

RSNA News™

October-November 2013 Volume 23, Numbers 10 & 11

DOUBLE ISSUE



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December 1-6 | McCormick Place | Chicago

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RSNA News™

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

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2014 RSNA Membership Renewal Under Way

RSNA membership renewal for 2014 is underway. Renew online at RSNA.org/renew or by mail with the invoice sent to you early in October. When renewing, take a moment to update your profile with current contact information.

All RSNA members have access to RSNA journals online. Because online access to *Radiology* and *RadioGraphics* is tied to membership status, if your payment has not been received by December 31, 2013, your online subscriptions will be automatically inactivated.

Practices can take advantage of RSNA's group billing option. For more information on the option and/or to renew membership by phone, contact the RSNA Membership Department toll-free at 1-877-RSNA-MEM or at 1-630-571-7873, or send an e-mail to membership@rsna.org.

2014 R&E GRANT APPLICATION PROCESS OPENS THIS MONTH

Individuals interested in obtaining RSNA Research & Education (R&E) Foundation grants for 2014 can begin submitting their applications starting in October. For more information, go to RSNA.org/Foundation or contact Scott A. Walter, M.S., Assistant Director, Grant Administration at 1-630-571-7816 or swalter@rsna.org. Grants available include:

EDUCATION GRANTS

Deadline—Jan 10

- ▶ Education Scholar Grant
- ▶ RSNA/AUR/APDR/SCARD Radiology Education Research Development Grant

RESEARCH GRANTS

Deadline—Jan 15

- ▶ Research Scholar Grant
- ▶ Research Seed Grant
- ▶ Research Resident/Fellow Grant

RESEARCH MEDICAL STUDENT GRANT

Deadline—Feb 1

Learn about the 2013 R&E Foundation grant recipients and their projects starting on Page 13.



Numbers in the News

44

The approximate number of RSNA 2013 courses that count toward the Certificate of Achievement offered by the Academy of Radiology Leadership and Management (ARLM). [Learn more about ARLM-eligible courses in the RSNA 2013 Meeting Preview section on page 36.](#)

250

Tons of material—including recyclables such as fiber, compost, bottles and cans—diverted from the landfill during RSNA 2012. [Read about continued Green Meeting efforts for RSNA 2013 on Page 5.](#)

9,903

The number of open access (OA) journals covering all fields—science as well as other areas of scholarship—according to the online Directory of Open Access Journals. [Read about the new OA publishing option for RSNA's journals on Page 9.](#)

13,393

The number of abstracts RSNA received for consideration for presentation at RSNA 2013—231 more than last year. [Read about the rich offering of scientific presentations, education exhibits and courses chosen for 2013 in the Meeting Preview section beginning on Page 26.](#)

SNMMI Names Officers, Bestows Awards

Gary L. Dillehay, M.D., a professor of radiology at Northwestern Memorial Hospital in Chicago, was named president of the Society of Nuclear Medicine and Molecular Imaging (SNMMI) during its recent annual meeting in Vancouver, Canada.

Other SNMMI officers elected for 2013-14 are **Peter Herscovitch, M.D.**, director of the PET Department at the National Institutes of Health (NIH) Clinical Center in Bethesda, Md., president-elect, and **Hossein Jadvar, M.D., Ph.D., M.P.H., M.B.A.**, tenured associate professor of radiology and biomedical engineering and vice-chair of radiology research at the University of Southern California Keck School of Medicine in Los Angeles, vice president-elect.

Dean F. Wong, M.D., Ph.D., professor and vice-chair of radiology and professor of psychiatry, neuroscience, environmental health sciences at Carey School of Business, Johns Hopkins University in Baltimore, received the prestigious Paul C. Aebersold Award recognizing outstanding achievement in basic science applied to nuclear medicine.

S. Ted Treves, M.D., professor of radiology and director of the Joint Program in Nuclear Medicine at Harvard Medical School, received the Georg Charles de Hevesy Nuclear Pioneer Award for his contributions to nuclear medicine. Dr. Treves also serves in several capacities at Brigham & Women's Hospital, the Dana-Farber Cancer Institute and Boston Children's Hospital, where he founded the first Division of Nuclear Medicine and served as its chief for more than 40 years.



Dillehay



Herscovitch



Jadvar



Wong



Treves

Piwnica-Worms Named Chair at MD Anderson

MD Anderson Cancer Center at the University of Texas has named **David Piwnica-Worms, M.D., Ph.D.**, as chair of the Department of Cancer Systems Imaging and deputy division head of research affairs for the Division of Diagnostic Imaging. Dr. Piwnica-Worms previously served as director of the Washington University Medical School Molecular Imaging Center and its BRIGHT (Bridging Research with Imaging, Genomics and High-Throughput Technologies) Institute.

Dr. Piwnica-Worms received a two-year Squibb Diagnostics (now Bracco Diagnostics Inc.)/RSNA Research Scholar Grant in 1989. He has served on numerous RSNA committees and is a current member of the RSNA Public Information Advisors Network (PIAN).



Piwnica-Worms

Fraass Receives AAPM William D. Coolidge Award

The American Association of Physicists in Medicine (AAPM) awarded renowned medical physicist **Benedick Fraass, Ph.D.**, the William D. Coolidge Award for his distinguished career, including his pioneering work in radiation oncology, at the Society's recent annual meeting in Indianapolis.

Dr. Fraass is vice-chair of research and a professor and director of medical physics in the Department of Radiation Oncology at Cedars-Sinai's Samuel Oschin Comprehensive Cancer Institute, Los Angeles. Dr. Fraass was named professor emeritus of the University of Michigan in 2011, where he served as director of the Radiation Oncology Physics Division from 1984 to 2011.



Fraass

Mukherji Named Michigan State University Chair

Suresh K. Mukherji, M.D., was named chair of the Department of Radiology at Michigan State University in East Lansing. Dr. Mukherji formerly served as division director of neuroradiology at the University of Michigan.

Dr. Mukherji received a Nycomed Inc./RSNA Research Seed Grant in 1993 and a Fuji Photo Film/RSNA Research Scholar Grant in 1996. He currently serves on the R&E Foundation Public Relations Committee and the Neuro-radiology/Head and Neck Scientific Program Sub Committee.

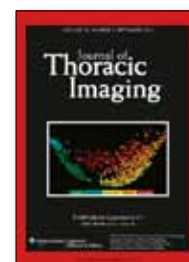


Mukherji

Journal of Thoracic Radiology Launches Educational Web Feature

To better promote quality improvement in cardiopulmonary imaging among radiologists and trainees, the *Journal of Thoracic Imaging (JTI)* recently launched a new Quality Corner section in its online journal at www.thoracicimaging.com.

This new Web feature contains links to a variety of open-access educational content including: a collection of review articles devoted to quality improvement and radiation dose reduction; succinct reviews of American College of Radiology (ACR) Appropriateness Criteria® for cardiopulmonary imaging; a list of suggested Practice Quality Improvement (PQI) projects in cardiopulmonary imaging; a blog series devoted to quality improvement; and links to open-access resources on quality matters.



ESGAR HONORS CLAUSSEN AND SOMERS

Claus Claussen, M.D., and Sat Somers, M.D., were awarded honorary fellowships by the European Society of Gastrointestinal and Abdominal Radiologists (ESGAR) at the recent Annual Meeting and Postgraduate Course held in Barcelona, Spain. Dr. Claussen is a professor of radiology and chair of the Department of Diagnostic and Interventional Radiology at Eberhard-Karls University in Tübingen, Germany. Dr. Somers is a professor and chair emeritus of the Department of Radiology at McMaster University, Ontario, Canada.



Left to right: ESGAR President Luis Martí-Bonmatí, M.D., Ph.D., Claus Claussen, M.D., and Michael Laniado, M.D.



Left to right: ESGAR President Luis Martí-Bonmatí, M.D., Ph.D., Sat Somers, M.D., and Alan Freeman, M.D.

International Day of Radiology

RSNA, the European Society of Radiology (ESR) and the American College of Radiology (ACR), along with other participating societies around the world, will celebrate the second International Day of Radiology (IDoR) on November 8, the anniversary of the discovery of X-rays by Wilhelm Conrad Roentgen, Ph.D.



IDoR is meant to build greater awareness of radiology's value and contributions to patient care and the vital role of the radiologist in the healthcare continuum.

Last year, international societies recognized the day through various activities, including lectures, symposia, social media promotions and press events. The main focus of IDoR 2013 will be lung imaging, highlighting the important role that radiology plays in the detection, diagnosis and management of a wide variety of lung diseases.

Two new booklets, *The Story of Radiology, Vol. II* and *Thoracic Imaging*, will be available, along with additional promotional materials, for download on RSNA, ACR and IDOR websites. For more information on how you can join the celebration, visit IDoR2013.com or RSNA.org/IDoR2013.

Host Societies Sought for International Visiting Professors

NATIONAL radiology societies in, or that primarily serve, developing countries are invited to apply to host an RSNA International Visiting Professor (IVP) team. The IVP team will lecture at the host's national radiology society meeting. In addition, the society will be responsible for organizing visits to educational institutions that have active radiology training programs with the need and potential for educational enrichment from a visiting professor team.

Host societies are also expected to provide hotel accommodations and meals for the IVP team for the duration of their visit and communicate program, schedule and hospitality arrangements to IVP team members and RSNA staff. The deadline to apply for 2015 IVP visits is December 31, 2013. Find more information and an application at RSNA.org/International_Visiting_Professor_Program_.aspx.

IN MEMORIAM

Sidney Wallace, M.D.

Sidney Wallace, M.D., a pioneer in interventional radiology, died May 25, 2013. He was 84.

Dr. Wallace was professor emeritus of the University of Texas MD Anderson Cancer Center in Houston, where he served as a professor of radiology, chair of the Department of Diagnostic Radiology and head of the Division of Diagnostic Imaging.

Dr. Wallace was instrumental in advancing the knowledge and techniques used in interventional radiology around the world. He was one of the first to recognize interventional radiology's unique role and advocated for supervising patient care and taking an active role in the decision-making process.



Dr. Wallace was a staunch supporter of the role of research in interventional radiology and is one of the founders of the John S. Dunn Research Foundation Center for Radiologic Sciences at the University of Texas MD Anderson Cancer Center.

Dr. Wallace received his medical degree from Temple University School of Medicine and served his radiology residency at Thomas Jefferson University Hospital, both in Philadelphia. After retiring in 1996, Dr. Wallace developed the drug paclitaxel poliglumex, which is being studied as a treatment for ovarian cancer.

My Turn

Residents and Fellows Help RSNA Shape Radiology's Future

As my tenure as Chair of the RSNA Resident and Fellow Committee (RFC) comes to an end, it's a good time to take a look back at what we have accomplished and look forward to what is yet to come. The RFC started as a group of 23 members-in-training, all with the common goal of improving the educational experience through the RSNA. At the risk of sounding like pioneers, our accomplishments have far exceeded what we thought was possible.

Fellowship Connect was developed to help residents find fellowships that suited their needs based on their own search criteria. The goal was to ease the process of fellowship searches. Our database of fellowships has grown to include fellowships accredited by the ACGME and many which are not, which are sometimes difficult to track down. More than 40,000 hits from inside and outside the U.S. attest to the success of our efforts.

We then posed the question, "What are our needs as graduating residents and fellows that our training programs don't always incorporate into the curricula?" The result was the Resident

and Fellow Symposium. Our inaugural 2011 program was dedicated to helping prepare trainees to negotiate job offers and to recognize potentially costly errors. Last year, we sponsored a legal session to help trainees understand contracts and avoid pitfalls. In 2013, we are focusing on career survival skills and how to stay essential to your job. We have had more than 500 attendees so far and are looking forward to more exciting offerings in the future.

With the changing board certification system, residents need guidance to prepare for the new exam. I can remember my oral board preparation and how many of my co-residents would share *RadioGraphics* articles and links to useful websites that served as valuable study tools. We distilled large amounts of information from journals and the Web into what we felt were essential learning points.

In the near future, the RFC will unveil the RSNA Education Portal, a feature within myRSNA that residents can use to upload their favorite links so that everyone can benefit from sharing resources through a central site. The editorial teams from *Radiology* and *RadioGraphics*

are also participating by tagging articles that are appropriate for trainees.

RSNA has been incredibly supportive of the RFC by providing us with a wealth of resources and helping to bring our ideas to fruition. In the future I would like to see the RFC develop additional RSNA programming and scholarships for international outreach work. Everyone can benefit from studying the challenges in healthcare from a global perspective. It has been an honor and a privilege to chair this committee. I am certain the committee will continue to exceed all expectations.

Aparna Annam, D.O., is an assistant professor at the Children's Hospital of Colorado in Aurora, specializing in diagnostic pediatric radiology and pediatric interventional radiology. Dr. Annam chairs the RSNA Resident and Fellow Committee.



Read more about RSNA 2013 Residents and Fellows programming and activities on Page 41.

THIS MONTH IN THE RSNA NEWS TABLET

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

The October-November issue features a video of *Radiology* Series Editor Deborah Levine, M.D., and Guest Editor Constance D. Lehman, M.D., Ph.D., discussing the importance of the newest edition of *Radiology* Select and its topic, Breast Cancer Screening. Readers are also invited to explore RSNA's redesigned online education portal now offering a variety of new interactive features along with mobile accessibility.

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



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LETTERS TO THE EDITOR

rsnanews@rsna.org
1-630-571-7837 FAX
SUBSCRIPTIONS
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1-888-600-0064
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REPRINTS AND PERMISSIONS

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Meeting Organizers “Plan It” with the “Planet” in Mind

Disposable cups?

THAT WAS THE REACTION of Elizabeth Holland, M.D., an RSNA member and self-described environmental advocate from River Forest, Ill., during a coffee break at a large group meeting she attended in a Chicago hotel. Curious, she approached the concierge. “I explained that we were a captive audience—no one was taking their coffee out of the building,” she said. “I asked if it would be possible to use china mugs instead, and the hotel agreed. I’ve found that if you ask politely, people don’t turn you down.”

Changing to china from paper cups is one among myriad examples small and large of how planners, venue operators, vendors and even attendees are working to reduce the environmental impact of large gatherings like the RSNA annual meeting. According to the Beaverton, Ore.-based Green Meetings Industry Council, the “green meeting” reduces waste, increases efficiency and supports the local community while still achieving goals like education, advocacy and social networking.

The RSNA annual meeting is particularly green, thanks to the efforts of its vendors, volunteers, attendees and staff. Green meeting efforts during RSNA 2012 resulted in 250 tons of material—some 70 percent of the waste generated during the meeting, including recyclables such as fiber, compost, bottles and cans—diverted from the landfill. The environmental impact of the 2012 activities can also be described as saving 3,800 trees, 86,000 gallons of oil, 929,000 kilowatts of electricity and 1.6 million gallons of water.

“With a green meeting, from the very moment you begin planning you are cognizant of the least environmental impact you can have,” said Dr. Holland, who volunteers on environmentally focused projects in her local community and has helped RSNA expand the green efforts it began about seven years ago. “Even the question of how you communicate is an environmental one—do you use paper or do you go completely electronic?”

Providing materials electronically is a big part of efforts to reduce the impact of the RSNA annual meeting on the environment, said RSNA Director of Convention Operations Janet Cooper. E-mails have replaced much of the printed pre-meeting communication to the meeting’s nearly 55,000 attendees and exhibitors, Cooper said, and many attendees “opt out” of receiving the remaining printed pieces and view them online. Rather

than pick up—and eventually discard—printed brochures about RSNA programs while at the meeting, attendees are encouraged to scan QR codes to download the materials onto their mobile devices.

A green addition to RSNA 2013 is the distribution of reusable—rather than plastic—bags throughout the meeting.

Partnership Drives Green Efforts

Pivotal to any green meeting effort is the venue. For the last 29 years, RSNA’s venue has been Chicago’s McCormick Place. “Green meetings really started to take front and center here at McCormick Place in 2007, when we hosted the [U.S. Green Build Council] Green Build Conference and opened our state-of-the-art, LEED-certified West Building,” said Kevin Lavin, sustainability manager for the facility. LEED, Leadership in Energy and Environmental Design, is an internationally recognized green building program.

Green initiatives at McCormick Place—which began with simple ideas such as turning off lights and powering down escalators when not in use and minimizing use of heating, ventilation and air conditioning on move-in, move-out and non-event days—have grown ever more substantial, Lavin said. “Early on, McCormick Place worked to become a facilitator so we could help the many partners who contribute to each show in their efforts to be more green,” he said.

Anthony Lopez, assistant general manager of operations for McCormick Place, said a designated “green team” on staff at McCormick works continuously to improve the facility’s sustainability standing, taking on larger projects such as replacing fluorescent lights with more efficient, longer-lasting fixtures and obtaining more recycling compactors. The McCormick Place caterer, SAVOR ...CHICAGO, minimizes its carbon footprint by purchasing locally produced and sustainably raised products, sourcing sustainable seafood, using non petroleum-based products and recycling and composting waste whenever possible.

“We see sustainability as an ongoing partnership where all our partners work together to share knowledge on ever-improving technologies and processes to help each other toward more sustainable events,” Lopez said. “The ultimate goal is to work toward a point where events, venues and service providers have adopted these practices so fully that events are green by their very nature.”



“With a green meeting, from the very moment you begin planning you are cognizant of the least environmental impact you can have.”

Elizabeth Holland, M.D.

