice the number of the 2008 Olympics, said Philip O'Connor, M.D., (above) imaging leader for a team of about 100 volunteers. Dr. O'Connor, who spent nine weeks in London, enjoyed a rare bit of downtime between scans.

WEB EXTRAS

Olympics Featured in *British Journal of Radiology*

A special Olympic feature in the August 2012 issue of *British Journal of Radiology* examines the impact and uses of imaging and radiology in sports medicine. Developed by *BJR* Editor Prof. Charles Hutchinson, M.D., and Philip O'Connor, M.D., lead imager for the London 2012 Olympics, the issue features research on imaging muscle injury in the elite athlete, radiological interventions for soft tissue injuries and tendon and ligament imaging, among other topics.

To read an Olympic special feature editorial by Prof. Hutchinson and Dr. O'Connor and access abstracts of the research, go to bjr.birjournals.org/content/85/1016.toc.

PET/MR Effective for Staging Lung Cancer, Reducing Radiation Dose

PET/CT imaging has been the standard for lung cancer staging, but a new pilot study reveals that PET/MR imaging could provide comparable diagnostic image quality while cutting radiation dose by 75 percent compared with diagnostic contrast-enhanced PET/CT.

"Our preliminary data indicate that simultaneous PET/MR offers an alternative modality in thoracic imaging and reduces radiation dose by 75 percent, from about 28 mSv with standard-dose contrast-enhanced whole-body PET/CT—including an additional CT scan of the lung in inspiration—to about 7 mSv with whole-body PET/MR," according to Nina F. Schwenzer, M.D., an assistant professor, Department of Radiology, Eberhard-Karls University, Tuebingen, Germany, and lead author of the study published in the August 2012 issue of *Radiology*.

In the study, 10 patients who had or were suspected of having lung cancer underwent standard clinically indicated fluorine 18 fluorodeoxyglucose (FDG) PET/CT with a whole-body scan from the skull base to mid-thigh level and underwent whole-body PET/MR imaging immediately afterward.

Results showed that local tumor staging was feasible with simultaneous PET/MR imaging. "In seven out of 10 patients, a similar tumor stage was found at PET/CT and PET/MR imaging," according to researchers. "In all patients, higher tumor-to-liver ratios were found in PET at the later time point, probably because of increasing FDG uptake in the pulmonary masses."

Technology Advancements Improve PET/MR
For a number of years, MR imaging of the lung was not considered feasible due to the low proton density of lung tissue and limited spatial resolution. But new technological advances now allow fast T1-weighted gradient-echo sequences to depict pulmonary nodules in the range of 3-5 mm, according to researchers. Nevertheless, detection of small pulmonary nodules remains a challenge for MR imaging.

Whole-body PET/MR imaging systems were introduced into the clinical arena in 2009, said Christina Schraml, M.D., a study co-author and a radiologist in the Department of Radiology at Eberhard-Karls University. "Especially where superior soft tissue contrast is needed, innovative sequences with parallel imaging offer MR imaging an increasing role in the clinical practice of tumor staging.



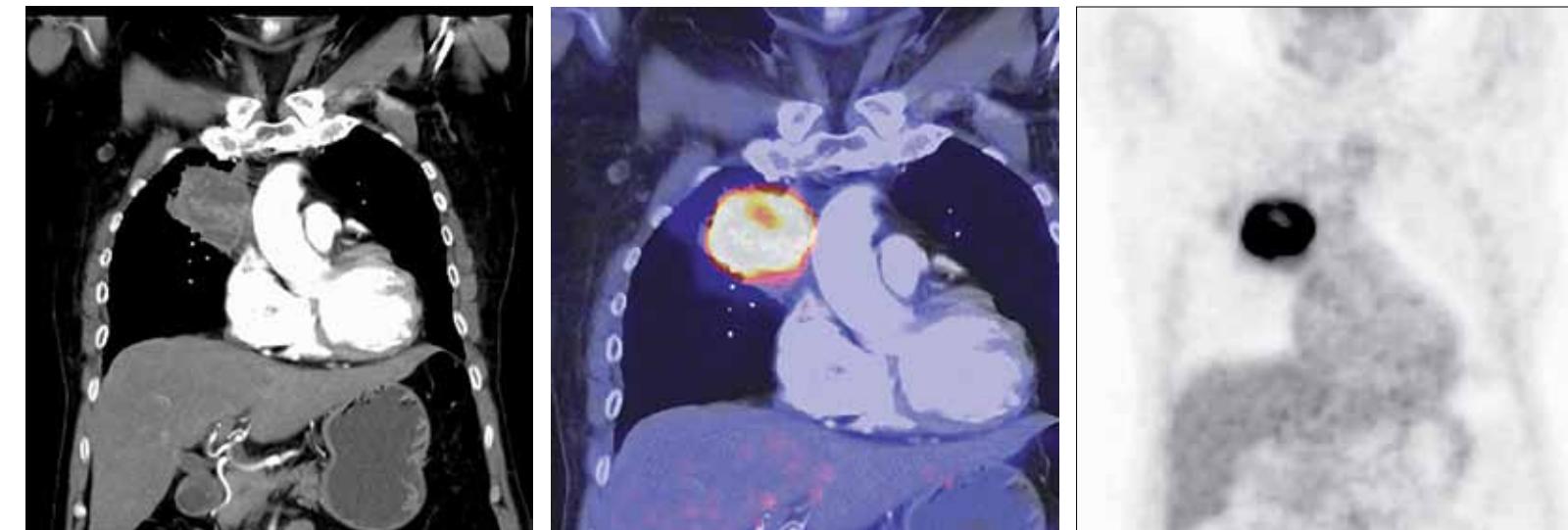
Schraml

Schwenzer

"Our results show that work-up of pulmonary masses by simultaneous PET/MR imaging is feasible with diagnostic imaging quality in all patients," Dr. Schraml added. "Also in most patients, PET/MR imaging provided equivalent diagnostic assessment of pulmonary lesions concerning staging compared with PET/CT findings."

“Our results show that work-up of pulmonary masses by simultaneous PET/MR imaging is feasible with diagnostic imaging quality in all patients.”

Christina Schraml, M.D.



MR/PET imaging of the lung is feasible and provides diagnostic image quality in the assessment of pulmonary masses, according to new research. Above: Typical coronal PET/CT and MR/PET images obtained in a 64-year-old woman with lung cancer in the right upper lobe; (left) an anatomic image, (middle) superimposition of PET and an anatomic image and (right) an FDG PET image. The CT study was performed with the use of intravenous contrast medium.

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PET/MR Presents Economic, Data Challenges

While results are promising, researchers point out that the study findings should be considered preliminary due to the small sample size. Researchers also named economic and data analysis barriers to using the hybrid modality PET/MR in clinical practice.

"Due to economic considerations in the health system, an adequate throughput of patients is mandatory for adopting PET/MR," Dr. Schwenzer said. "However, high-resolution MR and functional imaging is time-consuming, limiting the number of patients per day."

"Moreover, MR images are challenging to read because radiologists and nuclear medicine physicians are confronted with a number of image series' for each body region instead of the well-known, whole-body scans in PET and CT," Dr. Schwenzer continued. "Therefore, data handling and visualization strategies need to be developed to optimize the reading workflow of this new hybrid modality."