Attendees are Partners Too

In addition to the efforts of venues, vendors and hosts, successful green meetings urge attendee participation as well, Cooper said. RSNA makes it convenient for attendees to recycle paper, plastic and aluminum in receptacles throughout McCormick Place, and drop off unwanted bags, programs, lanyards and badges for recycling as well. Attendees are also encouraged to be environmentally smart in transportation by riding the Metra Electric trains, using the complimentary shuttle or sharing a cab, to consider turning off their hotel room lights, electronics and heat when the room is unoccupied and to use refillable bottles at water stations located throughout McCormick Place.

Dr. Holland urged RSNA attendees to think about their roles as physicians when it comes to helping RSNA achieve the very greenest meeting possible. “Go back to your core principles and it becomes easier,” she said, noting that many physicians find a natural fit as they try to protect their patients from pollution and other environmental harms. “We need to be models of how to do things right,” she said. □

EDITOR’S NOTE

This article is adapted with permission from *FORUM*, the magazine published by Association Forum of Chicagoland.

Once again, RSNA is on track to achieving the very greenest meeting possible in 2013, thanks to the efforts of its vendors, volunteers, attendees and staff. Held at McCormick Place for the last 29 years, RSNA’s venue has worked continually to improve its sustainability standing with efforts ranging from replacing fluorescent lights with more efficient, longer-lasting fixtures to encouraging attendees to recycle paper, plastic and aluminum in receptacles throughout the facility.



GREEN EXAMPLES

Here are some ways that venues such as McCormick Place, and the organizations and vendors who use them, have made meetings more environmentally friendly:

- Using Green Seal-certified cleaning products and restroom products that are 100 percent post-consumer recycled content paper
- Reserving a portion of parking for low-emitting and fuel efficient vehicles
- Eliminating the use of Styrofoam and polystyrene plastic products and using biodegradable flatware, straws, serving dishes and cups
- Donating excess food to a local food bank
- Ensuring that potential pest abatement is handled with the least environmental impact possible
- Asking that landscaping proposals incorporate a green plan which includes use of environmentally friendly products and practices such as composting and water conservation

Ontario Switches to DR Mammography Based on *Radiology* Study

A study recently published in Radiology showing that mammography using digital direct radiography (DR) is more effective at detecting breast cancer than mammography using computed radiography (CR) had an immediate impact on healthcare in the province of Ontario, where the research was conducted.

ON MAY 14, the day after the *Radiology* study was published online, Deb Matthews, minister of health and long-term care for Ontario, announced that based on the results of the study, the province would be phasing out CR mammography devices and replacing them with DR mammography devices over the coming months. The *Radiology* study was based on data from the Ontario Breast Screening Program (OBSP).

Researchers are understandably excited about the outcome of their study. "In the OBSP, we strive for excellence and we want to provide women coming to this program with the best technology possible," said the study's lead author, Anna M. Chiarelli, Ph.D., senior scientist in Prevention and Cancer Control at Cancer Care Ontario in Toronto. "Until this study was conducted, there was really no clinical evidence suggesting there was this difference. We're very confident in our data, so the government decided to take these measures in Ontario."

In the study, Dr. Chiarelli and colleagues identified three groups of women 50 to 74 years of age who were screened in the OBSP between January 1, 2008 and December 31, 2009. Slightly more than 400,000 women were screened with screen-film mammography, 220,520 were screened with DR and about 64,210 with CR mammography. All were followed for 12 months after screening.

DR mammography was able to detect 4.9 cancers per 1,000 mammograms (comparable to screen film mammography's 4.8 cancers per 1,000 mammograms) compared to just 3.4 cancers per 1,000 mammograms detected by CR mammography.

The difference lies with the technical process that computed radiography uses to acquire an image, according to researchers. CR uses a cassette that



Chiarelli



Muradali

houses the imaging plate that records the image. That cassette is then placed in a reader to create a digital image. DR technology, on the other hand, produces an image directly.

"With CR mammography, information is lost in processing," said Derek Muradali, M.D., co-author of the study and head of the Division of Breast Imaging at the University of Toronto. "The images tend to lower resolution compared to DR mammography," he said.

Despite Ontario's decision to replace CR mammography with DR mammography, Drs. Chiarelli and Muradali said that women who underwent CR mammography still have a very small chance of having developed an undetected cancer.

"The 21 percent difference in the cancer detection rate would amount to about 10 fewer cancers detected for every 10,000 women screened," Dr. Chiarelli said. "We feel that's probably a pretty small number, as long as women continue to get their regular screening with the newer technology." □

“With CR mammography, information is lost in processing. The images tend to lower resolution compared to DR mammography.”

Derek Muradali, M.D.



Digital direct radiography, (shown above), is more effective at detecting breast cancer than computed radiography, according to recent *Radiology* research.

Image courtesy of Getty Images

WEB EXTRAS

Access the *Radiology* study, "Digital Compared with Screen-Film Mammography: Performance Measures in Concurrent Cohorts within an Organized Breast Screening Program," at radiology.rsna.org/content/early/2013/04/29/radiol.13122567.

BREAST CANCER SCREENING FOCUS OF *RADIOLOGY SELECT*, VOLUME 4

The newest volume of *Radiology Select*, Volume 4: Breast Cancer Screening, is now available to RSNA members and non-members for purchase.

The fourth in the continuing series of selected *Radiology* articles focusing on a specific subspecialty topic, *Radiology Select*, Volume 4, features 34 articles that cover:



- Screening performance criteria, benchmarks, variability and outcomes
 - The effect of CAD on mammographic screening
 - Results and challenges in high-risk populations
 - Comparison findings for digital mammography
- The edition is available in print, online and tablet formats.

The online self-assessment module (SAM) edition includes five SAM tests with an opportunity to earn 15 SAM credits and 15 CME credits. This material can be applied towards the American Board of Radiology (ABR) self-assessment requirement.

To purchase and for information on *Radiology Select*, visit RSNA.org/RadiologySelect. The Web page also features a video introduction from *Radiology* Series Editor Deborah Levine, M.D.

BREAST SCREENING FEATURED AT RSNA 2013

The Refresher Course, "Current Issues in Breast Cancer Screening," will be held from 2 to 3:30 p.m., Sunday, Dec. 1, at RSNA 2013. Registration for this and other sessions is underway at RSNA.org/Annual_Meeting.aspx.



RSNA Journals Offer Open-Access Option

A new RSNA policy for open access (OA) publishing will provide options for authors whose research requires adherence to OA rules, yet still enable its journals' business model to remain sustainable. Originally applicable only to publicly funded research in the United Kingdom, wider adoption of OA publishing has already begun and is a potential threat to subscription-based journals like *Radiology*, RSNA's Publications Council cautioned.

OPEN ACCESS PUBLISHING—free, unrestricted access to publications and data via the Internet—has expanded considerably over the past decade. The OA model typically offers contributing authors two pathways. In the “gold” model, authors or funders pay article processing charges (APCs) that make articles available to the public immediately upon publication. The “green” model allows for public access after a short embargo period.

A model developed by RSNA's Publications Council and approved by the RSNA Board of Directors in June 2013 is essentially a hybrid version that will offer authors whose research funders mandate open access a choice of gold or green access. The policy applies to the RSNA journals *Radiology*, a peer-reviewed scientific journal, and *RadioGraphics*, a peer-reviewed journal devoted to continuing medical education in radiology. Articles in *Radiology* and *RadioGraphics* have been freely accessible after one year since 2004.

Under RSNA's new OA policy, authors who opt to make their articles immediately available to the public will pay a \$3,000 fee to help recoup the journal's peer review, editorial, production, and distribution costs.

“We don't want anyone with an OA mandate to be dissuaded from choosing *Radiology*,” said William T. Thorwarth Jr., M.D., RSNA Board Liaison for RSNA Publications and Communications and Chair of the RSNA Publications Council. “Those authors submitting under gold open access must submit the article processing charge at the time of article acceptance that will cover some, but not by any means all, of the cost of processing the article through our system.”

Will Open Access Impact Editorial Quality?

The new policy reflects the changing realities faced by publishers of subscription-based journals in the OA era. The number of OA articles published in the biomedical field grew from 7,400 in 2000 to 120,900 in 2011, according to a 2012 study in the online journal *BMC Medicine*, co-authored by Bo-Christer Björk, a professor at the Swedish School of Economics and Business Administration in Helsinki.

Current National Institutes of Health (NIH) mandates require that peer-reviewed journal manuscripts arising from research supported by NIH funds be made accessible to the public through



Thorwarth

Klein (left), Kressel

PubMed Central, the agency's free online repository, no later than 12 months after publication. While OA advocates applaud these developments, some editors are concerned that the changes could end up compromising editorial quality.

“Clearly, there has been a push on the part of the government toward open access,” said Jeffrey S. Klein, M.D., *RadioGraphics* editor and member of the RSNA Publications Council. “What gets lost in that is the value that publishers add to material.”

“There is a lot of costly effort that goes into the high-quality journals we publish, not just in editing and production but in the peer-review process,” said Dr. Thorwarth, a radiologist with Catawba Radiological Associates in Hickory, N.C. “To take work like that and make it available for free is a challenging business model.”

Funding for the RSNA's two journals is primarily derived from an allocation from Society membership dues and licenses and subscriptions purchased by institutions as well as individuals who are not members.

“Surveys of RSNA members have shown that the two journals—along with the annual meeting—are the most-valued benefits of membership,” Dr. Thorwarth said. “If the content of these journals is available for free immediately through mandates, then there is not as much incentive for membership.”

Open Access Creates Challenges for Authors

As challenging as OA has been to traditional publishers, it also presents authors with a confusing set of choices and responsibilities. Journals have widely different charges for gold access, and authors must familiarize themselves with copyright and licensing issues once handled by the journals. The system of licenses known as Creative Commons (CC) is divided into types with varying restrictions, including the unrestricted license known as “CC-BY.” Some OA mandates require that authors' work be published under a CC-BY license that allows it to be modified and used for any purpose—including commercial purposes—without the author's or publisher's permission.

“Under CC-BY, another author or open access journal could take your work, tweak it and put it out there in some other publication, as long as they cite you, the original author, as the source,” Dr. Thorwarth said. “Or a vendor could interpret your work in a different way and use it to promote their product.”

CC licenses also allow for disaggregation of content, meaning that tables and images from research would be available for reproduction without permission.

“These very broad CC license provisions that allow use of disaggregated content are something that I, as an author, would have a problem with,” said Herbert Y. Kressel, M.D., editor of *Radiology*. “They could be disaggregated in a way that distorts the content.”

“Someone could pluck a diagram and image out of a paper and use it for any purpose at all,” Dr. Thorwarth added. “We want to protect our authors from that kind of derivative use.”

Another potential sticking point is that authors who choose the OA route must pay some or all of the APCs. Although funding for APCs has not been written into research grants, that policy is changing, according to Dr. Kressel. The United Kingdom's Research Councils (RCUK), a group of publicly funded agencies responsible for coordinating and funding certain areas of research, including science, recently adopted a policy that allots money to higher education institutions for APCs. Nevertheless, there is no guarantee that that money ends up going to the authors.

“If the costs shift to the authors and the funding agency pays, it's not a problem,” Dr. Kressel said. “But if the funding agencies don't pay, or the universities to which the RCUK has given the money don't use it for APCs, then it becomes very burdensome for authors and could depress publishing activity.”

Open Access Model Continues to Evolve

According to the online Directory of Open Access Journals (www.doaj.org), founded in 2003, there are currently 9,903 open access journals covering all fields—science as well as other areas of scholarship. While open access mandates from government and private research funders are growing, so are problems attendant on open access.

“Money that could be spent on research is being diverted to pay APCs,” said Roberta Arnold, assistant executive director of publications and communications for RSNA. “Taxpayer money is being spent on government repositories of articles, such as PubMed Central, that duplicate what publishers and professional societies such as RSNA have already done. The author-pays model encourages journal publishers to accept more papers in order to

raise revenue, thereby possibly decreasing the quality of work published in journals.

“Finally, the CC-BY license jeopardizes the accuracy and integrity of journal articles by allowing anyone to change and redistribute an article for any purpose,” Arnold said. “That's why the journal editors and the Publications Council will closely monitor the impact of the hybrid OA model on the RSNA journals even as we strive to help authors comply with their funders' mandates.”

“Our journals will be applying a hybrid model for some time,” predicted Dr. Klein. “The question is, will there be true publishers like RSNA in the future?”

“I personally don't think that journals are on their last breath,” Dr. Kressel said. “My sense is that all journals are adapting to open access by creating pathways for people who want to publish, in the way that they want to publish.” □

WEB EXTRAS

☑ The 10-year-old Directory of Open Access Journals explains open access and keeps track of the number of journals and articles offered in this model (www.doaj.org).

☑ “Scholarly Open Access” offers critical analysis of scholarly open access publishing (<http://scholarlyoa.com>), including a list of more than 300 predatory journals that exist primarily to raise revenue from article processing charges.



RSNA's Online Education Goes Mobile

Keeping pace with the digital age and the busy lifestyle of its users, RSNA's redesigned online education portal offers greater accessibility, flexibility and interactivity—and it's all now accessible from your mobile device too.

DESIGNED to accommodate on-the-go schedules, RSNA's vast library of online CME content is now accessible from any mobile platform. Tablet and Blackberry users who access the RSNA website from their devices will be automatically redirected to the mobile version of the site.

Along with mobile accessibility, users will experience streamlined access to RSNA education content including Refresher Courses, *RadioGraphics* and *Radiology* content, Cases of the Day and SAMs. The sleek new interface, interactive touch-screen learning and instantaneous user feedback will instantly appeal to mobile and PC users alike.

Long-time users will quickly see—and feel—the difference as they explore the exciting new features designed to maximize the learning experience from any computer platform. Users can start at the easy-access menu on the top of the page to access enrollments, transcripts and the newly reorganized RSNA online catalog that optimizes the search for courses.

New online testing features provide novel, thought-provoking user interaction including instant, answer-specific feedback. After choosing an answer, the new system immediately provides a "Correct" or "Incorrect" response including a brief explanation for either. With one click, users can view *RadioGraphics* and *Radiology* articles directly alongside the test questions, providing easy reference to journal content. Users can also enlarge images for closer scrutiny.

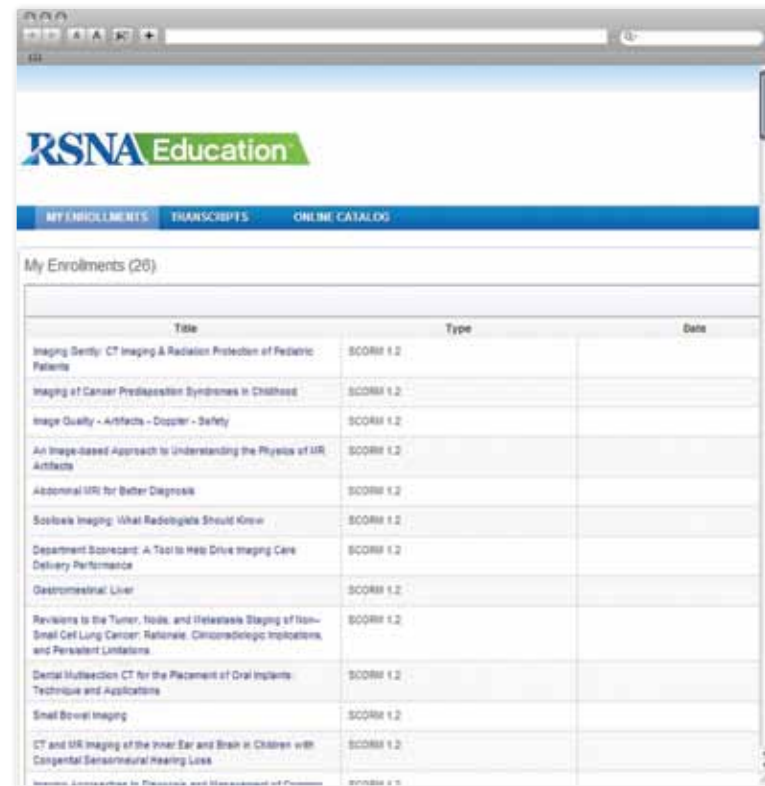
Also new: Users previously limited to taking a test three times can now take an exam as often as they choose.

Easing the schedules of busy residents and fellows, the RSNA/American Association of Physicists in Medicine (AAPM) Physics Modules have been redesigned in a mobile format, fostering an exciting, dynamic learning experience. Modules are color-coded by topic and feature a new interface allowing users to navigate to key module topic areas with a simple tap of the screen instead of navigating via a static course outline. Another new feature allows the user to walk away from the physics module and resume again from the same place.

Along with RSNA's commitment to staying in step with the digital age, feedback from users who have long relied on RSNA's online education portal to fill their CME needs were major drivers of the redesign, according to members of RSNA's Education Council. "The RSNA Education Committee

“User-driven activity and immediate feedback during CME testing offers our members a new way of learning through RSNA.”

Valerie P. Jackson, M.D.
RSNA Board Liaison for Education



Along with mobile accessibility, RSNA's redesigned online education portal features streamlined access to RSNA's vast library of online CME content. The easy-access menu on the top of the page links users to enrollments, transcripts and the newly reorganized RSNA online catalog.

recommended to the Board of Directors that RSNA embrace a mobile learning format to address the ever-changing needs of our members and to provide ease-of-use when accessing online education content," said David E. Avrin, M.D., Ph.D., Chairman of RSNA's Education Committee. □

RadioGraphics

The new design includes convenient features such as a "View Article" button allowing users to access the related journal article as each CME test question appears, giving the user flexibility to refer back to key elements of the article to assist in learning retention. After the user chooses an answer on the CME test, the new system provides a "Correct" or "Incorrect" response including a brief explanation for either.

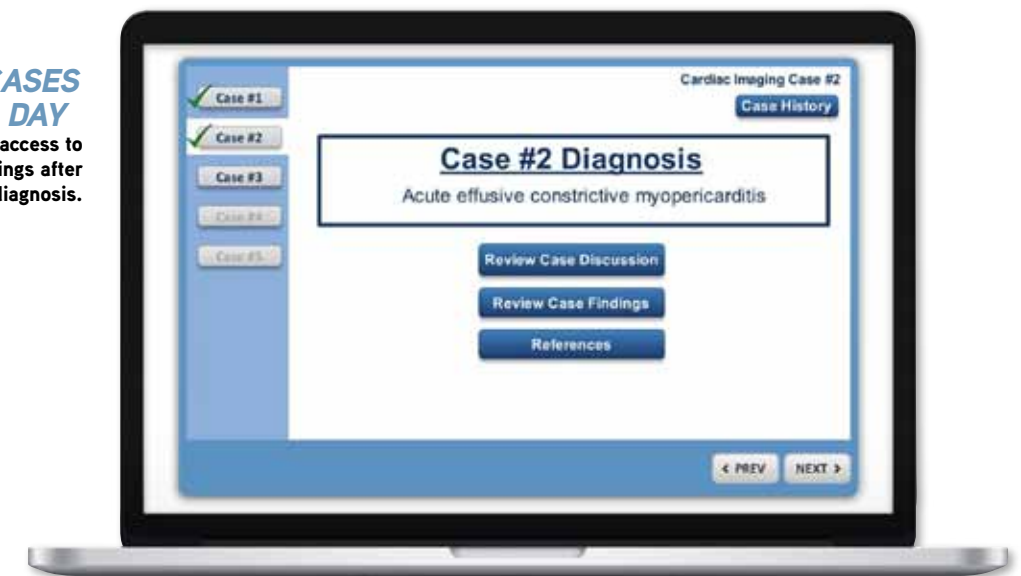


With one click users can review the related journal article.

Users can also enlarge journal images with a single click.

RSNA CASES OF THE DAY

The system offers easy access to case discussions and findings after users submit their diagnosis.

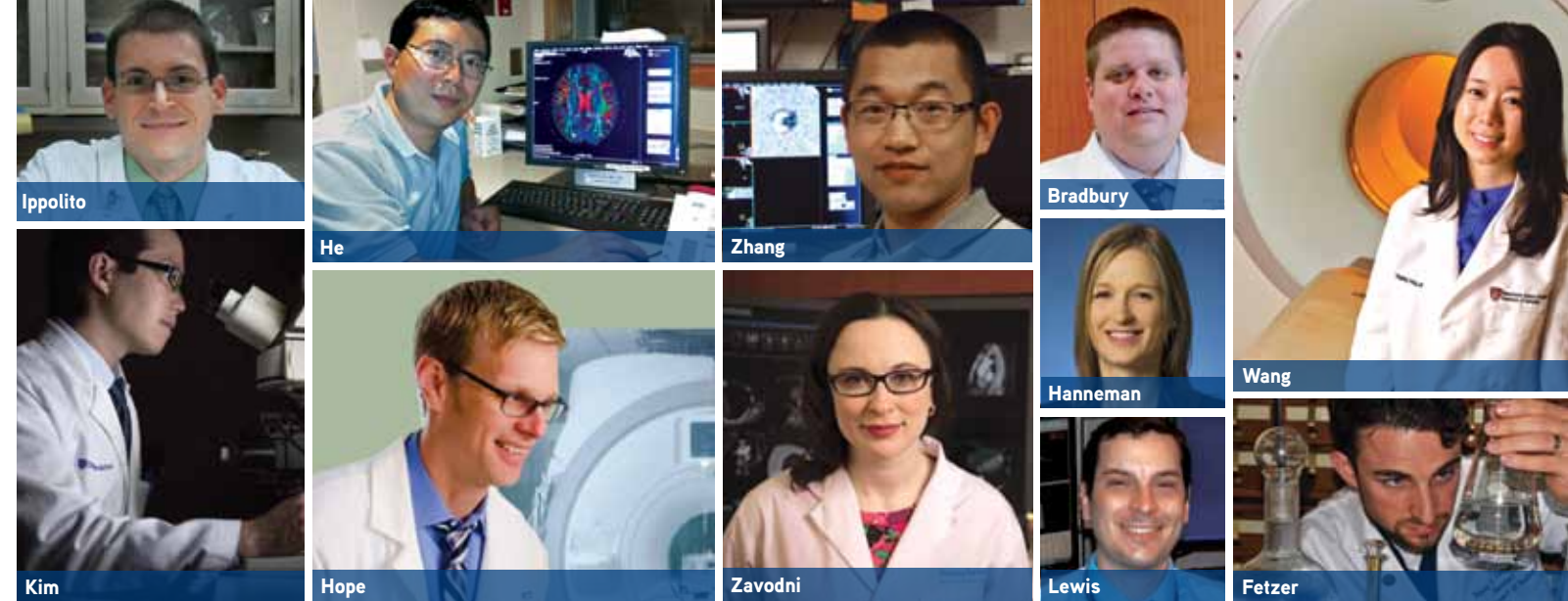


SEE A DEMO AT THE RSNA STORE IN LAKESIDE CENTER.



RSNA R&E Foundation Announces 2013 Grant Recipients

The RSNA Research & Education Foundation funded 83 grant projects totaling over \$3 million, setting new records for the second consecutive year and the highest in the Foundation's history. The Foundation's Board of Trustees thanks the Vanguard companies, individuals and private practices whose generous contributions have made the following grants possible.



RESEARCH SCHOLAR GRANT

Joseph Erinjeri, M.D., Ph.D.
Memorial Sloan-Kettering Cancer Center
Modulating Inflammation to Improve Treatment Response Following Thermal Ablation of Tumor
GE Healthcare



James Ernest Hansen, M.D.
Yale School of Medicine
Targeting Glioblastoma with a Lupus Autoantibody

Xiang He, Ph.D.
University of Pittsburgh
MR-based Non-invasive Functional Renal Imaging in Acute Kidney Injury



Wolf E. Heberlein, M.D.
University of Arkansas for Medical Science
IRE-based Multi-modality Loco-regional Tumor Therapy for Pancreatic Cancer

Michael Hope, M.D.
University of California, San Francisco
Comprehensive Hemodynamic Assessment of Valve-related Aortic Disease with Cardiac Magnetic Resonance



Jerry Jaboin, M.D., Ph.D.
Washington University Medical Center
Conditionally Replicative Virotherapy for Recurrent and Aggressive Meningioma Tumors

Charles Y. Kim, M.D.
Duke University Medical Center
Trans-arterial Embolization of Hypervascular Liver Tumors with Electrically Conductive Particles for Modulation of Percutaneous Radiofrequency Ablation Zone Size and Configuration

GE Healthcare



Hee Kyung Kim, M.D.
Cincinnati Children's Hospital
MR Quantification of Muscular Fat in Duchenne Muscular Dystrophy: Integrating T2 Relaxation Time Mapping and MR Spectroscopy



Tae Kim, Ph.D.
University of Pittsburgh
Magnetic Resonance imaging of Early Biomarker for Hypertension-Induced Cerebrovascular Alterations



Kenneth S. Lee, M.D.
University of Wisconsin
Quantitative Imaging of the Tendon: Use of Ultrasound Shear Wave Elastography as a Biomarker to Predict Tendon Rupture

John Lewis, Ph.D.
Dana-Farber/Brigham and Women's Cancer Center
Development of 3D Fluoroscopic Imaging During Radiotherapy for Reconstruction of Delivered Dose Distributions



Sean Sunghun Park, M.D., Ph.D.
Mayo Clinic, Rochester
11C-Choline PET/CT Image-Guided Stereotactic Ablative Radiotherapy (IG-SABR) in Oligometastatic Prostate Cancer

Junqian Xu, Ph.D.
Icahn School of Medicine at Mount Sinai
Development of Whole Spinal Cord Functional Assessment with Multiband Magnetic Resonance Imaging

Anna E. H. Zavodni, M.D., M.H.Sc.
Sunnybrook Health Sciences Centre
University of Toronto
CT Myocardial Tissue Characterization: Utility in CTA Bypass Graft Assessment



Michael M. Zeineh, M.D., Ph.D.
Stanford University
Multimodal MRI to Detect Brain Injury in Athletes
ASNR/RSNA Research Scholar Grant

Jeff L. Zhang, Ph.D.
University of Utah
Real-time Monitoring of Renal Hypoxia and Hypoperfusion with Quantitative MRI

Katherine Zukotynski, M.D.
Brigham and Women's Hospital
Predictive Value of 18F-FDG PET/CT and 18F-NaF PET/CT in Castrate-resistant Prostate Cancer

RESEARCH SEED GRANT

Soterios Gyftopoulos, M.D.
New York University School of Medicine
US-MRI Correlation for Healing of Rotator Cuff Repairs using Vascularity and Tendon Elasticity



Elizabeth M. Hecht, M.D.
Columbia University College of Physicians and Surgeons
Utility of Macromolecular DCE MRI and Diffusion Weighted Imaging as Biomarkers for Vascular Permeability and Desmoplasia in Pancreatic Adenocarcinoma



Joseph Edward Ippolito, M.D., Ph.D.
Washington University in St. Louis
Metabolic Characterization of the Neuroendocrine Cancer GABA Shunt

June-Goo Lee, Ph.D.
University of Pittsburgh
Assessing the Progression of Knee OA by Morphologic Analysis of OAI MR



Elliot Brian Levy, M.D.
National Institutes of Health
Integrated Imaging Strategy to Phenotype Recurrence after Chemoembolization



Roberta Marie Strigel, M.D., M.S.
University of Wisconsin
Hyperpolarized 13Carbon Magnetic Resonance Spectroscopic Imaging and Dynamic Contrast Enhanced MRI of Breast Cancer in a Mouse Model: Imaging the Metabolic Characteristics of Malignancy

Sarah Beth White, M.D.
Northwestern University
Feinberg School of Medicine
Nano Photothermal Ablation for Colorectal Liver Metastases

Chadwick Lewis Wright, M.D., Ph.D.
The Ohio State University
Wexner Medical Center
PET/CT-derived Hepatopulmonary Shunt Fraction Following Yttrium-90 Radioembolization



RESEARCH FELLOW GRANT

David T. Fetzer, M.D.
University of Pittsburgh Medical Center
Advanced MR Imaging of Liver Fibrosis — T1rho Quantification
Silver Anniversary Campaign Pacesetters Research Fellow Grant

Christoph Alexander Karlo, M.D.
Memorial Sloan-Kettering Cancer Center
Development of a Prognostic, Imaging-inclusive Model for Improved Prediction of Disease-free Survival in Patients with Renal Cell Carcinoma
Ralph Schlaefer Charitable Foundation Research Fellow Grant

Ashkan Akhavan Malayeri, M.D.
Johns Hopkins University
Application of a Novel High Resolution 3D MRI Sequence [SPACE] for Evaluation of Left Atrial Edema and Morphology in Pulmonary Vein Isolation

John Nicholas Morelli, M.D.
Johns Hopkins University
MR-guided Vertebral Cryoablation in a Porcine Model with Structural and Thermographic Monitoring

Bashir Akhavan Tafti, M.D.
University of California, Los Angeles
Irreversible Electroporation (IRE)-mediated Ablation of Breast Cancer

Yingbing Wang, M.D.
Massachusetts General Hospital
Validation of Molecular Imaging with 18F Sodium Fluoride PET and 18F FDG PET for Monitoring of Response to Therapy in Multiple Myeloma



RESEARCH RESIDENT GRANT

Christopher Matthew Bradbury, M.D., Ph.D.
Washington University in St. Louis
Characterization of Novel Radiosensitizers Identified in a Bioluminescent Glioblastoma-stromal Interaction Screen

Karen Buch, M.D.
Boston Medical Center
A Microfabricated Pressure Sensor Prototype for Continuous, Wireless Portal Vein Pressure Monitoring
RSNA Presidents Circle Research Resident Grant



Daniel S. Chow, M.D.
Columbia University Medical Center
Comparison of Optical Imaging and Diffusion/Perfusion-weighted Magnetic Resonance Imaging During Acute Stroke to Improve Clinical Image Interpretation and Decision Making



Gabriel C. Fine, M.D.
University of Washington
A Slow-offrate Modified Aptamer (SOMAmer)-Based Approach to Visualize EGFR in a Tumor-Bearing Animal Model: A PET-based Molecular Imaging Proof-of-Principle Study



Kate Hanneman, M.D.
Toronto General Hospital, University of Toronto
Quantification of Diffuse Myocardial Iron Overload Related Interstitial Fibrosis with Cardiac Magnetic Resonance Imaging in Patients with Transfusion-dependent Anemias

H. Benjamin Harvey, M.D., J.D.
Massachusetts General Hospital
Assessing Clinical Outcomes of High-risk Obstetrical Patients Identified In Ultrasound Screening Programs in Resource-limited Areas of Rural Kenya



David Horowitz, M.D.
Columbia University Medical Center
The Role of the TGFBI Gene in Human Mesothelioma Pathogenesis and Response to Therapy

Martin T. King, M.D., Ph.D.
Stanford University Medical Center
Non-invasive Detection of Surgical Margins with Cerenkov Luminescence Imaging in Head and Neck Cancer

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Amie Y. Lee, M.D.
University of Washington
Utilization Patterns and Concordance of Breast MRI BI-RADS Assessments and Management Recommendations in Community Practice

Christopher D. Malone, M.D.
University of California San Diego
Ultrasound Detection of Hydrogen Peroxide and its Validation with F-19 MR Imaging

Zachary S. Morris, M.D., Ph.D.
University of Wisconsin
Synergy of Radiation and Immunotherapy in the Treatment of Melanoma

Evan Charles Osmundson, M.D., Ph.D.
Stanford University
Cell-free DNA as a Biomarker for Pancreatic Adenocarcinoma after Primary Local Therapies

Bradford Alan Perez, M.D.
Duke University School of Medicine
Evaluating the CXCR4 Signaling Pathway in Mediating the Response of Primary Cancers to Radiation Therapy



A partner for life

Rahul Anil Sheth, M.D.
Massachusetts General Hospital
Harvard Medical School
Translational Optical Molecular Imaging for Percutaneous Biopsy of Focal Hepatic Lesions



Corey W. Speers, M.D., Ph.D.
University of Michigan
Developing Novel Radiosensitizing Targets for the Management of Treatment Refractory Breast Cancer

Daniel E. Spratt, M.D.
Memorial Sloan-Kettering Cancer Center
Non-invasive Molecular Imaging to Monitor Androgen Receptor Activity in Prostate Cancer Post Radiation Therapy

Vinita Takiar, M.D., Ph.D.
The University of Texas,
M.D. Anderson Cancer Center
Using Combinatorial Adaptive Response Therapy (CART) to Increase the Therapeutic Efficacy of Radiation Therapy



Amanda June Walker, M.D.
Johns Hopkins University
Investigation of PD-1 Blockade and Hypofractionated Radiation in Lung Cancer to Enhance the Abscopal Effect

Kristina Young, M.D., Ph.D.
Oregon Health & Science University
Targeted Alteration of the Tumor Immune Environment to Increase Chemoradiosensitivity in Rectal Cancer



RESEARCH MEDICAL STUDENT GRANT

Mediha Ahmad, B.A., B.S.
The University of Texas
MD Anderson Cancer Center
Do Borderline Resectable Pancreatic Cancer Patients Treated with Neo-adjuvant Chemoradiation Therapy Benefit from Radiation Dose Escalation to High Risk Margins?