The attenuation correction of the PET datasets poses another problem, according to Dr. Schwenzer. Because all commonly used MR-based methods for attenuation correction ignore bone, an additional inaccuracy—the underestimation of standardized uptake value—is introduced in PET quantification, she said. "Anatomically more exact attenuation maps need to be developed to allow accurate lesion quantification in all body regions," she said.

Researchers also stress that the hybrid modality is not recommended for all patients, including those with metallic implants such as cardiac pacemakers

or those who are obese or claustrophobic. In addition, patient selection for PET/MR needs to be undertaken with care to ensure benefit from the new modality. For example, patients with tumors of the pulmonary apex would benefit from the high soft tissue contrast of the MR component with comparable information from PET compared with PET/CT, according to researchers.

PET/MR Offers Promise for Personalized Molecular Medicine

In terms of further studies, "one goal will be the response evaluation of new targeted therapies," Dr. Schraml said. "Here, PET/MR could be the ideal diagnostic tool for personalized molecular medicine. PET/MR might be especially suitable for patients with prostate cancer, brain tumors and neurodegenerative disorders, as well as pediatric patients."

The new hybrid modality also offers a new chance to bring nuclear medicine and radiology closer together, according to researchers. "We hope that radiologists and nuclear medicine physicians, individually in daily practice and collectively in medical societies, will take advantage of the PET/MR hybrid modality to advance the emerging field of multimodal imaging." □

WEB EXTRAS

To access the study, "Pulmonary Lesion Assessment: Comparison of Whole-Body Hybrid MR/PET and PET/CT Imaging—Pilot Study," in the August 2012 issue of *Radiology*, go to radiology.rsna.org/content/264/2/551.full.

RSNA Image Share Enrolls Just Over 2,000 Patients, Expands Sites

Three years since its launch, the RSNA Image Share project that was designed to help patients take control of their medical images and reports is expanding its reach by deploying systems to new facilities and enrolling patients to use the network.

THE Image Share network is in use at five pilot academic institutions and could expand to nearly two dozen additional sites in the coming months, said David S. Mendelson, M.D., a professor of radiology at the Mount Sinai School of Medicine in New York and principal investigator on the Image Share project.

The project was launched through a \$4.7 million National Institute of Biomedical Imaging and Bioengineering (NIBIB) contract to build a secure, patient-centric medical image sharing network based on common open-standards architecture. RSNA was charged with developing a system to enable patients to share images with physicians free of the limitations of CDs. Patient participation is voluntary and participating clinicians are spreading the word to their patients.

"We now have just over 2,000 patients enrolled in the program and have been awarded an additional two-year \$5.3 million contract from the National Institute of Biomedical Imaging and Engineering to extend the number of patients and participating sites," Dr. Mendelson said. "The contract includes two additional option years, with an additional \$5.5 million to move Image Share from a demonstration project to a nationally adopted set of standards."

While the initial sites in the network—Mount Sinai Medical Center, the Mayo Clinic in Rochester, Minn., the University of Maryland Medical Center in Baltimore, the University of California, San Francisco, and the University of Chicago Medical Center—have been enrolling patients, a growing number of other institutions have been joining the network as well.

"In the coming months, we expect to have more than 25 sites in the network from all across the country," said Dr. Mendelson, a member of the RSNA Radiology Informatics Committee (RIC) that developed the Image Share concept, chair of the RIC subcommittee for Integrating the Health-

care Enterprise (IHE), and a member of the RIC subcommittee for Structured Reporting.

New sites include additional large research institutions like Stanford University and the University of California, Davis, and sites such as Advanced Radiology, a multisite radiology provider in Stratford, Conn., Gillette Children's Specialty Healthcare in St. Paul, Minn., and Texas Children's Hospital, Houston, where 2012 RSNA president George S. Bisset III, M.D., serves as chief of pediatric radiology and the Edward B. Singleton Professor of Radiology at Baylor College of Medicine, in the Texas Medical Center.

Participating sites install a device called an Edge Server that connects local radiology systems to the network infrastructure. "We have a consultant who's available to these sites to assist with implementation at no charge," said Dr. Mendelson, adding that new sites are at varying points in the implementation process.

Sites use the Edge Server to enroll patients in the network. Patients receive a secure password that enables them to retrieve their radiologic images and reports. Patients sign into the network using personal health record (PHR) accounts provided by commercial vendors, currently Dell and lifeIMAGE. They retain secure access to the information and can share it with care providers when needed.

We hope the Image Share project leads to a standards-based, national infrastructure that makes this kind of service easily available at an extremely reasonable cost to any patient, anywhere, anytime."

David S. Mendelson, M.D.

ON THE COVER
The Image Share Network has enrolled just over 2,000 patients since its 2009 launch.



Patients will be surveyed about their experiences with the network, Dr. Mendelson said. "A health policy group here at Mount Sinai has produced a survey that we'll provide to patients asking them to return it after they have had a chance to really experience the network with multiple providers."

Storing Dose among Future Uses for Edge Server

Beyond its image sharing function, a variety of secondary initiatives are planned for the Edge Server in the second phase of the contract, Dr. Mendelson said. "We want to enable the Edge Server to house radiation dose information that can be used by local dose monitoring applications and to submit to the American College of Radiology's (ACR) Dose Index Registry as well," he said.

The Edge Server will also be enhanced to gather and share data for clinical decision support. These data can be used to help sites demonstrate compliance with practice guidelines and to enhance those guidelines through comparative effectiveness research, Dr. Mendelson said.

"We will feed anonymized data back from our Edge Server to organizations such as the ACR to aid their guideline development efforts. This will help to close the loop regarding how ordering patterns reflect best practices," Dr. Mendelson said.

RSNA also plans to work with vendors and standards bodies including the appropriate DICOM (Digital Imaging and Communications in Medicine) working groups to refine transfer of DICOM data and improve network performance. "The intent is to expedite the adoption of new technologies," Dr. Mendelson said.

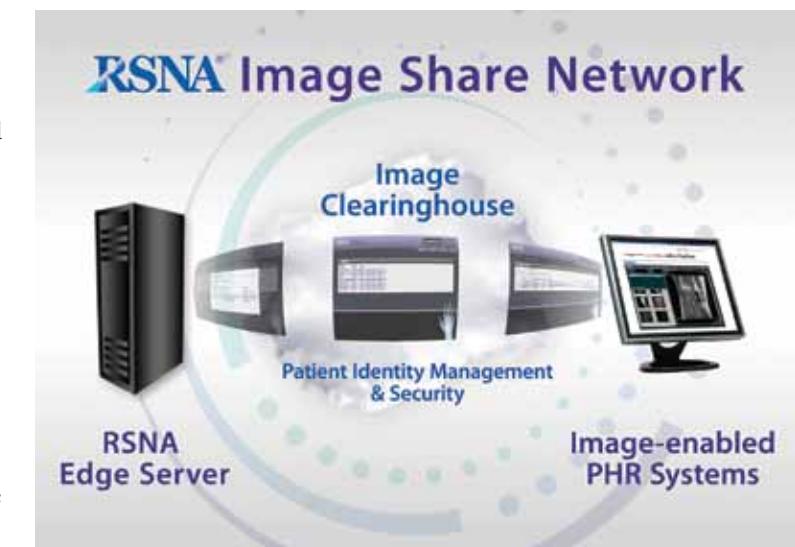
The Image Share network will also foster clinical trial research. The team has incorporated the RSNA MIRC Clinical Trial Processor (CTP) with the Edge Server. "We're in the process of releasing that as a way of moving around clinical trial data which have been de-identified," Dr. Mendelson said.