Nabeel U. Ali, B.S.
Massachusetts General Hospital
An Automated Computational Algorithm for Detection of the Napkin-Ring Sign: A Coronary High-risk Plaque Marker In CT Angiography

Samuel F. Bakhoum, Ph.D.
Geisel School of Medicine at Dartmouth
Examining the Consequences of Radiation-induced Errors in Chromosome Segregation in Dividing Cells

Lauren Colbert, B.A.
Emory University
DNA Damage Response Genes as Biomarkers for Gemcitabine Sensitivity in Pancreatic Cancer

Dania Daye, B.S.
Perelman School of Medicine at the University of Pennsylvania
Investigating the Role of L-[5-11C]-Glutamine as a Novel PET Tracer for Breast Cancer Prognostication

Matthew DeSalvo, B.S.
Massachusetts General Hospital
Altered Structural Connectivity and Network Organization in Unilateral Mesial Temporal Lobe Epilepsy

Jeffrey Dinh, B.S.
The University of Texas
MD Anderson Cancer Center
Synaptic and Epigenetic Mechanisms of Radiation Induced Cognitive Impairment

Alex El-Ali, B.S.
Columbia University College of Physicians and Surgeons
Development of Quantitative In Vivo Neuroimaging Biomarkers as Clinical Outcome Measures in Childhood Acute Ischemic Stroke

Preeya Goyal, B.A.
Northwestern University
Feinberg School of Medicine
Assessment of Chronic Liver Disease and Liver Fibrosis: Comparison of MR Elastography and Acoustic Radiation Force Impulse Imaging

Atheeth Hiremath, B.S.
University of Maryland School of Medicine
Patient Perceptions of Participation in RSNA Image Sharing Project: A Preliminary Survey

Julian C. Hong, M.S.
Stanford University (Julian is enrolled at The University of Wisconsin School of Medicine and Public Health)
Optimal Operating Parameters for Pleuridirectional High-energy Agile Scanning Electron Radiotherapy (PHASER)

Matthew Janko, B.S.
University of Massachusetts Medical School
Evaluation of Topical Immunomodulatory Therapy on Interleukin-1-dependent Radiodermatitis Using Multiple Imaging Modalities

Brice Allen Kessler, B.S.
University of North Carolina School of Medicine
PET/MR for the Evaluation of Lymphoma

Ashley Knight-Greenfield, B.A.
Icahn School of Medicine at Mount Sinai
Hepatic Flow Quantification With 4D Phase Contrast MRI: Correlation with Hepatic Venous Pressure Gradient Measurement



Kevin Kotamarti, B.S.
The University of Texas
MD Anderson Cancer Center
Nanoshells for Detection and Ablation of Post-surgical Tumor Margins

Jennifer LaRoy, B.A.
Medical College of Wisconsin
Cost and Morbidity Analysis of Chest Port Insertion: Interventional Radiology vs. Surgical Implantation

Ashley Mingshin Lee, B.S.
Massachusetts General Hospital
(Ashley is enrolled at Duke University School of Medicine)
Value of Resting Myocardial CT Perfusion for Management of Patients with Acute Chest Pain and Intermediate Risk for Acute Coronary Syndrome



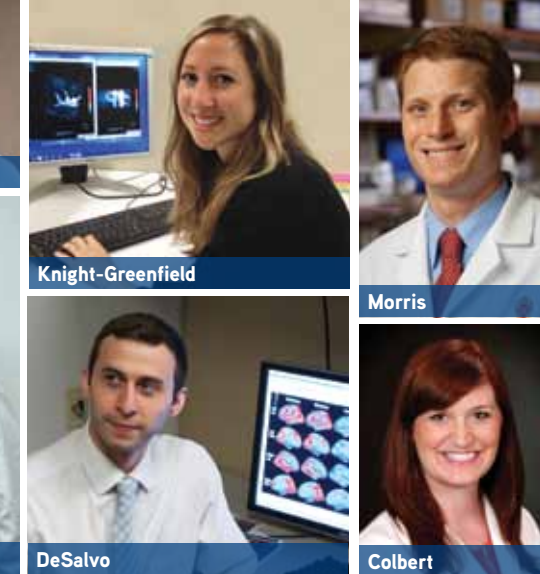
Aaron D. Losey, M.S.
University of California, San Francisco
A New Magnetically Guided Endovascular Catheter for Interventional MRI: Evaluation of Navigation In Vivo at 1.5T

Holly Nichols, B.S.
Duke University
Development of a CT-based Novel Calcium Scoring System of the Lower Extremity Arterial System for Prediction of Outcomes of Endovascular Therapies for Peripheral Arterial Disease



Ahmad Parvian, B.S.
University of Illinois at Chicago
Pharmacokinetic Study of Sorafenib Chemoembolization in a Rabbit VX2 Tumor Model

Fauzia Shaikh, B.A.
Columbia University College of Physicians and Surgeons
Using Contrast Enhanced Ultrasound to Assess the Efficacy of Akt Inhibition as a Radiosensitizer in Experimental Neuroblastoma



Alexander Yowei Sheu, B.S.
Northwestern University
Feinberg School of Medicine
Transcatheter Intraarterial Delivery of Heparin, Protamine, and Ferumoxylol Nanocomplex-labeled Natural Killer Lymphocytes to Hepatocellular Carcinoma

Pablo A. Valdes, Ph.D.
Geisel School of Medicine at Dartmouth
Multiparametric MRI Biomarker Predictive of Early Treatment Outcome in Recurrent GBM



Margaret Jane Wong, B.S., M.Eng.
University of California, San Francisco
Color Enhanced Four-material Decomposition of Complementary Contrasts Delivered Simultaneously at Dual-energy CT

Kailin Yang, Ph.D.
Cleveland Clinic Lerner College of Medicine of Case Western Reserve University
Radiosensitization of Glioblastoma Stem Cells by Targeting High-affinity Glucose Uptake

RSNA/AUR/APDR/SCARD RADIOLOGY EDUCATION RESEARCH DEVELOPMENT GRANT

Diana Litmanovich, M.D.
Beth Israel Deaconess Medical Center
Development of a Longitudinal Radiology Curriculum Integrated into the Medical Student Primary Clinical Year

EDUCATION SCHOLAR GRANT

Daniel William Golden, M.D.
The University of Chicago
Development of an Introductory Structured Didactic Radiation Oncology Curriculum for Medical Students Pursuing a Career in Radiation Oncology



DEADLINES FOR 2014 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

Posters outlining R&E Foundation research and education grant programs, as well as programs for which international RSNA members are eligible, will be mailed this month to department chairs and are available for download at RSNA.org/Grants_and_Awards.aspx. Posters will also be available at RSNA 2013 in the R&E Foundation Pavilion in RSNAServices. Learn more about applying for R&E grants at RSNA.org/Foundation.

Saurabh Jha, M.D.
University of Pennsylvania
Technology Assessment for Radiology Residents—a Curriculum to Understand the Economics of Imaging and How to Value a Diagnostic Test

GE Healthcare



Chun-Der L. Li, M.D. and Tessa Cook, M.D., Ph.D.
Hospital of the University of Pennsylvania
High-fidelity Simulated Environment for Assessment of Radiology Residents Prior to Independent Call
AUR/RSNA Education Scholar Grant

Sarabjeet Singh, M.D., M.M.S.T.
Massachusetts General Hospital, Harvard Medical School
Web-based Protocol and Radiation Optimization for CT with InterACTIVE Education (PRACTICE) Program
Derek Harwood-Nash

Priscilla Slanetz, M.D., MPH and Ronald L. Eisenberg, M.D., J.D.
Beth Israel Deaconess Medical Center
Development of a Peer Observation Teaching Program to Enhance Radiology Resident Teaching Skills

Rathan M. Subramaniam, M.D., Ph.D., M.P.H.
Johns Hopkins University
Curriculum Development for Hybrid Molecular Imaging and Evidence Based Clinical Practice
GE Healthcare



Carolyn Wang, M.D.
University of Washington
Evidence Based Development of a High-fidelity Simulation Team Training Program for Contrast Reaction Management

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Levi Sokol, M.D.

Roberto Souza, M.D.

Rodney D. Taft, M.D.

Leonel A. Vasquez, M.D.

Graham M. Wallace, M.D.

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

With a 2013 ASNR/RSNA Research Scholar Grant, **Michael M. Zeineh, M.D.**, will use advanced MRI techniques to longitudinally study football players, a population at high risk of sub-concussive and concussive head trauma, over a period of two years, to quantify changes in the brain. In particular, he will examine if cortical thickness decreases over time; this would be indicative of potentially irreversible atrophy and possibly an early sign of the neurodegenerative disorder termed **Chronic Traumatic Encephalopathy (CTE)**. In addition, Dr. Zeineh will quantify cortical and subcortical iron deposition and use novel diffusor tensor imaging to characterize subclinical axonal injury, all findings present in CTE.

“Our novel longitudinal study will use the most advanced MRI techniques available to quantify how head impacts and secondary neurochemical cascades result in brain injury,” said Dr. Zeineh. “This knowledge should facilitate the prevention of irreversible neurodegeneration secondary to head trauma.”

This grant project is made possible through a collaborative effort between The Foundation of the ASNR and the RSNA R&E Foundation.



Continued from Page 17

RSNA R&E Foundation Announces Recipients of the 2013 Roentgen Resident/Fellow Research Award

Nathan C. Sheets, M.D.
University of North Carolina at Chapel Hill

Arshin Sheybani, M.D.
University of Iowa Hospitals & Clinics

Grace Li Smith, M.D., Ph.D., M.P.H.
The University of Texas M.D. Anderson Cancer Center

Benjamin C. Smith, M.D.
Mayo Clinic

Ramya Srinivasan, M.D.
Jacobi Medical Center

Abigail L. Stockham, M.D.
Cleveland Clinic Foundation

David W. Swenson, M.D.
Rhode Island Hospital

Cullen Mitsuo Taniguchi, M.D., Ph.D.
Stanford University

Kerry L. Thomas, M.D.
University of South Florida Morsani College of Medicine

Bryon D. Thomson, D.O.
Aultman Hospital

Peter C. Thurlow, M.D.
Allegheny General Hospital

Bryan Traughber, M.D.
University Hospitals Case Medical Center

Michael Utz, M.D.
University of Rochester Medical Center

Jennifer W. Uyeda, M.D.
Boston Medical Center

Esben S. Vogelius, M.D.
Texas Children's Hospital, Baylor College of Medicine

Yulia Volokhina, D.O.
Loma Linda University Medical Center

Josephina Anna Vossen, M.D., Ph.D.
Bridgeport Hospital

Page Wang, M.D.
University of Michigan

Daniel I. Warum, M.D.
St. Vincent's Medical Center

John D. Werner, M.D.
Albany Medical Center

David D. Wilson, M.D., M.S.
University of Virginia

Xin Wu, M.D.
New York University Langone Medical Center

Marianna Zagurovskaya, M.D.
University of Kentucky

Mehrzad Zarghouni, M.D.
Baylor University Medical Center at Dallas

George Zlotchenko, M.D.
Lenox Hill Hospital

Vahe M. Zohrabian, M.D.
Thomas Jefferson University Hospital

Borgstede to Address State of the R&E Foundation

RSNA R&E Foundation Board of Trustees Chair **James P. Borgstede, M.D.**, will deliver a report on the Foundation during RSNA 2013, Sunday at 4 p.m. in the Arie Crown Theater.

DR. BORGSTEDT will discuss the number of grants funded this year—a record 83 grants totaling more than \$3 million—as well as how the support of the Foundation's individual, private practice and corporate donors make it possible.

“A partnership with the R&E Foundation means that critical funding is being directed to young and seasoned investigators during all stages of their careers, thus ensuring that our specialty stays at the forefront by investing in the researchers and scholars who are driving the advances in radiological sciences,” Dr. Borgstede said. “The recipients in the R&E class of 2013 are performing research in a number of different subspecialty areas using many modalities and techniques. Their promising projects have clinical and translational implications that will most certainly move our specialty forward.”

Learn more about activities offered by the R&E Foundation at RSNA 2013 on Page 39.



Borgstede

Journal Highlights

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

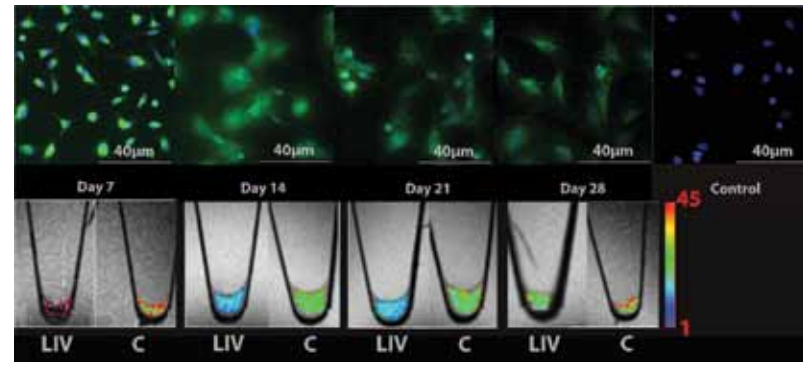
Iron Administration Before Stem Cell Harvest Enables MR Imaging Tracking after Transplantation

To monitor successful engraftment and recognize complications such as graft failure or tumor formation, marrow-derived mesenchymal stem cell (MSC) therapies require in vivo tracking of the transplanted stem cells with noninvasive imaging technologies.

In a study published in the October issue of *Radiology* (RSNA.org/Radiology), to determine whether intravenous ferumoxytol can be used to effectively label MSCs in vivo and for tracking of stem cell transplants, Aman Khurana, M.D., of Stanford University School of Medicine, and colleagues injected Sprague-Dawley rats with ferumoxytol 48 hours prior to extraction of MSCs from bone marrow.

Ferumoxytol uptake by these MSCs was evaluated with fluorescence, confocal and electron microscopy and compared with results from traditional ex vivo-labeling procedures. The in vivo-labeled cells were subsequently transplanted in osteochondral defects of 14 knees of seven athymic rats and evaluated with MR imaging up to four weeks after transplantation.

In vivo ferumoxytol-labeled MSCs, harvested from bone marrow and transplanted into osteochondral knee defects, showed significantly shortened T2 relaxation times compared with



Longitudinal in vitro evaluations of FITC-ferumoxytol-labeled MSCs. Fluorescence microscopy demonstrates green fluorescence signal of in vivo FITC-ferumoxytol-labeled cells. The fluorescence signal slowly declines over time. Corresponding T2 relaxation time maps of cell pellets in test tubes show shortening of T2 relaxation times of in vivo-labeled cell pellets compared with unlabeled control pellets, which also decreases slowly over time. Color spectrum = color scale for T2 time (milliseconds) that signifies MR signal intensity of the pellet; the more iron (ferumoxytol) the cells contain, the lower the T2 value. LIV = labeled in vivo, C = control cells.

(*Radiology* 2013;269:1:186-197) ©RSNA, 2013. All rights reserved. Printed with permission.

unlabeled control cells (15.459 vs. 24.423 msec, $P = .0002$). Histologic examination confirmed the presence of iron in labeled transplants and defect remodeling.

"We developed an immediately available, potentially clinically applicable approach for in vivo stem cell labeling with an FDA-approved iron supplement," the authors write.

Assessment of Liver Tumor Response to Therapy: Role of Quantitative Imaging

The substantial recent progress in nonsurgical therapeutic options for malignant primary and metastatic liver tumors has created a new challenge for radiologists who must assess the response of liver tumors to therapy.

During the costly and time-consuming steps of clinical trials to obtain regulatory approval of drugs and for the efficacy evaluation of locoregional therapies for hepatic malignancies, imaging biomarkers can provide reliable quantitative assessment of tumor treatment response by acting as surrogate endpoints to the traditional survival-based endpoints. Accurate evaluation of the efficacy of new therapies at earlier stages is crucial to avoid potential toxic reactions, unnecessary interventions and costly failure.

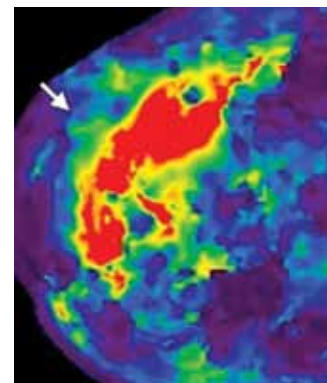
In an article in the October Special Issue of *RadioGraphics* (RSNA.org/RadioGraphics), Fernanda D. Gonzalez-Guindalini, M.D., of Northwestern Memorial Hospital,

Northwestern University, Feinberg School of Medicine, Chicago, and colleagues review the current quantification criteria used in the evaluation

response in liver tumors, summarizing their indications advantages and disadvantages, and discuss future directions with newer methods that have the potential for assessment of treatment response.

"Quantitative imaging allows robust evaluation of hepatic tumor response. In addition to size changes, various biologic and functional parameters can be quantified by using new imaging technologies," the authors write. "Measurement of these parameters is especially important for the evaluation of tumor response to novel targeted therapies, in which change in functional status sometimes precedes anatomic modification."

RadioGraphics



Dysplastic nodule in segment V of the liver in a 61-year-old man with cirrhosis. Axial image from MR elastography demonstrates that the dysplastic nodule has lower stiffness (green), compared with the adjacent cirrhotic liver parenchyma (red).

(*RadioGraphics* 2013;33:1781-1800) ©RSNA, 2013. All rights reserved. Printed with permission.

Education and Funding Opportunities



Writing a Competitive Grant Proposal Program

March 7-8, 2014
RSNA Headquarters,
Oak Brook, Ill

REGISTRATION is open 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.

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 will provide tools for getting started. Faculty includes G. Scott Gazelle, M.D., Ph.D., M.P.H., and Udo Hoffman, M.D., of Massachusetts General Hospital in Boston, Ruth Carlos, M.D., of the University of Michigan Health System in Ann Arbor, and Francis Blankenberg, M.D., of Lucile Packard Children's Hospital at Stanford University in Palo Alto, Calif.

The course fee is \$175. Register online at RSNA.org/CGP. Contact Fiona Miller at 1-630-590-7741 or fmiller@rsna.org for further information.