RSNA Encourages Vendor Involvement

Because the participation of healthcare equipment and software developers is essential to widespread adoption of image sharing, RSNA is inviting vendors of radiology systems to link to the Image Share network by providing the same capabilities offered by the Edge Server.

"We'll continue to provide our reference model system directly, but increase vendors' ability to incorporate the capabilities of the Edge Server within their own products," Dr. Mendelson said.

The computer code behind the Edge Server has been publicly released as open source so that program developers can readily integrate their products with commercial systems. During the IHE Image Sharing Demonstration at RSNA 2012, vendors had the opportunity to test and demonstrate their capability to link their systems to the network.



Developers expect the Image Share Network, designed to help patients take control of their medical images and reports, to expand to more than 25 sites in coming months. RSNA was charged with developing a method for patients to control access to their information through personal health records (PHR) without relying on CDs (bottom).

WEB EXTRAS

To learn more about the RSNA Image Share project, visit RSNA.org/Informatics.

To preview the patient experience in using an image-enabled personal health record, try the RSNA Online Demo at http://www.rsna.org/Image_Share.aspx.

Radiology Compensation Rates Drop Slightly in 2011

After experiencing modest compensation increases for two consecutive years, radiologists saw their incomes dip slightly in 2011.

OF THE 30 specialties surveyed for the 2012 American Medical Group Association (AMGA) 25th Annual Medical Group Compensation and Financial Survey, nearly 3 in 4 saw increases in compensation, averaging 2.8 percent above the previous year. But while radiologists remain some of the best compensated specialists, diagnostic and interventional radiology were among the five specialties that experienced a slight decrease in compensation from 2010 to 2011.

AMGA mailed the survey questionnaire to medical groups across the country in January 2012 and received responses from 225 groups representing more than 55,000 providers.

The survey showed that the median compensation level for interventional radiologists was \$485,277, a 1.39 percent decrease from 2010 to 2011, while median compensation for diagnostic radiologists fell by 0.45 percent to \$459,186. In terms of compensation, radiologists ranked fourth and fifth respectively among specialties surveyed.

Among other factors, experts say radiology may have reached a cooling off point after years of being considered a “hot” specialty.

“Whenever you see a big increase in a hot specialty like radiology, you will eventually hit periods that are a bit flatter,” said Brad Vaudrey, M.B.A., C.P.A., principal at Sullivan, Cotter & Associates, Inc., which administered the AMGA survey. “Now, a plateau is occurring.”

A number of factors are affecting the lower than average increases or “leveling out” of compensation in radiology, according to Donald W. Fisher, Ph.D., CAE, president and chief executive officer of AMGA. “Some of the primary drivers are shifts in the reimbursement levels from payers, new payment models that focus on value-based care (population health) rather than fee-for-service, and widespread integration of smaller, single-specialty practices into larger health systems,” he said.

Compensation Increases Flat Across Specialties

The 2.8 percent overall weighted average increase in compensation across all specialties was also slightly lower than in recent years, Vaudrey said.

“The 2.8 percent increase is just below what we typically see, which is around 3 percent, so compensation growth has slowed down a touch,” Vaudrey said. “The biggest drivers were the primary care specialties, which isn’t a surprise considering the focus of healthcare reform on the primary area.”



Vaudrey



Fisher

Cardiac/thoracic surgeons remain the best-compensated specialty with a median compensation of \$544,087, which was a 2.16 percent increase from the previous year. Following them are cath lab cardiologists with a median of \$524,731, a 4.09 percent increase, and orthopedic surgeons with a median of \$515,759, a 2.78 percent increase from the year before.

Specialties that recorded the biggest increases in annual compensation were hematology and medical oncology (up 7.13 percent to a median \$348,157), hypertension and nephrology (up 6.99 percent to a median \$277,934), and urgent care (up 5.17 percent to a median \$242,145).

“Whenever you see a big increase in a hot specialty like radiology, you will eventually hit periods that are a bit flatter!”

Brad Vaudrey, M.B.A., C.P.A.

TOP PHYSICIAN COMPENSATION

Specialties	2012	2011	2011-2012 Percentage Change	2010	2009	2010-2012 Percentage Change	2009-2012 Percentage Change
Cardiac/Thoracic Surgery	\$544,087	\$532,567	2.16	\$533,084	\$507,143	2.06	7.28
Cardiology — Cath Lab	524,731	504,099	4.09	484,092	471,746	8.39	11.23
Orthopedic Surgery	515,759	501,808	2.78	500,672	476,083	3.01	8.33
Diagnostic Radiology (interventional)	485,277	492,102	-1.39	478,000	478,000	1.52	1.52
Diagnostic Radiology (non-interventional)	459,186	461,250	-0.45	454,205	438,115	1.10	4.81

Source: American Medical Group Association (AMGA) 2011 Medical Group Compensation and Financial Survey.

TOP PHYSICIAN RVUs

Specialties	2012	2011	2011-2012 Percentage Change	2010	2009	2010-2012 Percentage Change	2009-2012 Percentage Change
Cardiac/Thoracic Surgery	\$9,500	\$9,612	-1.16	\$10,519	\$9,861	-9.68	-3.65
Ophthalmology	8,649	8,821	-1.95	8,583	8,186	0.77	5.66
Cardiology — Cath Lab	8,298	8,629	-3.83	8,633	8,579	-3.88	-3.27
Diagnostic Radiology (interventional)	7,813	7,597	2.84	8,530	8,127	-8.41	-3.87
Orthopedic Surgery	8,026	8,026	-0.01	8,373	7,962	-4.15	0.80

*Work relative value units (RVUs) are the primary measure of a physician's productivity for the majority of participating medical groups.
Source: American Medical Group Association (AMGA) 2011 Medical Group Compensation and Financial Survey.

Endocrinologists experienced the biggest drop in compensation, from a median \$233,000 to \$221,400, a 4.98 percent decrease. In addition to radiology, other specialties experiencing decreases in compensation were rheumatologists (down 1.09 percent to a median \$229,051) and otolaryngologists (down 0.81 percent to a median \$374,384).

Diagnostic Radiologists Show Largest Drop in RVUs

The overall weighted average relative value units (RVUs) decreased for all specialties by 0.5 percent in 2011. RVUs are a measure of physician output based on the value assigned to each Current Procedural Terminology (CPT) code through the resource-based relative value scale used partially by Medicare and nearly all health maintenance organizations.

Because reimbursement by the Centers for Medicare & Medicaid Services (CMS) is based on the RVU system, overall revenue falls when RVUs decrease, according to experts. CMS rates per RVU may also be scaled downward or revised annually through the budget reconciliation process.

The survey showed that RVU rates for primary care and medical specialties were fairly flat, with increases of 1.4 percent and 0.2 percent respectively. RVU rates for surgical specialties increased by 1.2 percent.

Interventional radiology had the third highest work RVU increase at 2.84 percent, behind infectious disease (4.37 percent) and urgent care (3.88 percent). RVUs for diagnostic radiologists decreased by 10.52 percent, the largest drop of any specialty.



Yousem

“The growth of therapeutic procedures performed by interventional radiologists in oncology and gynecology may explain the increase in RVUs for interventional radiologists,” said David Yousem, M.D., M.B.A., a professor in the Department of Radiology, vice-chair of program development and director of neuroradiology at Johns Hopkins Hospital in Baltimore, and a nationally recognized expert on radiology economics.

Factors that may have contributed to the drop in RVUs for diagnostic radiologists include the declining number of CT procedures, due in part to public and industry-wide emphasis on radiation safety, and the impact of the poor economy leading to fewer elective procedures performed, Dr. Yousem said.

“Confusion about mammography recommendations and the impact of the multiple procedure 50 percent reduction for image interpretation made by CMS in its reimbursement calculations in 2011 may also have led to the decrease in RVUs,” Dr. Yousem said. CMS decreased the multiple procedure payment reduction for interpretation of imaging from 50 to 25 percent in 2012.

Radiology Compensation Likely to Remain Flat

Vaudrey said that 2013 should show an overall increase in compensation of about 3 percent but he doesn't expect to see a dramatic increase in compensation levels for radiologists any time soon.

“I think we'll continue to see flat numbers,” he said. “I don't think there will be more negative numbers—we don't usually see negative numbers two years in a row—but I do think any increase will be below average.” □

WEB EXTRAS

More information about the American Medical Group Association is available at www.amga.org.

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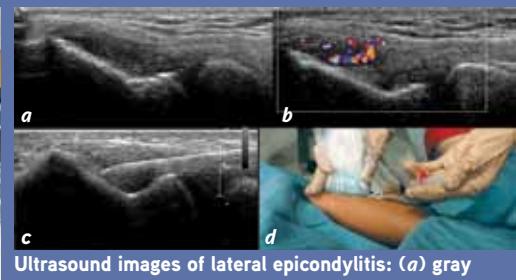
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YOUR DONATIONS IN ACTION

With a 2012 RSNA Research Seed Grant, **Mary M. Chiavaras, M.D., Ph.D.**, of McMaster University in Ontario, Canada, developed her project, "Impact of Platelet Rich Plasma Over Alternative Therapies in Patients with Lateral Epicondylitis (IMPROVE): A Multicenter, Randomized Trial Comparing Autologous Platelet Rich Plasma (PRP) Versus Autologous Whole Blood Versus Tenotomy on Pain and Quality of Life in Patients with Lateral Epicondylitis," a randomized controlled, blinded, 4-arm pilot study comparing PRP, whole blood, tenotomy and no intervention.



Ultrasound images of lateral epicondylitis: (a) gray scale showing tendinosis, (b) increased blood flow, (c) needle in the tendon, and (d) Dr. Chiavaras performing the procedure.

"This RSNA Seed grant has helped me form international collaborations with other members of the RSNA community," Dr. Chiavaras said. "Since receiving the grant, I have been able to build an international team of investigators, and together, we have shared our ideas, past experiences and expertise to make the study even stronger."

NEW AUR/RSNA EDUCATION SCHOLAR GRANT AVAILABLE

The RSNA R&E Foundation has collaborated with the Association of University Radiologists (AUR) to jointly fund a biennial specially named AUR/RSNA Education Scholar Grant. "I am delighted with this collaboration," said AUR President Ruth C. Carlos, M.D., M.S. "The synergy between the organizations lends itself to more effective support of education research and scholarship."

RSNA is pleased as well with the joint grant, said Theresa C. McLoud, M.D., 2012 chairman of the R&E Foundation Board of Trustees and 2008 RSNA President. She noted that the AUR/RSNA collaboration is the second announced this year; in late summer the Foundation announced a new joint award with the Foundation of the American Society of Neuroradiology. "Cooperative efforts between radiologic societies provide a powerful and cost-effective method to support educational and scientific research," Dr. McLoud said.

Applications are accepted through the RSNA Education Scholar grant program. The recipient must be a member of both organizations and will be matched with a mentor and recognized at the AUR annual meeting. Applications are now being accepted at RSNA.org/foundation. The first named grant will be awarded in 2013.



MOC News

ABR Expands Activities Accepted as Self-Assessment CME

Beginning January 1, 2013, separate requirements for CME credits and self-assessment modules (SAMs) will no longer be necessary to fulfill Part II of American Board of Radiology (ABR) Maintenance of Certification (MOC). These activities will be combined into a single requirement of 75 CME credits every three years, 25 of which must be self-assessment activities. In addition, the ABR's definition of self-assessment activities will expand to include more than just SAMs created by societies and other organizations and pre-qualified by the ABR. This will make it easier for CME offerings, including online and written materials with embedded questions, to meet the new overall self-assessment requirement.

The ABR defines "self-assessment CME" as interactive learning opportunities using self-assessment tools to help participants consider their individual practices and determine their specific needs for improvement. For more information on the criteria that self-assessment CME credits must meet, contact the ABR's MOC Services Division at abrmocp@theabr.org or 1-520-519-2152.

In addition to ABR-qualified SAMs, the ABR will count all AMA Category 1 CME activities using "journal-based CME" formats and "enduring materials" (both Web-based and print), toward the MOC Part II self-assessment requirement. For more information on the criteria that qualify these activities for use as self-assessment tools, contact the ABR.

As in the case of teleconferences, webinars or other "live" activities, AMA Category 1 CME activities that are performed in person or remotely do NOT automatically count as self-assessment CME because they may not be required to incorporate all the necessary criteria. Contact the ABR to learn whether an activity is considered self-assessment CME.

Organizations that want their "live" CME activities approved as SAMs must submit them for review by the ABR. All previously approved SAMs, as well as those approved in the future, will continue to count as self-assessment CME.

Journal Highlights

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

Performance of FDG PET/CT in the Clinical Management of Breast Cancer

PET with fluorine 18 (18F) fluorodeoxyglucose (FDG) has an important role in oncology while its role in the management of patients with breast cancer continues to evolve.

In a State-of-the-Art review in the January issue of *Radiology* (RSNA.org/Radiology), David Groheux, M.D., PhD., of Saint-Louis Hospital, Paris, and colleagues examine the principles of FDG PET/CT focusing on breast imaging and assess the advantages and limits of this approach at diagnosis, initial staging, follow up and evaluation of response to therapy in breast cancer. Specifically, the authors discuss the following regarding FDG PET/CT:

- Its usefulness in differentiating malignant from benign breast lesions
- Whether it can replace sentinel node biopsy for axillary staging
- Its role in initial staging of inflammatory or locally advanced breast cancer and in initial staging of clinical stage IIA and IIB and primary operable stage IIIA breast cancer
- How it compares with conventional techniques in the restaging of cancer in patients suspected of having disease recurrence
- Its role in the assessment of early response to neoadjuvant therapy and of response to therapy for metastatic disease

Combined PET/CT is more sensitive and specific than either of its constituent imaging methods, according to the authors.