Medical Meetings October-November 2013

OCTOBER 10-12

The Society of Chairs of Academic Radiology Departments (SCARD), 2013 Fall Meeting, Charleston Place, Charleston, S.C.
• www.scardweb.org

OCTOBER 11-12

European Society of Breast Imaging (EUSOBI), Annual Scientific Meeting, Rome
• www.eusobi.org

OCTOBER 17-20

Royal Australian and New Zealand College of Radiologists (RANZCR), 64th Annual Scientific Meeting, SKYCITY Auckland Convention Centre, New Zealand
• www.ranzcr2013.com

OCTOBER 17-20

Chinese Congress of Radiology (CCR), 13th Chinese Society of Magnetic Resonance in Medicine Conference, Zhejiang International Conference and Exhibition Center, Hangzhou, China
• www.chinaradiology.org/csr/en

OCTOBER 18-20

Society of Radiologists in Ultrasound (SRU), Annual Meeting, The Westin Michigan Avenue Hotel, Chicago
• www.sru.org

OCTOBER 19-23

French Society of Radiology (SFR), Journées Françaises de Radiologie (JFR) 2013, Palais des Congrès, Porte Maillot, Paris
• www.jfrexpo.com

OCTOBER 21

The Academy of Radiology Research, "Uncovering Connections: Imaging Advances in Autism, Brain Trauma and Alzheimer's Disease," Lister Hill Auditorium, National Institutes of Health, Bethesda, Md.
• www.acadrad.org

OCTOBER 24-26

European Society of Cardiac Radiology (ESCR), Annual Scientific Meeting, British Medical Association, London
• www.escr.org

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

NOVEMBER 2-3

Royal College of Radiologists (RCR) & Hong Kong College of Radiologists (HKCR), 5th Joint Scientific Meeting and 21st Annual Scientific Meeting of HKCR, Hong Kong Academy of Medicine Jockey Club Building
• www.rcr.ac.uk

NOVEMBER 16-20

American Medical Informatics Association (AMIA), Annual Symposium, Washington Hilton Hotel, Washington, D.C.
• www.amia.org/amia2013

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

Radiology in Public Focus

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

Atypical Lobular Hyperplasia and Lobular Carcinoma in Situ at Core Breast Biopsy: Use of Careful Radiologic-Pathologic Correlation to Recommend Excision or Observation

WHEN careful radiologic-pathologic correlation is conducted in the setting of a breast core biopsy with atypical lobular hyperplasia or lobular carcinoma in situ, some women can be safely triaged to observation, according to new research.

Kristen A. Atkins, M.D., of the University of Virginia in Charlottesville, and colleagues examined 50 cases of atypical lobular hyperplasia (ALH) or lobular carcinoma in situ (LCIS) from 49 women aged 40-73 years (mean age, 59 years) devoid of any additional lesion that required excision. Researchers performed detailed radiologic-pathologic analysis while blinded to subsequent follow-up infor-

mation, comparing all biopsy-related images with the histologic findings at core biopsy and designating each core biopsy finding as concordant or discordant.

Of the 43 benign concordant core biopsy findings, none were upgraded at surgery or extended follow-up. Of the seven discordant biopsy findings, two were upgraded to ductal carcinoma in situ at surgery; none of the cases were upgraded at follow-up. "Focused and complete radiologic-pathologic correlation may obviate excisional biopsy in patients with benign concordant biopsy findings," the authors write.

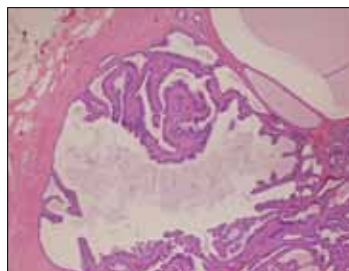


Image in a 48-year-old woman with nipple discharge. Photomicrograph of surgical specimen (H-E stain; original magnification, 320X) reveals small papilloma, which was fully excised (*Radiology* 2013;269;2:InPress) ©RSNA, 2013. All rights reserved. Printed with permission.

Probably Benign Lesions at Screening Breast US in a Population with Elevated Risk: Prevalence and Rate of Malignancy in the ACRIN 6666 Trial

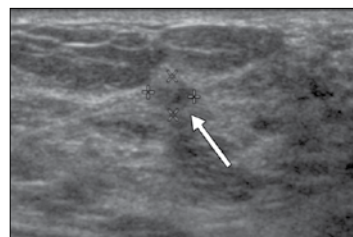
BREAST IMAGING Reporting and Data System (BI-RADS) category 3 lesions are common at screening ultrasound, new research shows.

Richard G. Barr, M.D., Ph.D., of Radiology Consultants, Youngstown, Ohio, and colleagues analyzed data from the American College of Radiology Imaging Network (ACRIN) trial 6666, in which both annual mammography and ultrasound screenings were performed on women with dense breasts at 21 sites around the country.

BI-RADS Category 3 lesions were discovered in nearly 20 percent of 2,662 participants over three years of screening and accounted for 25 percent of 2,916

ultrasound-detected lesions other than simple cysts. The malignancy rate of BI-RADS category 3 lesions was 0.8 percent (six of 745 lesions; 95 percent confidence interval [CI]: 0.3 percent, 1.7 percent).

"Since BI-RADS Category 3 lesions have a low malignancy rate and since only 0.1 percent of lesions had suspicious changes at short-interval follow-up and another 0.1 percent showed a suspicious change at 1-year follow-up, both of which were node-negative invasive cancers, a recommendation of yearly follow-up for BI-RADS category 3 lesions may be appropriate," the authors write.



Sonogram shows a BI-RADS category 3 lesion (arrow) in a woman aged 43 years at 1-year follow-up. At 2-year follow-up, the lesion had suspicious changes and was reclassified as a BI-RADS category 4a solid lesion. The lesion was not detected with mammography in either year. At biopsy, the lesion was determined to be an 18-mm invasive lobular cancer. (*Radiology* 2013;269;3:InPress) ©RSNA, 2013. All rights reserved. Printed with permission.

Screening Mammography Recall Rate: Does Practice Site Matter?

PRACTICE SETTING, which may be influenced by patient or institutional factors, can significantly affect a radiologist's recall rate in screening mammography, according to new research.

Jason Rothschild, M.D., of Alpert Medical School of Brown University, Rhode Island Hospital in Providence, and colleagues reviewed data between May 2008 and September 2011 for five radiologists with expertise in breast imaging who interpreted mammograms at a community office practice and an academic referral hospital. Both sites utilized full-field digital mammography and batch screening interpretation.

Researchers interpreted 74,297 screening mammograms between both sites. The total number of patients recalled was 5,799, for an overall recall rate of 7.8 percent. At 6.9 percent, the recall rate at the community site was significantly lower than the hospital rate of 8.6 percent. The data suggest that patient population factors may affect recall rates at different institutions.

"Being cognizant of the effect of practice site on screening mammography recall rate may help radiologists improve practice by assessing conditions and performance at sites where recall rates are high," according to researchers.

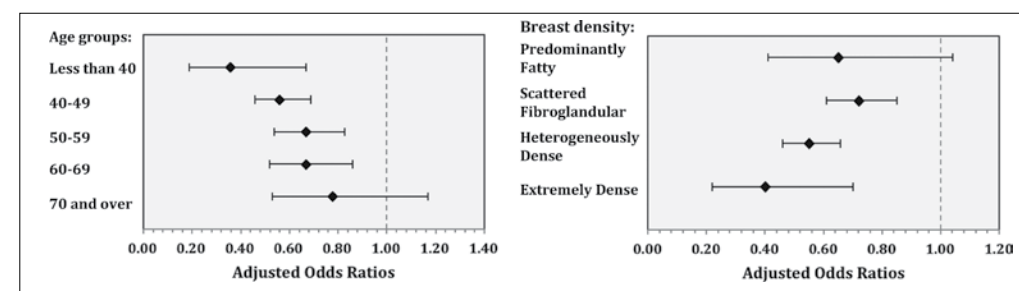
Comparison of Tomosynthesis Plus Digital Mammography and Digital Mammography Alone for Breast Cancer Screening

BREAST tomosynthesis reduces screening mammography recall rates, particularly for younger women and women with dense breasts, without significant changes in cancer detection, according to new research.

In a retrospective study, Brian M. Haas, M.D., of Yale University School of Medicine in New Haven, Conn., and colleagues

reviewed screening recall rates and cancer detection rates in two groups: women who received conventional digital mammography alone and those who received tomosynthesis in addition to mammography. Of the 13,158 patients who underwent screening mammography, 6,100 received tomosynthesis.

The cancer detection rate was 5.7 per 1,000 in patients receiving tomosynthesis, compared with 5.2 per 1,000 in patients receiving mammography alone. The addition of tomosynthesis



Adjusted ORs and 95 percent CIs of recall for digital breast tomosynthesis plus mammography versus conventional digital mammography alone according to age and breast density.

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resulted in a 30 percent reduction in the overall recall rate, from 12 percent for mammography alone to 8.4 percent in the tomosynthesis group.

"The greatest benefit from the reduced recall rates are realized by younger women and those with dense breasts, which could potentially increase compliance with screening mammography in two very sensitive patient populations," the authors write.

Media Coverage of RSNA

In July, 1,127 RSNA-related news stories were tracked in the media. These stories reached an estimated 578 million people.

Print and broadcast coverage included Sun-Sentinel, WPIX-TV (New York), KCBS-TV (Los Angeles), KCAL-TV (Los Angeles), WBBM-TV (Chicago), WGCL-TV (Atlanta) and WBAL-TV (Baltimore).

Online coverage included Yahoo! Health, *U.S. News & World Report*, *MSN.com*, *WebMD* and *Examiner.com*.



RadiologyInfo.org Posts New "Your Radiologist Explains" Videos

Visit *RadiologyInfo.org*, RSNA and ACR's jointly-sponsored public information website, to view recently posted "Your Radiologist Explains" video presentations, including:

- Inferior Vena Cava Filter Placement and Removal
- Transjugular Intrahepatic Portosystemic Shunt

OCTOBER AND NOVEMBER PUBLIC INFORMATION ACTIVITIES FOCUS ON BREAST AND LUNG CANCER AWARENESS

To highlight National Breast Cancer Awareness Month in October and National Lung Cancer Awareness Month in November, RSNA is distributing public service announcements (PSAs) focusing on the importance of regular screening mammograms and the symptoms, risk factors and possible treatment options related to lung cancer.

RSNA is also distributing the "60-Second Checkup" audio program focusing on the use of 3D mammography for better breast cancer detection and CT screening to help reduce lung cancer deaths.

The Value of Membership

R&E Foundation Grants Launch Careers, Spur Added Funding

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.

The R&E Foundation has grants available for medical students, residents, fellows and faculty at all levels. 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 2013, the Foundation will fund 83 grant projects totaling more than \$3 million—and that's just the beginning. An R&E grant is a pathway to greater funding. Surveys show that in the Foundation's brief history, R&E grant recipients have gone on to receive upwards of \$1 billion in subsequent funding from other

sources such as the National Institutes of Health (NIH).

"While searching for scholarships for my project, funding opportunities for radiological studies were much scarcer than other fields of medicine," said Aileen Kim, B.S., a third-year medical student at Duke University. "I am very grateful that RSNA found value in my project and provided financial support during the research period. This was my first research project in which I was the principal investigator. I had an invaluable opportunity to work with my research mentor, a renowned expert in the field, and other co-investigators who gave their time and guidance. I was given a unique learning experience with cutting-



Aileen Kim, B.S., (left) with scientific advisor David M. Brizel, M.D. (right)

edge imaging data and technology. This project definitely reinforced my interest in a research career."

Visit RSNA.org/foundation for more details or to submit an application.

Residents & Fellows Corner

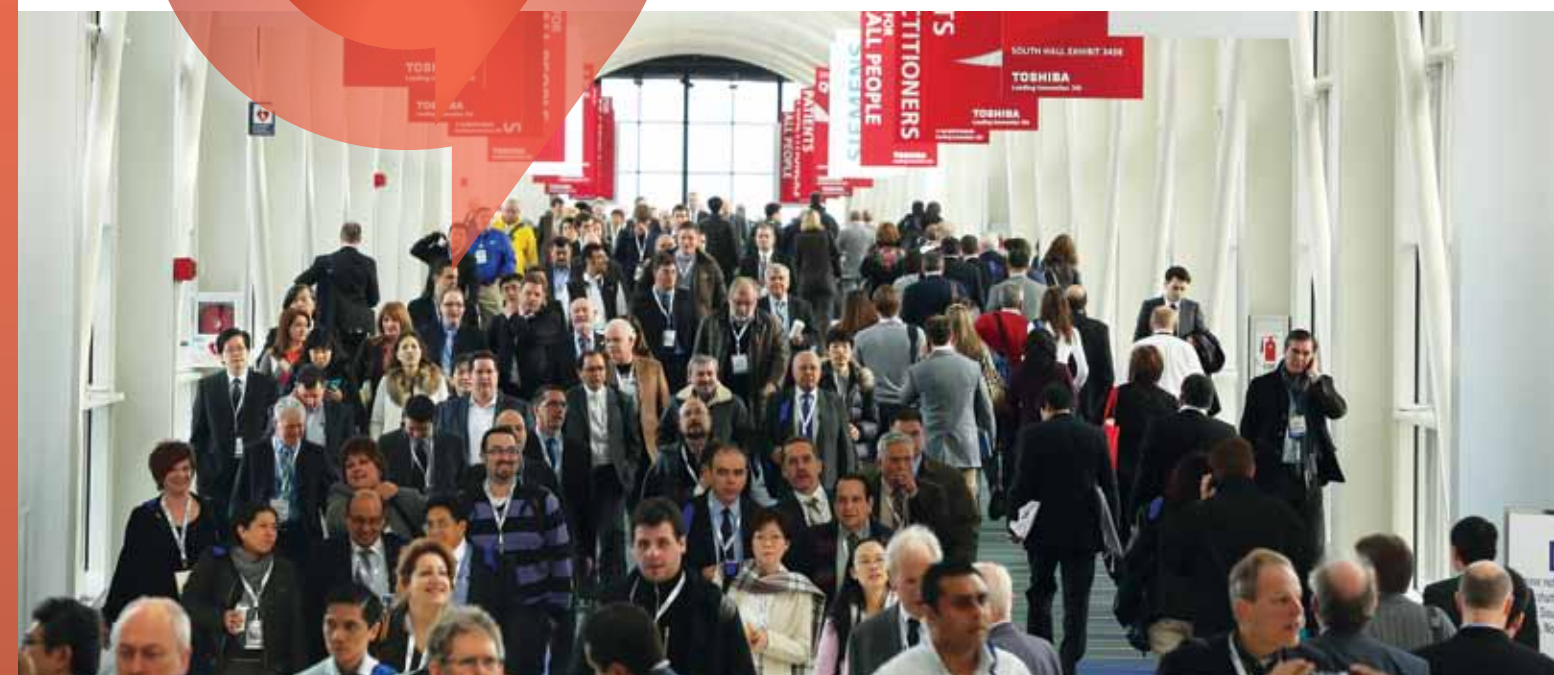
RSNA Recognizes Chief Residents

As part of its commitment to support radiologists in every stage of their careers, RSNA takes this time of the year to acknowledge those selected as chief residents.

"The contributions of these physicians help our specialty continue to advance," said RSNA Board Chair Ronald L. Arenson, M.D. "We congratulate them on their success."

RSNA recently sent each new chief resident a gift box including a "Chief Resident" mug and RSNA coaster. RSNA also acknowledges radiology program coordinators for their efforts to ensure that RSNA reaches all radiology residents. This year each coordinator received an RSNA pad folio. "These coordinators provide critical assistance to RSNA, ensuring that residents receive pertinent RSNA information throughout the year," Dr. Arenson said.

RSNA membership is free for residents and fellows and dues are discounted the first two years of practice. Learn more at RSNA.org/Benefits_Overview_.aspx.



LEARNING OPPORTUNITIES

From lectures and special sessions focused on the specialty's hottest topics to the presentations of cutting-edge research and the latest in radiology informatics, learning opportunities in every subspecialty abound at RSNA 2013. With full participation in the meeting, each physician can earn up to 93.75 AMA PRA Category 1 Credits™.

RSNA 2013 Offers 'Don't-Miss' Science, Education Programs

RSNA 2013's rich offering of scientific presentations, education exhibits and courses will keep attendees abreast of the latest discoveries and techniques in medical imaging. The RSNA 2013 program delivers exciting content for every level of experience—from member-in-training to veteran radiologist.

"Imaging science is continuing to expand at a rapid pace," said Scientific Program Committee chair **Matthew A. Mauro, M.D.** "New modalities or techniques such as tomosynthesis, elastography, immunoradiology, MR/PET and high-intensity focused ultrasound are well represented within this year's scientific program."

Applications of current imaging modalities are expanding to better explore neurodegenerative diseases, traumatic brain injuries and atherosclerosis, and presentations will describe the expansion of mobile devices for on-site image interpretation and the investigation of emergency imaging utilization, Dr. Mauro added. "There will be components of the scientific program that will stimulate all attendees," he said. "It should not be missed."

Along with the traditional stand-alone posters and electronic education exhibits, RSNA 2013 will feature a new concept: Enhanced Education Exhibits, said **Isaac R. Francis, M.D.**, Education Exhibits Program Committee chair.

"We will be trying Enhanced Education Exhibits on a select few traditional stand-alone posters, which will have embedded QR codes as well as additional features such as video clips, quiz material and teaching points," Dr. Francis said. "These can be downloaded to smartphones and tablets to be viewed at the meeting or later."



Mauro



Francis



Frush

"The Refresher Course Committee, together with a hard-working RSNA staff, have planned an exceptional program for the 2013 meeting," said **Donald P. Frush, M.D.**, RSNA Refresher Course Committee chair. "I am always amazed at the increasing quality, diversity and innovation of the comprehensive offerings at each year's annual meeting."

Continued on next page

Continued from previous page

The RSNA 2013 program will offer a wide spectrum of courses for all levels of radiologists, radiation oncologists, medical physicists, trainees and other healthcare professionals, Dr. Frush said.

RSNA received 13,393 abstracts to consider for presentation at RSNA 2013—231 more than last year. Of those, 2,223 were chosen for education exhibits and 2,775 were chosen for formal or informal scientific presentations.

Breast Imaging

This year's roster of breast submissions includes presentations on clinical tomosynthesis, synthetic 2D images with tomosynthesis, quantitative imaging and MR phenotypes, MR screening of "intermediate risk women"—breast cancer survivors or women with cellular atypias—and clinical implementation for tomosynthesis, said Scientific Program Breast Subcommittee chair Emily F. Conant, M.D. There is a trend toward imaging and risk prediction tailored toward the individual patient, Dr. Conant said.