"It facilitates distinguishing normal physiologic uptake from pathologic FDG uptake, allows accurate localization of functional abnormalities and reduces the incidence of false-positive and false-negative results of imaging studies," the authors write. "The factors that influence FDG uptake by breast tumors have an implication on how to interpret FDG PET/CT scans and who is the appropriate patient for imaging."

Complications of Aortic Valve Surgery: Manifestations at CT and MR Imaging

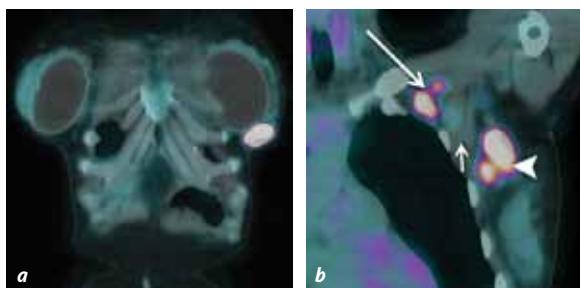
Because postoperative complications of aortic valve surgery remain a substantial source of morbidity and mortality, routine surveillance of prosthetic heart valves with transthoracic echocardiography (TTE), transesophageal echocardiography (TEE) and fluoroscopy is critical.

However, MR and CT are emerging as diagnostic tools complementary to conventional imaging for detecting and monitoring complications after aortic valve replacement, according to an article in the November-December 2012 issue of *RadioGraphics* (RSNA.org/RadioGraphics). Along with discussing that emerging role, Nancy Pham, M.D., of the Cleveland Clinic, and colleagues present CT and MR imaging appearances of a broad spectrum of prosthetic aortic valve diseases, including:

- Paravalvular or valvular regurgitation
- Valve dehiscence
- Prosthetic valve endocarditis (PVE) and abscess formation
- Obstruction (thrombosis versus pannus)
- Structural failure
- Pseudoaneurysm formation

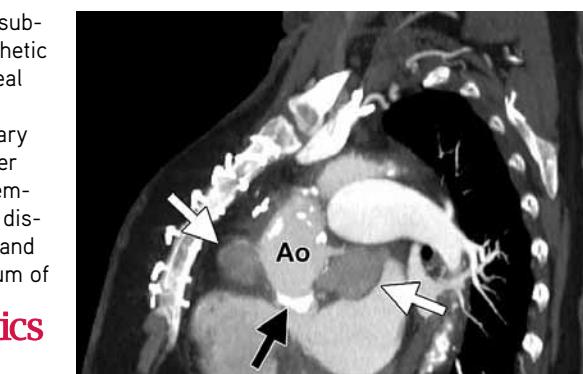
The choice between CT and MR imaging depends on individual patient characteristics, the type of prosthetic valve, and the acuity of the clinical situation, according to the authors.

"In general, screening with TTE followed by TEE is recommended," the authors write. "When results of TTE and TEE are inconclusive, cardiac CT and MR imaging should be considered. The choice between these imaging techniques depends on the presence of patient-specific contraindications to CT or MR imaging."



Invasive ductal carcinoma of the left breast in a 61-year-old woman who had undergone aesthetic breast surgery, with bilateral breast prosthesis, 10 years earlier. Before PET/CT, the tumor was classified as a T2N2 lesion (primary tumor of 45 mm with ipsilateral matted level I axillary lymph node metastases). (a) PET/CT image shows high FDG uptake in the primary tumor (SUVmax, 15.7). (b) PET/CT image shows FDG uptake also in axilla, level I (arrowhead), as well as in infraclavicular nodes (axilla, level III [long arrow]), medial to the pectoralis minor muscle (short arrow). With PET/CT results, the tumor was classified as a T2N3a lesion.

(*Radiology* 2012;266:1 (In Press) ©RSNA, 2012. All rights reserved. Printed with permission.)



Perigraft pseudoaneurysms in a 71-year-old woman with a prosthetic aortic valve. Sagittal oblique (b) maximum intensity projection CT images show two contained collections (white arrows) associated with the prosthesis (black arrow in b). These findings are consistent with pseudoaneurysms. Ao = aorta.

(*RadioGraphics* 2012;32:7:1873-1892) ©RSNA, 2012. All rights reserved. Printed with permission.

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

Radiology in Public Focus

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

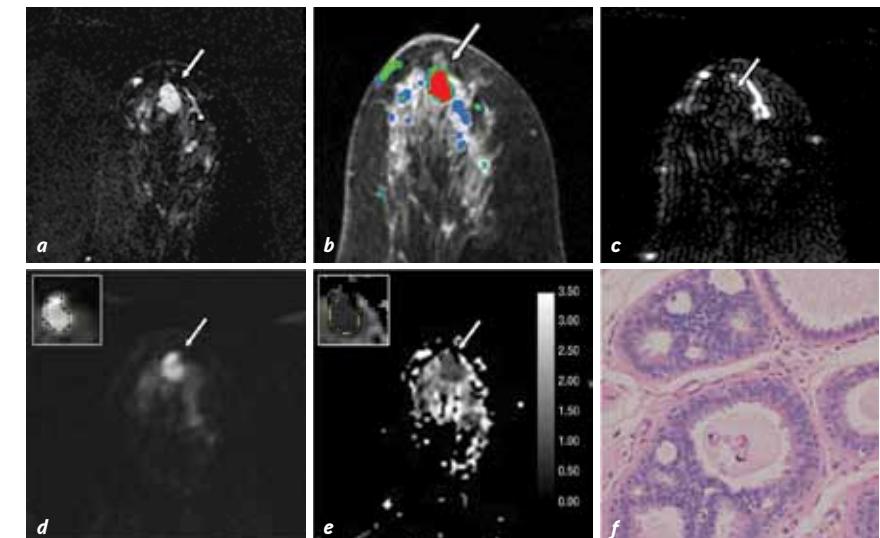
Nonmalignant Breast Lesions: ADCs of Benign and High-Risk Subtypes Assessed as False-Positive at Dynamic Enhanced MR Imaging

ASSESSING apparent diffusion coefficients (ADCs) along with dynamic contrast-enhanced MR imaging features may decrease the number of avoidable false-positive findings at breast MR imaging and reduce the number of preventable biopsies, new research shows.

In the study, Sana Parsian, M.D., of the University of Washington School of Medicine, Seattle, and colleagues retrospectively reviewed lesions assessed as Breast Imaging Reporting and Data System (BI-RADS) category 4 or 5 at clinical dynamic contrast material-enhanced MR imaging that subsequently proved nonmalignant at biopsy. Researchers evaluated 175 nonmalignant breast lesions in 165 women. ADCs from diffusion-weighted (DW) imaging were calculated for each lesion and compared between subtypes and with an ADC threshold determined in a prior study to achieve 100 percent sensitivity.

Results showed that 46 percent of nonmalignant breast lesions assessed as false-positive findings at dynamic contrast-enhanced MR imaging had ADCs higher than the previously determined diagnostic threshold.

"Our findings show promise for using diffusion-weighted imaging to reduce the number of avoidable false-positive findings at breast dynamic contrast-enhanced MR imaging; improving the specificity of breast MR imaging would reduce the number of avoidable biopsies and associated morbidity for the patient," the researchers write.



Images in 61-year-old woman with a personal history of right-breast ductal carcinoma in situ. The patient underwent breast MR imaging for high-risk screening. (a) Axial dynamic contrast-enhanced initial postcontrast subtraction MR image shows 13-mm lobular heterogeneously enhancing mass (arrow) in the subareolar region of the left breast, 16 mm from the nipple. The lesion has a smooth margin and is at an anterior depth. This lesion was classified as BI-RADS category 4. On (b) an axial dynamic contrast-enhanced MR image, the lesion shows mixed kinetics overall: 28 percent delayed persistent enhancement (blue), 34 percent delayed plateau (green) and 38 percent delayed washout (red). The lesion is hypointense on (c) an axial T2-weighted MR image. The lesion is hyperintense on (d) axial DW image and has a low ADC (mean, 1.06×10^{-3} mm 2 /sec) on (e) an ADC map. Insets in d and e = ROIs. The lesion was classified as ADH on the basis of (f) US-guided core biopsy results, which showed intraductal papilloma and ductal hyperplasia with focal atypia with no evidence of invasive carcinoma. (Hematoxylin-eosin stain; original magnification, $\times 200$.) No evidence of carcinoma was detected at excisional biopsy.

(*Radiology* 2012;265:3:699-706) ©RSNA, 2012. All rights reserved. Printed with permission.

Comparison of Digital Screening Mammography and Screen-Film Mammography in the Early Detection of Clinically Relevant Cancers: A Multicenter Study

IN A LARGE, population-based breast cancer screening program, digital mammography performed substantially better than screen-film mammography (SFM) in detecting ductal carcinoma in situ (DCIS) and invasive carcinoma, new research shows.

In the study, Adriana M.J. Bliekkens, M.D., of the National Expert and Training Centre for Breast Cancer Screening in Nijmegen and St. Elisabeth Hospital in Tilburg, both in the Netherlands, and colleagues compared digital mammography to SFM in 1,198,493 screening mam-

mograms performed between 2003 and 2007. Of those, 83.3 percent were SFM examinations and 12.7 percent were digital mammography examinations. Recall was indicated in 18,896 cases.

For initial screening examinations, the detection rate per 1,000 women was 5.6 with SFM and 6.8 with digital mammography. The difference in detection for subsequent screening examinations was also in favor of digital mammography, with respective rates of 5.2 and 6.1 per 1,000 women. Detection of high-grade

DCIS with digital mammography was 58.5 percent, compared with 50.5 percent for SFM.

"Digital screening mammography demonstrates advantages in the early detection of breast cancer by increasing the detection of clinically relevant cancers while keeping potential overdiagnosis low," the authors write. "This gain is largely due to enhanced depiction of microcalcifications, resulting in improved detection of both DCIS and invasive carcinoma."

Continued on page 22

Education and Funding Opportunities



Writing a Competitive Grant Proposal

February 22-23, 2013
RSNA Headquarters,
Oak Brook, Ill.
Registration Deadline
December 17, 2012

REGISTRATION is being accepted for the Writing a Competitive Grant Proposal workshop designed for researchers in radiology, radiation oncology, nuclear medicine and related sciences who are interested in actively pursuing federal funding.

A limited number of slots are available for this 1½-day intermediate-level program that combines didactic and small group interactive sessions designed to help radiologic researchers understand and apply the key components of writing a competitive grant proposal. Topics to be covered include the National Institutes of Health grant review process, developing specific aims, and funding opportunities.

Guided by a faculty of leading researchers with extensive experience in all aspects of grant applications and funding, the program will focus on developing realistic expectations and provide tools for getting started. Faculty includes: G. Scott Gazelle, M.D., Ph.D., M.P.H., of Massachusetts General Hospital in Boston; Ruth Carlos, M.D., of the University of Michigan Health System in Ann Arbor; Elizabeth Burnside, M.D., M.P.H., of the University of Wisconsin in Madison; and Francis Blankenberg, M.D., of Lucile Packard Children's Hospital at Stanford University in Palo Alto, Calif.

The course fee is \$175. Registration forms can be found at RSNA.org/CGP. Contact Fiona Miller at 1-630-590-7741 or fmliller@rsna.org for further information.

Derek Harwood-Nash Fellows Announced

RSNA has named the recipients of its Derek Harwood-Nash International Fellowship for 2013:

- **Celeste Amabel Garcia de Rodriguez, M.D.**, of Instituto Salvadoreño Del Seguro Social in El Salvador, will complete a fellowship at Brigham and Women's Hospital in Boston from July to September 2013.
- **Nasreen Mahomed, M.D.**, of Chris Hani Baragwanath Academic Hospital in South Africa, will complete a fellowship at Children's Hospital, Boston, from September to November 2013.
- **Nicolas Maza Tousaint, M.B.B.C.H.**, of Universidad Gran Mariscal de Ayacucho-

Hospital Perez Carreno in Venezuela, will complete a fellowship at University of California, San Diego, from June to August 2013.

The Derek Harwood-Nash International Fellowship allows international radiologists three to 10 years beyond training to complete a six- to 12-week fellowship at a North American institution. Learn more at RSNA.org/Derek_Harwood-Nash_International_Fellowship.aspx.



García de Rodriguez

Mahomed

Maza Tousaint

Medical Meetings January–February 2013

JANUARY 4-7

Indian Radiological & Imaging Association (IRIA), 66th Annual Congress, Daly College, Indore, Madhya Pradesh, India
• www.iriaindia.in/index.php

JANUARY 24-27

Society of Nuclear Medicine and Molecular Imaging (SNMMI), 2013 Mid-winter Meeting, New Orleans
• www.snmmi.org

JANUARY 28-FEBRUARY 2

Integrating the Healthcare Enterprise (IHE®) North American Connectathon, Hyatt Regency Chicago
• www.ihe.net/Connectathon

FEBRUARY 1-3

Kuwait International Neuroimaging Conference (KINIC), Sheikha Salwa Al-Sabah Hall, Marina-Hotel, Salmiya, Kuwait
• www.neuroimaging-kw.com

FEBRUARY 7-9

European Society for Radiotherapy & Oncology (ESTRO), 4th International Conference on Innovative Approaches in Head and Neck Oncology, Barcelona, Spain
• www.estro.org

FEBRUARY 8-9

RSNA and ASTRO, Cancer Imaging and Radiation Therapy Symposium, The Hilton Walt Disney World Resort, Orlando, Fla.
• www.cancerimagingandrtsymposium.org

FEBRUARY 9-14

International Society for Optics and Photonics (SPIE), Medical Imaging 2013, Disney's Coronado Springs Resort, Lake Buena Vista, Fla.
• www.spie.org

**FIND MORE EVENTS AT
RSNA.org/calendar.aspx.**

RSNA 2012 Courses to be Posted Online

At each RSNA annual meeting, the RSNA Education Center records several courses and, in the coming months, will post these presentations online as enduring educational materials for RSNA members.

The RSNA Education Center thanks the faculty who agreed to have their courses recorded at RSNA 2012, as well as those who presented self-assessment modules (SAMs) at the annual meeting. As part of presenting a SAM, faculty must write SAM questions for their course and provide references for each question. With the help of SAM faculty, the Education Center was able to provide more than 40 SAMs courses at RSNA 2012.