A wide mix of educational presentations will appeal to learners of every level, said Education Exhibits Breast Subcommittee chair Hiroyuki Abe, M.D. "We have multiple reviews for residents and beginning radiologists, such as quality control and radiology-pathology correlations of various benign and malignant diseases, and up-to-date presentations for practicing radiologists such as reviews for tomosynthesis, breast MR imaging and related procedures, and automated whole breast ultrasound," Dr. Abe said. Newer techniques featured include opto-acoustic breast imaging, preoperative localization techniques and high-intensity focused ultrasound.

Cardiac Radiology

Quantitative imaging with MR is one of this year's hottest topics, said Arthur E. Stillman, M.D., Ph.D., chair of the Scientific Program Cardiac Subcommittee. Along with validation of automated software for perfusion, correlation of biomarkers with coronary artery disease and software to reduce coronary motion, Dr. Stillman reported a trend toward dose reduction strategies for cardiac CT.

"We have material for all levels, from resident to fellow to practicing radiologist,



on a wide range of topics including coronary artery disease, non-ischemic heart disease, trauma, congenital heart disease, and surgery and intervention," said Education Exhibits Cardiac Subcommittee chair Shawn D. Teague, M.D.

"We are seeing more material on newer procedures such as transcatheter aortic valve implantation and also on new technical advancements such as the next generation of iterative reconstruction with a focus on dose reduction during CT imaging," Dr. Teague said. "We also have new technical advancements in MR imaging, such as new pulse sequences which provide quantitative information inherent in the sequence. A new topic for this year is combined multimodality imaging with PET/MR."

Chest Radiology

"Interesting screening CT-related abstracts will be presented at this year's program pertaining to management of nodules and incidental findings," said Jane P. Ko, M.D., Scientific Program Chest Subcommittee chair. "Additionally, a large number of submissions pertain to lung nodule and malignancy." Integrated science and practice (ISP) sessions will include keynote lectures on interventional chest radiology and lung nodules and screening, Dr. Ko added.

Emerging topics this year are lung cancer screening, dual-energy CT application and chest MR imaging, said Eric T. Goodman, M.D., Education Exhibits Chest Subcommittee chair. "Attendees should be aware of dose reduction advances in chest CT

imaging, such as iterative reconstruction software and low kV imaging," Dr. Goodman said.

Emergency Radiology

"This year, the emergency radiology scientific sessions will highlight a continued focus on CT protocol optimization for emergent imaging of all organ systems in order to improve diagnostic yield and reduce radiation dose," said Scientific Program Emergency Radiology Subcommittee chair Aaron D. Sodickson, M.D., Ph.D. "Dual-energy CT applications continue to grow in the ER setting. There is excellent content focusing on imaging utilization and emergency radiology practice management," Dr. Sodickson said. This year's Series Courses, combining refresher course content and scientific presentations, are "Advanced Concepts in Imaging of Trauma" and "Leveraging Technologies for State-of-the-Art Practice."

Emergency radiology continues to be a hot topic, with a roughly 25 percent increase in education exhibits accepted for 2013, said Education Exhibits Emergency Radiology Subcommittee chair Stephen F. Hatem, M.D. "These exhibits cover the gamut of the specialty, including submissions on technique and protocols, from organ-centered to disease-specific. The breadth is impressive. Reviews of traumatic injuries and nontraumatic emergencies, as well as forensic imaging, will provide attendees with a variety of educational opportunities."

Gastrointestinal Radiology

CT dose reduction remains one of the most competitive areas for gastrointestinal radiology abstract submission and acceptance, said David H. Kim, M.D., Scientific Program Gastrointestinal Radiology Subcommittee chair. "Besides assessing image quality, investigation is beginning into the important issue of lesion detection ability at these reduced doses," Dr. Kim said. "It has become evident that a trade-off exists with dose reduction, particularly in low-contrast situations such as metastatic disease to the liver."

Research in imaging biomarkers other than size to assess chemotherapeutic response is highlighted this year, Dr. Kim added. "Given the wide use of anti-angiogenic agents where lesion size may not reflect response, these other markers hold greater importance in assessment during therapy," he said.

Some of the most exciting topics include the innovative applications of dual-energy CT within the liver, pancreas and bowel, the early results of PET/MR in various oncologic settings, and the widening applications of ultrasound elastography in the abdomen, Dr. Kim said.

New and innovative ideas in PET/MR imaging for abdominal malignancies, diffusion-weighted MR imaging of the bowel and abdominal organs, and virtual CT enteroscopy are among the noteworthy issues for 2013 according to Lisa M. Ho, M.D., Education Exhibits Gastrointestinal Radiology Subcommittee chair.

Genitourinary Radiology/Uroradiology

Because prostate cancer remains a deadly opponent, many national and international abstracts focus on screening and tumor staging both before and during therapy, said Scientific Program Genitourinary Subcommittee chair Julia R. Fielding, M.D.

"Results of international trials for uniform reporting of disease stage open the door to multi-institutional therapy assessment," Dr. Fielding said. "Total body imaging for staging of gynecological malignancies using diffusion imaging and combined MR and PET imaging are new hot topics for the year." Kidney neoplasms and prostate neoplasms are among the most popular submission for 2013, said Aytekin Oto, M.D., Education Exhibits Uroradiology Subcom-

mittee chair, adding that emerging topics in adrenal imaging are also highlighted.

Health Services Policy and Research/Policy and Practice

"In recognition of its increasing importance in our radiology practice, we introduced a new subcategory this year: economics," said Dean K. Shibata, M.D., Education Exhibits Policy and Practice Subcommittee chair, adding that related sessions will include, "The Role of Radiology in Accountable Care Organizations," "What Does the Fiscal Cliff Compromise and Sequestration Really Mean," and "Hospital Readmissions: A Penalty that will Affect Interventional Radiologists."

The largest subcategory, quality improvement, includes exhibits on process mapping and managing a sentinel event, Dr. Shibata said. Attendees can explore widely appealing topics such as "Top Ten Commonly Misordered Diagnostic Imaging Studies by Primary Care Physicians" and "Current Status of Nephrogenic Systemic Fibrosis."

"There will also be a number of interesting topics with medicolegal themes—important subjects which impact everyone practicing radiology today," Dr. Shibata said.

Evidence-based medicine, quality, practice management and medical management are among this year's noteworthy presentations, said Scientific Program Services Policy and Research Subcommittee chair Aine M. Kelly, M.D. Innovative research projects include utilization management and its impact on radiology, as well as "smaller

packaging of materials—such as contrast material—to save costs overall, a simple concept and solution to a large, important problem," Dr. Kelly said.

"Compliance with guidelines and their cost implications is an important topic because of current health system restraints, which will force us to make difficult decisions, addressing the trade-off between practicing 'good medicine' and saving money," Dr. Kelly advised.

Informatics

"Evidence of the efficacy of decision support tools for ordering clinicians is growing," said Scientific Program Radiology Informatics Subcommittee chair David S. Hirschorn, M.D. "People keep finding new uses for mobile devices—for patient education about pre-test preparation, for tracking resident procedure logs, and even for use as a microphone and speech recording system for dictation. The most popular category of submission remains image processing."

Important subjects include crowd sourcing in radiology, immediately catching errors in reports, communicating results directly to patients and effective use of decision support, Dr. Hirschorn said.

Education Exhibits Radiology Informatics Subcommittee chair Katherine P. Andriole, Ph.D., said, "We continue to receive a large number of submissions for the educational tools and for the image processing and analysis categories, including an increase in quantitative imaging methods. This year we

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saw an increase in the number of submissions for the emerging technologies and for the quality-safety categories.”

RSNA 2013 attendees can view these exhibits throughout the week, Dr. Andriole noted. “Some focus on hands-on technology while others are translational research and clinical research exhibits.”

Molecular Imaging

RSNA is providing a critical venue for national and international scholars to present their latest findings in molecular imaging and to discuss emerging technologies encompassing MR imaging, PET, CT, ultrasound, optical imaging and tracer development, said Satoshi Minoshima, M.D., Ph.D., chair of the Scientific Program and Education Exhibits Molecular Imaging Subcommittees.



“Attendees will be able to see translational efforts in molecular imaging—cutting-edge technologies developed in basic sciences and their clinical applications,” Dr. Minoshima said.

Multimodal imaging continues to be a focus of RSNA’s molecular imaging offerings, Dr. Minoshima continued, noting an increase in “non-radioactive” studies in areas including MR, ultrasound and optical imaging. Applications for non-cancer conditions, such as infection, are increasing, he said. Unique investigational studies address molecular MR immunoradiology in multiple sclerosis, novel optical imaging probe for colorectal cancer, targeted ultrasound for pancreatic

cancer, imaging evaluation of cytoskeletal therapy for traumatic brain injury and MR colonography with nanoparticles.

Musculoskeletal Radiology

This year’s submissions include an increasing focus on diagnosis and treatment of various musculoskeletal tumors, said Jon A. Jacobson, M.D., Scientific Program Musculoskeletal Radiology Subcommittee chair. “For example, several abstracts use MR imaging-guided high intensity focused ultrasound for the treatment of osteoid osteomas,” Dr. Jacobson said.

“From a diagnostic perspective, several abstracts discuss the use of whole-body MR imaging for the diagnosis and staging of multiple myeloma,” Dr. Jacobson continued. “In addition, functional MR imaging was used in several presentations in the evaluation of soft tissue sarcomas to diagnose

recurrent disease and to assess early response to tumor treatment. As a result of an increase in these high-quality abstract submissions, several scientific sessions will be offered on musculoskeletal intervention and tumor imaging.”

Neuroradiology

Arterial vessel wall imaging is a new and interesting trend in neuroradiology, said Pratik Mukherjee, M.D., Ph.D., Scientific Program Neuroradiology Subcommittee chair. Other topics include intravenous volume CT angiography vs. intraarterial digital subtraction angiography (IA DSA), 4DCT angiography vs. IA DSA for dural arteriovenous fistulas, molecular imaging of

multiple sclerosis, quantitative imaging of Alzheimer disease and structural connectomes for mapping Alzheimer disease.

William T. Yuh, M.D., Education Exhibits Neuroradiology Subcommittee chair, reported a 5 percent increase in neuroradiology abstracts this year, with an increasing variety of topics and wider spectrum of disease processes.

“These are useful for teaching purposes,” Dr. Yuh said. “There has been an increase in head and neck abstracts, including a good number of anatomy and congenital-developmental subcategory submissions. We will see more exhibits on advanced techniques and more that address true research questions. Together with advanced neuroimaging techniques and their application in various disease processes, such as head and neck cancers, the exhibits will be interesting to follow.”

Nuclear Medicine

“Hybrid imaging with PET/MR for oncologic, cardiovascular and neurologic applications continues to grow and is an active area of investigation for clinical and research applications,” said Jonathan E. McConathy, M.D., Ph.D., Scientific Program Nuclear Medicine Subcommittee chair. “Many exciting presentations will focus on the technical considerations, clinical applications and potential limitations of this new imaging modality.”

A number of noteworthy abstracts will be presented during the Non-FDG PET Radiotracers in Oncology series session on Tuesday, Dr. McConathy said. “Some of these emerging PET tracers are on the cusp of widespread clinical use and have the potential to substantially improve imaging capabilities for patients with cancer.”

“Prostate cancer imaging is an area to watch this year,” Dr. McConathy continued. Recent exciting results with PET tracers such as sodium [F-18]fluoride, [C-11]choline, and [F-18] FACBC as well as hybrid PET/MR imaging techniques will be presented. “Given the frequency of prostate cancer and the limitations of current widely available imaging techniques, these new tracers and technologies may be an important area of growth in nuclear medicine in the next few years,” Dr. McConathy said.

Nuclear medicine education exhibit submissions increased by about 25 percent

this year, said Education Exhibits Nuclear Medicine Subcommittee chair Rathan M. Subramaniam, M.D., Ph.D. “The major trend was increasing numbers of PET/MR imaging abstracts along with PET/CT,” Dr. Subramaniam said. “This reflects the installment of PET/MR scanners for clinical purposes at many centers around the world. We expect this trend will continue in the future. PET/MR abstracts are newsworthy, as this is a major development and will influence radiology in training, technical, clinical, economic and administrative aspects, likely as a disruptive technology.”

Obstetrics/Gynecology

New trends to watch in obstetric and gynecologic radiology include 3T MR imaging of the female pelvis, new applications for 3D ultrasound and PET/CT for gynecologic malignancies, said Robert D. Harris, M.D., M.P.H., chair of the Education Exhibits Obstetrics/Gynecology Subcommittee. “An older topic revisited, with some interesting new aspects, is ultrasound reviews of fetal anomalies,” Dr. Harris said.

Pediatric Radiology

Neuroradiology saw the biggest increase in pediatric submissions, said Rajesh Krishnamurthy, M.D., Scientific Program Pediatric Radiology Subcommittee chair. Trends include increasing use of low-dose CT compared to MR imaging for cardiac indications, PET/MR in pediatrics, and advances in diffusion-weighted imaging and resting functional MR imaging in children.

Provocative topics this year include diffusion kurtosis imaging of the brain, respiratory navigator-free breathing cine steady-state free precession techniques for evaluating the heart, amide proton transfer in hypothermia, and MR-guided drilling of osteochondritis, Dr. Krishnamurthy said.

Fetal imaging and radiation dose saw the largest increase in education exhibits, said Education Exhibits Pediatrics Subcommittee chair Craig E. Barnes, M.D. “There is a large variety of topics presented this year that will be of interest to trainees, general radiologists and those practicing pediatric radiology,” Dr. Barnes said.

Physics

An important focus for attendees is dual-energy and spectral (photo-counting) CT, while spectral CT and low-dose CT

PEDIATRIC AND NUCLEAR MEDICINE/ MOLECULAR IMAGING CAMPUSES

This year, separate Pediatric and Nuclear Medicine/Molecular Imaging campuses feature many components—including refresher and series courses, scientific presentations, and education exhibits—of these subspecialties, to facilitate focused study during the week.

The Pediatric Campus is located in Rooms S101AB and S102AB of McCormick Place. The Nuclear Medicine/Molecular Imaging Campus is located in S503AB, S504CD and S505AB. Lunch hour and afternoon presentations of scientific posters and education exhibits in the pediatric and nuclear medicine/molecular imaging subspecialties will take place in the campuses.

remain hot topics for the year, said Scientific Program Physics Subcommittee chair Xiaochuan Pan, Ph.D.

“A frequent comment from participants in last year’s physics sessions was that there was a considerable session overlap on CT topics at the same time,” Dr. Pan said. “In an attempt to address that, we have re-organized the CT sessions to spread out throughout the meeting.”

Radiation Oncology and Radiobiology

Head and neck cancer abstracts have doubled this year, according to Scientific Program Radiation Oncology/Radiobiology Subcommittee chair Nina A. Mayr, M.D., adding that breast cancer abstracts have also increased.

These increases will synergize well with the respective Bolstering Oncoradiologic and Oncoradiotherapeutic Skills for Tomorrow (BOOST) course topics, which include anatomy and contouring and case-based reviews of head and neck and breast cancer, Dr. Mayr said. “The head and neck cancer program has an e-contouring session, adding to the quality of the program,” she said. Outcomes research remains strongly represented in radiation oncology, she added.

The challenges of incorporating newer imaging technologies into radiation treatment planning, image registration and response assessment, and an appreciation of the limits of quantitative imaging are of interest this year, said Sunil Krishnan, M.D., Education Exhibits Radiation Oncology Subcommittee chair.

Dr. Krishnan observed: “These research trends again highlight the need for constant communication between radiation oncologists and diagnostic radiologists to accurately diagnose, treat and monitor patients.”

Vascular/Interventional Radiology

Scott O. Trerotola, M.D., Scientific Program Vascular and Interventional Subcommittee chair, identified radioembolization and dose reduction—for contrast and radiation—as hot topics for 2013, along with research on evidence supporting prostate embolization. “Hopefully this is the ‘next big thing’ in interventional radiology,” Dr. Trerotola said. “Atherosclerosis imaging (MR and CT) is becoming popular, and prostatic embolization is still on the radar,” he added.

Submissions were strong in interventional oncology, venous disease and vascular imaging, said Education Exhibits Vascular/Interventional Radiology Subcommittee chair David C. Madoff, M.D. “In addition, many exhibits will highlight specific newer techniques and treatment strategies such as renal denervation, prostate artery embolization and irreversible electroporation,” Dr. Madoff said.



Plenary Lectures

RSNA 2013 will feature plenary session lectures on a spectrum of healthcare topics. All lectures will be presented in the Arie Crown Theater.

Annual Oration In Diagnostic Radiology

Sunday, December 1 • 8:30 a.m.

We Must Stand on the Shoulders of Giants

Radiology and interventional oncology share a strong focus on cancer detection and staging, locoregional therapy and follow-up. Despite their mutual goals and complementary skill sets, however, many radiology and radiation oncology departments struggle to be autonomous and at times compete for hospital resources and patients. In the new healthcare paradigm of evidence-based medicine, a cohesive team approach to cancer care makes the most economic sense, says **Damian E. Dupuy, M.D.**, who encourages deeper collaboration between these departments given the shared interests and synergy between their treatments. Patients stand to benefit from the reunification of spirit as well as intellect, he says. Quoting



Dupuy

the timeless words of Sir Isaac Newton, Dr. Dupuy notes, "If I have seen further than others, it is by standing upon the shoulders of giants."