Visit RSNA.org/education to view the current catalog of products. For information on educational products, contact the Education Center at ed-ctr@rsna.org or 1-800-272-2920.

ARLM Awards First Certificates of Achievement

RSNA congratulates **Amilcare Gentili, M.D.**, and **Lisa H. Lowe, M.D.**, on earning the first Academy of Radiology Leadership and Management (ARLM) Certificates of Achievement awarded since ARLM was launched in 2011.

The certificates recognize dedication to furthering leadership and management skills by participating in a wide array of ARLM-approved leadership courses offered through its sponsoring organizations: RSNA, the Association of University Radiologists (AUR); American



Roentgen Ray Society (ARRS); Society of Chairs of Academic Radiology Departments (SCARD); and the Association of Administrators in Academic Radiology Departments (AARAD).

To earn a certificate, individuals must earn 50 education credits—at least 30 in

person—across a spectrum of core learning domains including financial skills, human resources, professionalism, legal/contracting, academic mission and general management. A minimum of three credits in each domain is required.

Learn more and explore courses at radleaders.org.

RSNA Receives ABR Deemed Status, CAR Accreditation

Further solidifying its reputation as a quality medical education provider, RSNA has received deemed status from the American Board of Radiology (ABR) for its self-assessment modules (SAMs) and accreditation by the Canadian Association of Radiologists (CAR) for its in-person and online SAMs in support of the Royal College of Physicians and Surgeons of Canada's (RCPSG) Maintenance of Certification (MOC) program.

RSNA's record of high-quality educational products and services prompted

application for deemed status with the ABR in 2012. Deemed status indicates a favorable history of ABR-approved SAM offerings and will allow RSNA to develop and implement SAM courses without prior ABR review. "We are pleased and honored to receive ABR deemed status for SAM courses," said David Avrin, M.D., Ph.D., chair of RSNA's Education Committee. "This success illustrates RSNA's dedication to quality education for our members."

RSNA sought and received accredita-

tion from CAR to broaden the reach of its educational products. RSNA's in-person SAMs courses are available for CAR credit at RSNA 2012, allowing Canadian radiologists to take advantage of RSNA's educational products while earning credit towards MOC through the RCPSG. RSNA looks forward to a continued partnership with CAR to further the value of its educational resources.

Annual Meeting Watch

News about RSNA 2013

RSNA 2013 Online Abstract Submission Opens mid-January

The online system to submit abstracts for RSNA 2013 will be activated in mid-January. The submission deadline is 12 noon Central Time on Wednesday, April 10, 2013. Abstracts are required for scientific presentations, education exhibits, applied science and quality storyboards.

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.



Other Important Dates for RSNA 2013

- May 8:** Member registration and housing open
- June 5:** Non-Member registration and housing open
- July 10:** Course enrollment opens
- October 25:** Deadline for international badge mailing
- 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



Radiology in Public Focus

Continued from page 18

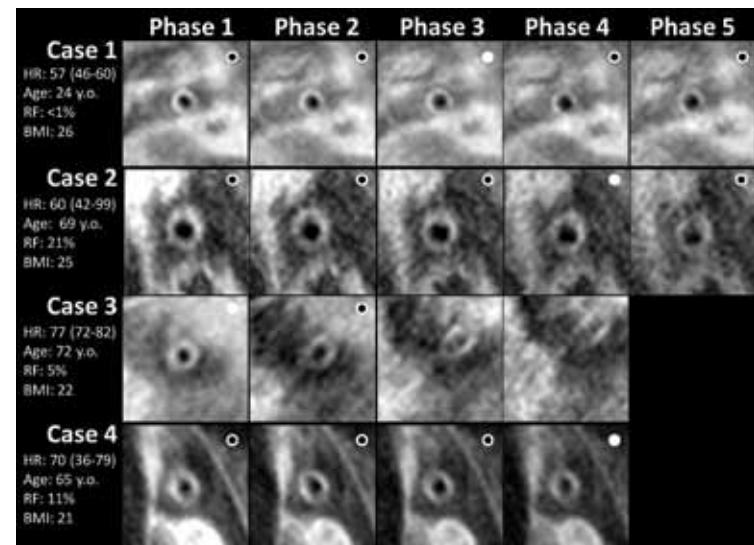
Coronary Vessel Wall 3-T MR Imaging with Time-resolved Acquisition of Phase-Sensitive Dual Inversion-Recovery (TRAPD) Technique: Initial Results in Patients with Risk Factors for Coronary Artery Disease

TIME-RESOLVED acquisition of phase-sensitive dual-inversion recovery (TRAPD) imaging of coronary arteries improves arterial wall visualization and quantitative assessment by increasing the success rate of obtaining good- to excellent-quality images and sections orthogonal to the longitudinal axis of the vessel. The technique also resulted in vessel wall thickness measurements that show a more distinct difference between healthy subjects and those with CAD risk factors, new research shows.

In the study of 12 healthy subjects and 26 with at least one CAD risk factor, Khaled Z. Abd-Elmoniem, Ph.D., of the National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health, and colleagues developed the TRAPD coronary vessel wall imaging sequence and validated it with a flow phantom. Researchers obtained time-resolved coronary artery wall images at three to five cine cases in all subjects and made qualitative and quantitative comparisons between TRAPD and conventional single-image wall measurements.

Use of three to five frames increased the success rate of acquiring at least one image of good to excellent quality from 76 percent in single-image acquisitions to 95 percent with the TRAPD sequence, results showed. The difference in vessel wall thickness between healthy subjects and CAD risk factor subjects was significant with the TRAPD sequence, according to the authors.

"Preliminary experience with the TRAPD sequence in healthy subjects and subjects with risk factors for coronary artery disease suggests improved ability to distinguish coronary wall thickness between the two groups compared with that with single-frame dual inversion-recovery imaging," the authors write.



TRAPD signed-magnitude images of four different subjects show subject variability encountered in the study. White circles = images with good- or excellent-quality scores, filled circles = images with thinnest vessel walls. Cases 1 and 2 are healthy subjects in which all images had adequate (good or excellent) scores for quantitative analysis. Cases 3 and 4 subjects with CAD risk factors and short cardiac cycles in whom it was impossible to acquire the fifth frames. Case 3 also shows a situation in which only the first two frames had acceptable quality. The label beside each case shows average, minimum and maximum heart rate (HR) in beats per minute during the examination, age in years, Framingham risk factor (RF) and body mass index (BMI).

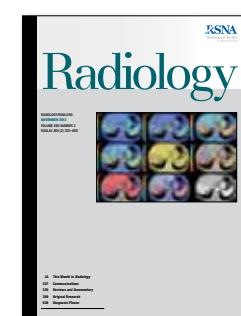
(*Radiology* 2012;265:715-723) ©RSNA, 2012. All rights reserved. Printed with permission.

Media Coverage of RSNA

In August, media outlets carried 292 RSNA-related news stories. These stories reached an estimated 379 million people.

Print and broadcast coverage included *The Boston Globe*, *The Globe and Mail*, *The Toronto Sun*, *Imaging Technology News*, *CNN Presents*, *The Peterborough Examiner*, *Imaging Economics*, *WOR-AM* (New York) and *WLS-TV* (Chicago).