Dr. Dupuy is director of tumor ablation at Rhode Island Hospital and a professor of diagnostic imaging at the Warren Alpert Medical School of Brown University. Internationally recognized for his clinical expertise, teaching and research in image-guided ablation, Dr. Dupuy has helped broaden clinical applications to successfully combat adrenal cancer and cancers of the kidney, liver, lung, head and neck and skeleton. He pioneered technologies such as percutaneous microwave ablation, cryoablation and combination therapies using radiofrequency ablation with external radiation or brachytherapy. Dr. Dupuy has been the principal investigator of two National Cancer Institute-funded multicenter trials.

Dr. Dupuy chairs the Interventional Oncology Symposium at the RSNA Annual Meeting and is a member of RSNA's Public Information Advisors Network.

Eugene P. Pendergrass New Horizons Lecture

Monday, December 2 • 1:30 p.m.

Normal and Neoplastic Stem Cells: Implications for the Radiological Sciences

Research that bears on the earliest stages of cancer development as well as the sequelae of cancer treatment is important not only to radiation oncologists but to diagnostic radiologists as well. An investigation led by **Irving L. Weissman, M.D.**, into blood-forming stem cells and their non-self-renewing progeny found that they hold promise for regenerating the hematopoietic system after chemotherapy and radiation for cancer, replacing genetically defective or otherwise damaged blood-forming systems, understanding the stages of hematopoiesis that harbor the earliest stages of pre-leukemia and providing the first constant target found on all cancers.



Weissman

Dr. Weissman is a professor in the Department of Pathology and director of the Institute for Stem Cell Biology and Regenerative Medicine in the Stanford University School of Medicine. He has devoted his career to stem cell research, with particular interests including hematopoietic stem and progenitor cells, central nervous system stem and progenitor cells, and lymphocyte differentiation.

Dr. Weissman has founded three companies focused on bringing stem cell therapies into the clinic and served on the founding scientific advisory boards of three others. He has been an investigator of the Howard Hughes Medical Institute in Chicago and the Karel Beekhuis Professor of Cancer Biology and chair of the immunology program at Stanford. Dr. Weissman is a fellow in the American Association for the Advancement of Science and was elected to the Institute of Medicine of the National Academy of Sciences.

Special Lecture*

Tuesday, December 3 • 1:30 p.m.

Mobilizing Human Potential

Continuing to address the healthcare challenges of the 21st century means answering some critical questions: How do we educate the students of tomorrow? How do we foster leadership among present and future practitioners? Former U.S.



Rice

Secretary of State **Condoleezza Rice, Ph.D.**, will offer her experiences in how resources can be identified, attracted and mobilized to solve problems and forge new paths for the benefit of people worldwide.

From 2005 to 2009, Dr. Rice served as the 66th Secretary of State of the United States, the second woman and first African American woman to hold the post. She also served as national security advisor for President George W. Bush from 2001 to 2005, the first woman to hold the position. Her numerous books include two best-sellers, "No Higher Honor: A Memoir of My Years in Washington" and "Extraordinary, Ordinary People: A Memoir of Family."

*Note: Tickets are required for the Special Lecture to be delivered by Dr. Condoleezza Rice. Tickets may be obtained

via the RSNA 2013 Course Enrollment process at RSNA.org/register.

Annual Oration In Radiation Oncology

Wednesday, December 4 • 1:30 p.m.

Beneficial Liaisons: Imaging and Therapy

See the tumor, treat the tumor. How complicated can this be? Not long ago, notes **Paul M. Harari, M.D.**, external anatomy and plain X-rays served as the primary guide for radiation therapy. Broad field design was the prevailing paradigm with the knowledge that the tumor surely resided within. Collateral normal tissue damage was a necessary accompaniment of treatment and tumor dose was largely limited by normal organ tolerance. Today, says Dr. Harari, ablative radiation doses are delivered to complex 3D tumor shapes virtually anywhere in the body. Sharp dose gradients are created between tumor and critical normal tissues and high precision is sought for daily treatment across thousands of patients. We are poised to move well beyond "see the tumor, treat the tumor," Dr. Harari says, as we cross the threshold of unparalleled visualization within tumors, tracking individual tumor cells, developing dipeptide agents to simultaneously image and treat, and harnessing early response profiles to shape more personalized and effective future therapies.



Harari

Dr. Harari is the Jack Fowler Professor and chair of the Department of Human Oncology at the University of Wisconsin School of Medicine and Public Health. Early career development awards from the American Cancer Society and the RSNA Research & Education (R&E) Foundation helped launch Dr. Harari's career as a physician scientist. His clinical and laboratory research focuses on treatment advances for head and neck cancer patients with emphasis on the interaction of molecular growth inhibitors combined with radiation. His clinical work emphasizes the highest quality imaging for cancer patients and the advancement of new imaging modalities that enhance our ability to assess both tumor anatomy and biology.

RSNA/AAPM Symposium

Thursday, December 5 • 1:30 p.m.

Imaging in Partnership: With Radiation Therapy

In this symposium presented in conjunction with the American Association of Physicists in Medicine, **David A. Jaffray, Ph.D.**, will discuss how multimodality imaging methods are being used in combination with high-precision radiation therapy delivery techniques to understand fundamental mechanisms of cancer pathogenesis, progression and treatment response.



Jaffray

Dr. Jaffray is a professor in the departments of Radiation Oncology, Medical Biophysics, and Institute for Biomaterials and Biomedical Engineering at the University of Toronto. With primary research interests in the development and application of image-guided radiation therapy, Dr. Jaffray has numerous patents issued and several licensed, including kilovoltage cone-beam CT for image-guided radiation therapy. Dr. Jaffray serves as the head of radiation physics and a senior scientist within the Ontario Cancer Institute at the Princess Margaret Hospital in Toronto, where he also holds the Orey and Mary Fidani Family Chair in Radiation Physics and is a principal in the STARR Innovation Centre and Guided Therapeutics Group of the University Health Network. Dr. Jaffray is the director of the recently established Institute of Health Technology Development at the University Health Network (TECHNA).

Imaging in Partnership: With Physics and Quantitative Medicine

James A. Deye, Ph.D., will address the challenges and advances associated with quantitative imaging, and how more accurate and quantitative imaging is central to advancing the understanding of major questions in 21st century medicine. Imaging in partnership with medical physics and other technical and clinical disciplines provides a



Deye

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vital tool and multidisciplinary expertise for such advances.

Dr. Deye is a program director in the Extramural Radiation Research Program of the National Cancer Institute. During his career he has published in various areas of radiologic physics including high-energy photon beam production of neutrons and electrons, neutron dosimetry, shielding design, treatment planning quality assurance, operations research in radiation therapy and quality assurance in clinical practice. His current portfolio includes grants totaling more than \$15 million in areas of advanced technologies and imaging in the planning and delivery of radiotherapy. Dr. Deye's past appointments include associate director of medical physics at George Washington University Medical Center, with responsibility for the clinical implementation of the Mid-Atlantic Neutron Therapy program, and director of medical physics at Inova Hospital Association in Northern Virginia, where he developed a department of 14 staff covering all areas of medical physics.

OTHER PLENARY SESSIONS

More information about these sessions is available at RSNA2013.RSNA.org.

SUNDAY

8:30 a.m.

President's Address

4:00 p.m.

Report of the RSNA Research & Education Foundation

4:00 p.m.

Image Interpretation Session

FRIDAY

12:30 p.m.

Friday Imaging Symposium

Virtual Meeting

Add the Virtual Meeting for the Best RSNA 2013 Experience

Want to make sure you don't miss featured RSNA 2013 sessions? You can experience the world's premier medical imaging event from any computer or mobile device via RSNA's Virtual Meeting.

Visit RSNA.org/Virtual to add the Virtual Meeting to your registration and tune in to live sessions during RSNA 2013 and on-demand through December 13. The

fee is \$100 for RSNA/AAPM members; \$300 for non-members. RSNA members-in-training, medical student members and retired members can access the Virtual Meeting for free.

Visitors to the Virtual Meeting page can view video highlights of the RSNA 2012 Virtual Meeting and explore the full gamut of offerings planned for RSNA 2013. Starting November 30, registered Virtual Meeting attendees can:

- Watch more than 40 live streaming courses, including plenary sessions, the Image Interpretation Session, refresher courses, multisession courses, series courses and scientific sessions.
- Submit diagnoses for Cases of the Day consisting of five cases per subspecialty area throughout the week. Answers will be revealed the following morning.
- Earn Continuing Education credits—live participation lets you maximize your CME.
- See select education exhibits and digital scientific presentations.
- Shop cutting-edge products, services, equipment and software from RSNA 2013 exhibitors.
- Watch live exhibitor product theater demonstrations.
- See courses and exhibitor presentations on demand through December 13.

RSNA is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians. RSNA designates this live activity for a maximum of 81.25 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

To view the Virtual Meeting Program, go to RSNA2013.RSNA.org/virtual/program. For more information, contact virtual@RSNA.org.

Saturday Courses

Radiología de la Infección e Inflamación: Sesión del Colegio Interamericano de Radiología (CIR) en Español/Imaging of Infection and Inflammation: Session of the Interamerican College of Radiology (CIR)

This session is presented in Spanish with simultaneous English translation.

AAPM/RSNA Tutorials: CT Dose and Image Quality

The Physics Tutorial for Residents looks at CT dose and the technical factors which affect patient dose. Different approaches to image reconstruction and their contribution to patient dose reduction, as well as development and review of low-dose protocols for CT will be discussed. Immediately following is the Tutorial on Equipment Selection, which addresses the differences in design and imaging reconstruction in commercial systems designed for CT imaging and aftermarket image post-processing systems and the impact dose reduction techniques have on image quality and the clinical management of disease. Also to be discussed is development of a business model for incorporating dose reduction into CT imaging.

Grantsmanship Workshops

Two workshops examine the National Institutes of Health (NIH) grant application process from different perspectives. The "NIH Grantsmanship Workshop" helps applicants understand the process for preparing a competitive research or training grant application. "RSNA/ARR Study Section Reviewers Workshop—What It Takes to Be an Expert Reviewer for the NIH: The Peer Review Process Demystified" prepares reviewers with an overview of grant mechanisms and evaluation criteria. Both sessions give attendees the opportunity to learn from a mock study section. The registration fee is \$35.

Special Courses

Special Interest, Hot Topic, Controversies/Game Sessions

Discover radiology-related topics that are late-breaking (Hot Topics), are particularly controversial or offered in a game format (Controversies/Game), or are programs the RSNA Board deems of particular importance (Special Interest). High levels of audience interest and opinion are expected.

Sessions are offered Monday-Thursday; see the *RSNA Meeting Program* for titles.

RSNA Diagnosis Live

These exciting expert-moderated sessions feature a series of interactive case studies

to challenge radiologists' diagnostic skills. Submit and discuss your responses with your colleagues in a fast-paced game format. Monday's session (SPDL21) from 4:30 to 6:00 p.m. will feature chest and abdomen cases; Wednesday's session (SPDL41) from 4:30 to 6:00 p.m. will feature neuroradiology and musculoskeletal cases; and Thursday's session (SPDL51) from 3:00 to 4:00 p.m. will be a radiology potpourri.

Scientific Paper Sessions

Sessions are offered over nine time slots during the week and will include 2,775 papers in a range of subspecialties.

France Presents

France is the latest country to be spotlighted as part of the "Country Presents" sessions at the RSNA annual meeting. The France Presents session is scheduled for Monday, 10:30 a.m.–12:00 p.m., and offered in conjunction with the Société Française de Radiologie (SFR).

This year's program will provide attendees with an opportunity to hear the latest in oncologic imaging from top French radiologists, including sessions on:

- Whole-body Diffusion in Hematology Malignancies, Alain E. Luciani, M.D.
- Beyond Morphology: Molecular Imaging for Biopsy Guidance in Oncology, Eric De Kerviler, M.D.
- Intra-arterial Therapy of Liver Malignancies—Where We Stand and Future Trends, Thierry De Baere, M.D.
- Colorectal Liver Metastases: Role of the Radiologist in the Multidisciplinary Team, Valérie Vilgrain, M.D.

France Presents will also include other activities and services focusing on the country's contributions to the annual meeting. On Sunday, in the Global Connection area of RSNA Services, a special discussion on "Navigating the RSNA 2013 Annual Meeting" will be led in French from 10:00 to 10:30 a.m., including information on everything from scientific sessions to restaurants and getting around Chicago.

SFR will host Booth 1122, South Building, Hall A to showcase its contributions to RSNA over the years.



In addition, RSNA's Technical Exhibition will highlight all of our French exhibitors, including those in the French Pavillion.

See the full list of French companies and much more information on France Presents, at RSNA.org/FrancePresents.

Refresher and Multisession Courses

RSNA 2013 offers more than 300 refresher courses covering traditional and cutting-edge topics. Multisession courses are scheduled for time blocks ranging from several hours to several days, to allow intensive study of various topics.

Quality Essentials Certificate Sessions at RSNA 2013

Attendees of Monday's Quality Special Interest Session and the RSNA 2013 Quality Symposium will have the opportunity to earn up to four Quality Essentials Certificates designed to recognize those who demonstrate a threshold level of knowledge in various quality improvement domains.

With the addition of two new courses this year, Quality Essential Certificates will be available for each of the following sessions:

MONDAY

4:30-6:00 p.m. (SPSI22)

- Getting Radiologist Peer Review Right

TUESDAY

8:30-10:00 a.m. (MSQI31)

- Safety at Work

10:30 a.m.-12:00 p.m. (MSQI32)

- Keeping our Customers Satisfied

A Quality Essentials Certificate is awarded to participants who earn 80 percent or higher on the related SAM test. Within six months of their first live offering, the courses and tests are also available through RSNA's online education offerings.

New for 2013: Advanced Level Quality Certificate

After the annual meeting, candidates can work toward earning an Advanced Level Quality Certificate recognizing those who attain a Quality Essentials Certificate in each of the following categories: Quality Improvement in Your Practice, Staff and Patient Safety, Customer Satisfaction and Radiologist Performance Improvement.

Candidates must also submit a Quality Storyboard abstract that is accepted for display at an RSNA Meeting.

Lakeside Learning Center

New Location

The Lakeside Learning Center, located in Hall D, Level 3 (one floor up from its previous location), is home to education

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exhibits and scientific informal (posters) presentations, grouped according to subspecialty. Many authors of posters and education exhibits are scheduled to give lunchtime presentations of their work; see the *RSNA Meeting Program* for days and times.

Select backboard panel education exhibits in each subspecialty will contain QR codes that, when scanned with a smartphone, will take users to an electronic version of the poster and supplemental materials. Copies of the panels will be located in the “Enhanced Education Exhibits” area near the entrance to the Lakeside Learning Center and copies from each subspecialty will be located in the individual subspecialty communities.

Electronic scientific posters and education exhibits (excluding Enhanced Education Exhibits) are available to meeting attendees via the Virtual Meeting 24 hours a day throughout the meeting week.

Quantitative Imaging

Located in the Lakeside Learning Center, the Quantitative Imaging Reading Room is an educational showcase highlighting products and applications that integrate quantitative analysis and structured reporting into the image interpretation and reporting process.

At the Quantitative Imaging and Biomarkers Alliance (QIBA) kiosk, see the latest efforts of the RSNA-directed group that aims to improve the value and practicality of quantitative imaging biomarkers by reducing variability across devices, patients and time.

Radiology Informatics

Integrating the Healthcare Enterprise (IHE®)

Visit the Integrating the Healthcare Enterprise (IHE®) exhibit in Booth 8140 in North Building, Hall B, for demonstrations by care sites and commercial vendors of IHE® methods for sharing image-enabled electronic health records and radiation dose information. Demonstrations take place regularly during exhibit hours.

Informatics Courses

More than 30 informatics courses will be offered on topics include advanced imaging tools, online searching, and RSNA Informatics projects such as myRSNA®, MIRC®, RadLex®, IHE® and Reporting.

Informatics Area—Learning Center

Informatics exhibits in the Lakeside Learning Center include posters and stand-alone computer exhibits on a range of topics in imaging informatics.

Image Sharing Demonstration—Hall A (North Building)

The annual Image Sharing Demonstration features cutting-edge developments in imaging informatics to improve patient care in radiology. These include standardized technology, structured radiology reports, radiation dose monitoring and image sharing based on technology used in RSNA’s NIBIB-funded Image Share Network.

For more information, go to RSNA.org/Informatics.aspx.

RSNA Education

Earn SAM, CME Credits

Thirty-four in-person self-assessment module (SAM) courses will be offered at RSNA 2013, allowing participants to obtain both continuing medical education (CME) and SAM credit for each course attended. With the help of SAM faculty, this year’s courses have been designed to cover a wide range of subspecialties.

RSNA offers SAMs that meet the American Board of Radiology’s (ABR) criteria for a self-assessment activity in the ABR Maintenance of Certification program. Participants can earn 1.50 SAM credit for each SAM course in addition to 1.50 AMA PRA Category 1 Credits™.

The RSNA Annual Meeting in-person SAMs is an Accredited Self-Assessment Program (SAP – Section 3) as defined by the new Maintenance of Certification program (MOC) of the Royal College of Physicians and Surgeons of Canada (RCPSC), and has been approved by the Canadian Association of Radiologists (CAR) for a maximum of 1.50 credit hours.

Guarantee your seat in SAM courses by pre-registering at RSNA.org/Registration by November 27. Attendees interested in sold-out SAM courses can go directly to the SAM course room and attendees will be seated on a first-come, first-serve basis after all ticketed attendees have been seated.