Online coverage included *Yahoo! News*, *MSN*, *HealthDay*, *Philly.com*, *iVillage.com*, *MedPage Today*, *Science Daily*, *AuntMinnie.com* and *Medscape*.



DECEMBER OUTREACH ACTIVITIES FOCUS ON MR IMAGING

In December, RSNA's 60-Second Checkup radio program focuses on the potential of MR imaging to pinpoint children at risk for dyslexia.

RSNA Wins Marketing & Communication Gold Award

RSNA recently received a Gold MarCom Award from the Association of Marketing & Communication Professionals for its 2011 Annual Meeting Press Kit. The international competition recognizes outstanding creative achievement by marketing and communication professionals. The 2012 competition drew more than 6,000 entries from the U.S., Canada and several other countries.

The Value of Membership

R&E Foundation Grants Impact Investigators Throughout Their Careers

RSNA members can take an active role in moving the specialty forward by supporting—or applying for—the Research & Education (R&E) Foundation grants that represent the future of radiology and related scientific disciplines.

R&E Foundation grants are available for medical students, residents, fellows and faculty at all levels. Applicants must be RSNA members at the time of application. From hypothesis-driven basic science, translational and clinical studies to development of new strategies for teaching methods, the Foundation supports projects that are changing the way radiologists practice and learn.

In 2012, the Foundation funded 79 grant projects totaling \$2.9 million—and that's just the beginning. Surveys show that for every dollar funded by the Foundation, grant recipients will receive an additional \$30 from sources such as the National Institutes of Health (NIH) for further research. The \$37 million funded by the Foundation since its inception in 1984 equates to more than a billion dollars in subsequent research dollars channeled into the radiologic sciences.

"I was fortunate to receive an R&E Foundation Research Seed Grant that helped me initiate and lay the foundation for my basic science interventional radiology research career," said Ron Gaba, M.D., an assistant professor of radiology at

the University of Illinois Hospital in Chicago. "The experience gained during that study allowed me to secure a basic science research grant from the American Cancer Society, which will help me prepare and transition to NIH-level funding proposals."

Visit [RSNA.org/foundation](#) for more details or to submit an application.

Read about the redesigned R&E Foundation homepage including a new feature listing grant recipients and their abstracts on Page 24.

DEADLINES FOR 2013 GRANT APPLICATIONS

The application process for 2013 R&E Foundation grants opens this month. Deadlines are:

- January 10, Education Grants
- January 15, Research Grants
- February 1, Research Medical Student Grant



Residents & Fellows Corner

New Features Enhance myPortfolio Experience

Residents accessing myPortfolio—RSNA's Web tool designed to assist with tracking goals, progress and accomplishments—can now explore a number of new online features created to expand the user experience.

Located on [myRSNA.org](#), myPortfolio provides an easy, safe and convenient way for residents to document and organize their requirements throughout their education. Users can store case logs, summary evaluations, evidence of scholarly activity, credentials, documentation of group and individual learning, exam results, learning plans, quality assurance/quality improvement activities, institution policies, resident self-evaluation and more. Residents can electronically document their educational activities in each area—an efficient way to monitor progress towards residency goals.

In addition, new features now available on myPortfolio include:

- **Tablet Ready**—Now optimized for tablet viewing to provide users with the best experience possible.
- **New Site/Menu Layout**—A streamlined, user-friendly layout provides quicker access to the tools used most frequently.
- **Tagging Files and Activities**—Add tags to each file or activity uploaded to myPortfolio to organize content.
- **Integration of ACGME Competencies**—Use the tagging feature to assign Accreditation Council for Graduate Medical Education (ACGME) core



competency categories to any myPortfolio entry. Use the enhanced search feature to filter entries by competency.

- **ACR In-Training Exam Scores**—Residents can now access their American College of Radiology (ACR) In-Training exam scores from myPortfolio.

Access myPortfolio at [myRSNA.RSNA.org](#). For more information, contact Taylor Kenney at tkenney@rsna.org or 1-630-571-7838.

THE NEW RSNA.org

Access 2012 Grant Recipients on R&E Foundation Web Portal

To spotlight the growing number of researchers who have received Research & Education (R&E) Foundation grants, the R&E website now links users to a list of grant recipients and their research abstracts as part of the redesigned [RSNA.org](#).

Posted on the R&E homepage under Things to Know, the list of 2012 grant recipients features each researcher's name/photo, an abstract of the research and links to more activities associated with each grant recipient. Users can narrow their search by keyword.

The fresh new look of the R&E Foundation homepage also features a prominent "Donate Now" button and a link to the R&E quarterly newsletter, *Foundation Focus*. Other highlights include:

- **About the Foundation:** Learn about the mission, history, Board of Trustees, committees and more, and view a video about the Foundation featuring testimonials from grant recipients.

- **Foundation Resources:** Your connection to a host of information, including:

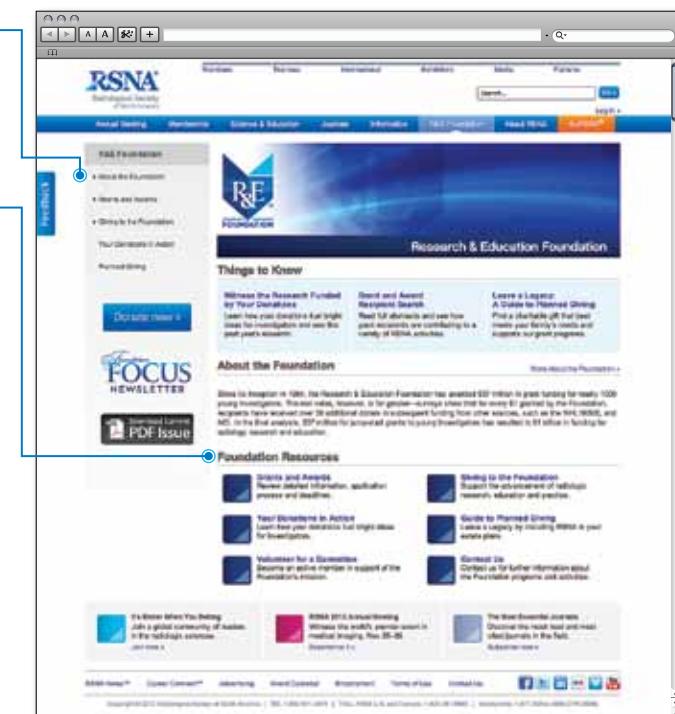
Grants and Awards: Review detailed information, application process and deadlines.

Your Donations in Action: Learn how your donations fuel bright ideas for investigators.

Giving to the Foundation: Support the advancement of radiologic research, education and practice.

Guide to Planned Giving: Leave a Legacy by including RSNA in your estate plans.

Volunteer for a Committee: Become an active member in support of the Foundation's mission.



COMING NEXT MONTH

Workplace stress and burnout continue to increase for the majority of physicians—including radiologists. As the New Year begins, we ask experts to share their most effective tips and strategies for transforming stress into empowerment.

Riverain Technologies Introduces ClearRead +Confirm™

Become more efficient reading portable chest X-rays with the use of ClearRead +Confirm. ClearRead +Confirm identifies and highlights lines and tubes, **significantly reducing portable reading time.**



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*Pending 510(k), not available for sale within the United States



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