Members attend RSNA 2013 SAM courses free; non-members pay a fee of \$50.

RSNA Store Features CD Refresher Courses, New Collections, Demonstrations

Visit the RSNA Store to experience all the educational products and services that RSNA has to offer and to talk to RSNA staff about the newly redesigned online education offerings, learn how to access CME content from your mobile tablet device, and more.

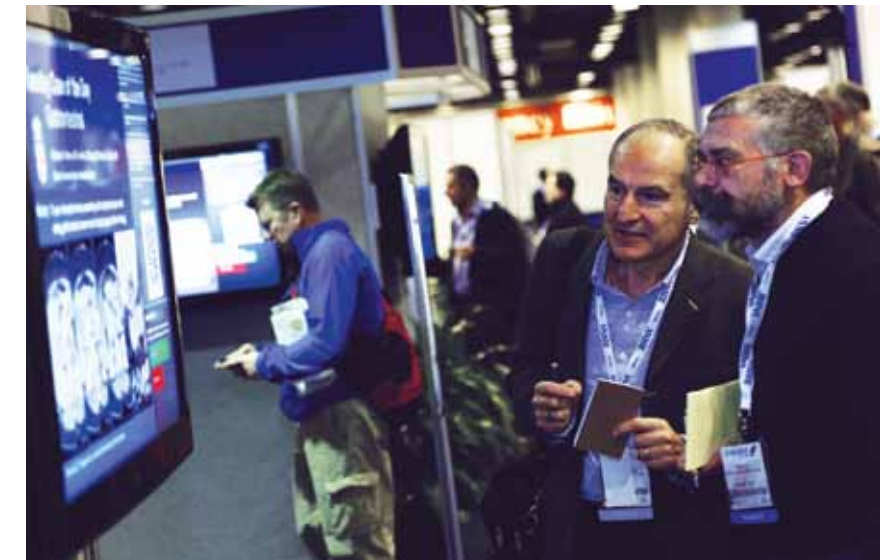
This year, the RSNA Education Center offers 20 new refresher courses for

purchase on CD at the RSNA Store, including, “Emergency Neuroradiology,” “Practical Gynecologic MRI” and “Acute & Chronic Pulmonary Emboli.” Most courses focus on specific imaging challenges and cover a broad range of subspecialty topic areas. Individual CDs are \$55 for members and \$80 for non-members.

The RSNA Store will also feature new CD collections, in either a two-or three-disc format. Each collection contains a set of refresher course CDs pertaining to a particular subspecialty and offers an audio-visual presentation, along with line-by-line transcript and CME test. Collections provide the opportunity to earn multiple CME credits and offer a 25 percent discount as compared to individual CD purchases.

CD collections from previous annual meetings will also be available for purchase at the RSNA Store. Collections are priced based on the number of CDs per collection but generally range from \$80 to \$175 per collection.

RadioGraphics special editions 2009-2013 will be available for browsing and purchase. The RSNA Store will also feature the print version of *Radiology* Select Volume I: Pulmonary Nodules, Volume II: Stroke, Volume III: Coronary Artery Disease and Volume IV: Breast Cancer Screening. *Radiology* Select is a continuing series of selected *Radiology* articles that highlight developments in imaging science, techniques and clinical practice. *Radiology* Select in-print editions are available for \$50 to both members and non-members.



RSNA staff will also be available in the store to give demonstrations of the RSNA/AAPM Physics Modules, online Education search, CME Credit Repository and more.

Academy of Radiology Leadership and Management

Forty-two courses at RSNA 2013 count toward the Certificate of Achievement offered by the Academy of Radiology Leadership and Management (ARLM). RSNA has collaborated with the Association of Administrators in Academic Radiology Departments, American Roentgen Ray Society, Association of University Radiologists, and the Society of Chairs of Academic Radiology Departments in the ARLM.

Medical imaging professionals can earn a Certificate of Achievement from ARLM

by participating in 50 hours of education—including at least 30 hours in person—across a spectrum of domains including financial skills, human resources, professionalism, legal/contracting and academic mission.

Learn more about ARLM-eligible courses by picking up an ARLM subspecialty brochure at McCormick Place and looking for the **ARLM** in the *RSNA Meeting Program*. RSNA Store staff can answer questions regarding ARLM achievements or courses.

NEW PROCESS FOR CLAIMING CREDIT AT RSNA 2013

Online Evaluation and Claim Center (OECC) Makes Process Easier, More Immediate

RSNA 2013 attendees need not look for attendance “chits” in their registration materials. Attendees will now document their attendance by evaluating RSNA 2013 courses and sessions and claiming their credits online—via their own laptop and mobile devices or at any of the Internet Kiosks within McCormick Place.

The new Online Evaluation and Claim Center (OECC) allows attendees to begin their evaluations as early as 10 minutes after a course begins, claim their credits onsite and walk away with printed certificates in hand. Attendees will also receive links via email that allow printing of certificates at home, and for RSNA members credits are automatically added to the RSNA CME Repository.

After the meeting, attendees will still be able to evaluate courses and claim credit for one week. Detailed instructions will be included in the Meeting Bags distributed to professional registrants and RSNA staff will be on hand at the Internet Kiosks to assist with the process.



McCORMICK PLACE AND CHICAGO

Getting around McCormick Place and the RSNA annual meeting is easy thanks to an easy-to-follow, intuitive floor plan and technological offerings to aid you every step of the way. Along with the latest technology, bustling technical exhibit halls and a broad spectrum of RSNA services and dining options, RSNA also offers resources to help you get the most out of your trip to the Windy City.

Technology

Take advantage of digital resources to learn more about specific sessions, get general information, and find your way around RSNA 2013 and McCormick Place.

RSNA 2013 Website

The official annual meeting website, RSNA2013.RSNA.org, is your source for the very latest, up-to-date information on the annual meeting program, including course and exhibitor listings, maps and more:

• RSNA Meeting Program

The online RSNA Meeting Program offers easy-to-search, detailed information about each of the hundreds of presentations happening at RSNA 2013. Along with searching for courses by title and name of presenter, users can search the online program by day, area and subspecialty, and then sort findings from earliest to latest. The program will remain online after the meeting.

• Online Help Center

Whether you're wondering where to pick up your badge, how to make travel arrangements, how to access the RSNA 2013 Meeting Program or what the weather is like in Chicago, the Online Help Center has the answers. The center is divided into "Before You Go," "While You're Here" and "After the Meeting" categories.

Meeting App

Download the RSNA 2013 app for iPhone, iPad and Android smartphones and get *Meeting Program* access even when you're offline. The app also offers maps for navigating McCormick Place, online help during the annual meeting, a QR code scanner for interactive exhibits and drawings, an agenda planner and exhibitor



list access, along with a notification center for important meeting alerts. Available via the App Store and Google Play. The RSNA 2013 app is sponsored by Siemens.

Mobile Connect

Get the most out of your personal digital devices, including the on-the-go flexibility offered by RSNA's mobile apps. Tech experts will be on hand in this casual, open environment in RSNA Services to help attendees get familiar with their mobile devices' functions and introduce them to the apps RSNA offers for RSNA 2013, *Radiology*, *RadioGraphics*, *RSNA News*, and *RadiologyInfo.org*. Stop by anytime during RSNA Services hours for personalized, hands-on help from an RSNA expert. Presentations from annual meeting presenters and technical exhibitors will also occur during the week (for the schedule, go to RSNA.org/Mobile_Connect_Presentations.aspx).

• QR Codes for Quick Info



Look for the QR codes accompanying scientific sessions and multisession and refresher courses listed in the

printed *RSNA 2013 Program in Brief*. Use your smartphone to scan the code (try the sample to access the annual meeting website) and automatically download abstract information for the session or course. Information can also be downloaded using the QR codes on signs outside meeting rooms at McCormick Place. And look for QR codes in RSNA Services—get information without having to pick up and carry multiple brochures.

• Internet Kiosks

Computers will be available at Internet Kiosks throughout McCormick Place for use in accessing the RSNA 2013 website and the new Online Evaluation and Claim Center (see Page 36).

• WiFi

Get connected with wireless connectivity available throughout McCormick Place. Note: These wireless networks are not secure and should not be used for sending sensitive information.

• Charging Stations

Charge your laptop, cellular phone or other device at one of the Charging Stations located throughout McCormick Place.

Technical Exhibition

Technical Exhibits at RSNA 2013 will feature nearly 700 exhibitors in two halls: Hall A in the South Building and Hall B in the North Building. A balanced mix of companies will be located in both halls.

Featured at the Technical Exhibition:

Exhibitor Product Theater: Learn about new products being displayed in an educational environment in South Building, Hall A.

Country Pavilions: Exhibitors from Canada (Ontario), China, France, Germany, Japan and Korea will be showcasing their products and services in their country booths.

Publishers Row: Browse educational titles in all areas of medical imaging in South Building, Hall A.

Vendor Workshops: Get hands-on tutorials of vendor software systems.

Associated Sciences: Organizations for allied professionals are located together in South Building, Hall A.

Bistro RSNA: Enjoy a great lunch without leaving the exhibit halls.

Detailed maps of exhibit halls are available at RSNA.org/exhibits. Browse a comprehensive, up-to-the-minute list of the exhibitors and their products and services to map out your visits to the exhibit floors.

The RSNA 2013 meeting app is available for download to help you plan your visit to the RSNA Technical Exhibition. This app lists complete exhibitor information including floor plans.

Technical Exhibition Guide

At McCormick Place, the *Technical Exhibition Guide* is available for navigating the exhibition including floor plans, exhibitor list, Exhibitor Product Theater schedule, food service and other exhibit floor activities. Distributed in bins adjacent to the *Daily Bulletin* and at exhibit hall entrances, the *Technical Exhibition Guide* is an essential navigational tool for RSNA attendees.

For the most up-to-date meeting and exhibitor information, visit the Internet Kiosks located throughout McCormick Place.

Technical Exhibition Hours

Hall A (South Building) and Hall B (North Building)

Sunday–Wednesday

10 a.m. – 5 p.m.

Thursday

10 a.m. – 2 p.m.

RSNA Services

Find new networking opportunities and enhanced resources to connect radiology professionals from around the world at the Global Connection booth and a new Radiology Cares booth in the bustling RSNA Services area at RSNA 2013. Anchored by the RSNA Plaza, RSNA Services on Level 3 of the Lakeside Center offers:

RSNA Global Connection: This newly expanded booth offers unique networking opportunities to connect radiology professionals from around the world. An enormous map will allow attendees to leave their own mark from their country of origin. Meeting attendees are also encouraged to use the new interactive map that allows fellow attendees to search and connect, based on specialty or home county. *Navigating RSNA 2013* discussions, perfect for first-time RSNA attendees, will be led by veteran meeting attendees and presented in seven languages: Chinese, English, French, Japanese, Portuguese, Russian and Spanish. In addition to various planned events, attendees are encouraged to facilitate round-table discussions with colleagues interested in a particular topic or schedule impromptu meetings with colleagues from their country. Representatives of international radiology societies and teaching institutions from developing nations are also encouraged to visit the booth to learn about the available

education programs, grant opportunities and discounted resources. For an updated schedule and more information on these opportunities visit RSNA.org/GlobalConnection.

Career Connect: Looking for a job? Then stop by the Career Connect booth to view current job openings and upload your résumé to the website. Trying to hire the perfect candidate? Place a current job opening on Career Connect for FREE — a \$225 savings. Visit the booth for more information and to post the position.

Journals, News & RadiologyInfo.org:

Check out RSNA's print, online and mobile publications and news including *Radiology*, *RadioGraphics*, *Radiology Legacy Collection*, *Radiology Select* and *RSNA News*. RSNA staff will help with subscriptions, hold tutorials on the new mobile apps and journal websites, and demonstrate *RadiologyInfo.org*, the RSNA-American College of Radiology public information website. Visitors to *RadiologyInfo.org* can enter a drawing to win a Kindle Fire HD and can also pledge to "Image Wisely."

Membership: Visit this booth for answers to questions about membership, journal subscriptions, dues payments or making the most of your benefits. RSNA staff will assist you with updating your personal information in your membership record such as your education, address and contact information.

myRSNA®: Learn from experts with a hands-on tutorial or a discussion group on myRSNA®, a collection of online tools for RSNA members. Features include enhanced searching, file sharing, bookmarking, CME management and more.

Continued on next page

ENROLL BY OCTOBER 15 FOR GLOBAL ENTRY INTERVIEW AT RSNA 2013

Tired of waiting in line at U.S. Customs and Border Protection when your flight arrives? Take advantage of completing your Global Entry interview while at RSNA 2013, eliminating the extra trips to the airport. Global Entry is a U.S. Customs and Border Protection (CBP) program that allows expedited clearance for pre-approved, low-risk travelers upon arrival in the United States. Global Entry is open to U.S. citizens, lawful permanent residents, Dutch citizens and Mexican nationals. Though intended for frequent international travelers, there is no minimum number of trips necessary to qualify for the program. Sign up by October 15 to allow for adequate screening/processing time to qualify for the onsite interview. To enroll and for more information, visit RSNA.org/GlobalEntry.

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Radiology Cares: The Art of Patient-centered Practice: Take the Radiology Cares Pledge. Stop by to get a Radiology Cares lapel pin and suitable-for-framing certificate acknowledging that patients are the focus of your radiology practice. It takes less than a minute to pledge. Visitors can also learn more about the initiative, view patient-centered practice resources and share patient-centric ideas. For more information on the Radiology Cares campaign visit RadiologyCares.org.

RSNA Store: Shop for CME refresher course CDs, *RadioGraphics* special issues and much more. Staff will be on hand to discuss RSNA mobile CME products, RSNA/AAPM physics modules for residents, the RSNA CME Credit Repository and everything related to your RSNA education needs. The store also features RSNA-branded merchandise and apparel—great as souvenirs and gifts.

Research & Education (R&E) Foundation: Learn more about R&E activities in this booth featuring current grant and award recipients as well as individual, private practice and corporate donors. A Donor Wall lists all individuals who have contributed to the Foundation during the giving year. Donations are accepted onsite.

The R&E Donor Lounge: Offers computers, a coat room and comfortable furniture for relaxation and refreshments for those who have received a donor ribbon as well as those who have contributed at least \$250 onsite. Contributors to the R&E Foundation wear distinctive ribbons.

RSNA Studio: Attendees are invited to videotape a congratulatory message to help RSNA prepare for its 2014 centennial celebration. New to the studio this year, attendees are invited to have their professional headshots taken for free to use for social media profiles.

Virtual Meeting: Located in the RSNA Services area in the Lakeside Center Ballroom, Level 3 (near the myRSNA booth). Attendees can stop by to learn more about the Virtual Meeting; RSNA staff will provide information and answer questions.

Help Center

Look for the “I” icon throughout McCormick Place to find help. Visit one of the RSNA Help Centers located in the Grand Concourse, Level 3, or Lakeside Center Ballroom, Level 3, where RSNA staff can assist with general information or any of the following:

- Badge replacement/correction
- Chicago tourism information
- Hotel information
- Interpretation services
- Lanyard pickup
- Replacement course tickets

Also in the Grand Concourse, visit the **RSNA Concierge Services Desk**, where staff will assist with the following services:

- RSNA Tours & Events
- Chicago restaurant reservations
- Bistro RSNA tickets
- Ribbon pick-up

Ribbon Pick-Up

This year, RSNA will award 10,839 special recognition ribbons honoring long-term members. Those who did not receive ribbons in advance of the meeting can pick them up in the Grand Concourse, Level 3, at the Ribbon Desk.

Reserve Your Room Now

Discounted hotel room rates are available for RSNA attendees. To see the hotel list and room rates go to RSNA2013.RSNA.org. The deadline for housing reservations and changes through RSNA is November 8.

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

Exclusive Airline Discounts

American Airlines

AA.com offers a 5 percent discount on the lowest applicable published airfare. Use promotional code 31D3AY when booking your reservation with *AA.com*. You can also call American (1-800-433-1790) and

mention the American promotional code to be eligible for discounted fares. Service fees will apply when booking over the phone. Discounts are available on American Airlines, American Eagle and American Connection. Reservations involving any oneworld Alliance or codeshare partner airlines must be booked via phone.

Delta Air Lines

Delta offers a 10 percent discount on full/non-restricted fares and 5 percent discount on discounted/restricted airfares. Reservations and ticketing are available via *Delta.com* or by calling Delta’s Meeting Network Reservations at 1-800-328-1111. When booking online, select Meeting Event Code and enter NMGEB in the box provided on the Search Flight page. Please note that a Direct Ticketing Charge will apply for booking by phone. Applicable restrictions may apply.

United

United.com offers a 2 to 10 percent discount off published fares. Call the United meetings desk at 1-800-426-1122 and mention the United agreement code 777175 and Z code ZNSV to be eligible for discounted fares. No service fee will be charged when booking over the phone directly with United Airlines. Please note this code is not valid on *United.com*. Discounts are applicable for the following travel dates: November 28 and 29, and December 4 through December 9.

Gant Travel

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

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

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

Meeting Materials and Publications

Name Badge

A name badge is required to attend RSNA courses or events and to enter the exhibit halls. RSNA encodes a QR code on name badges with the registrant’s name,

REGISTRATION & HOUSING

Final Discounted Advance Registration

Register by November 8 to receive the discounted registration fee and full conference materials mailed to you in advance. International visitors must register by October 25 to receive these materials in advance. Registrations received after November 8 will be processed at the increased fee and conference materials must be obtained at the McCormick Place Convention Center. No hotel reservations will be accepted after November 8.

There are four ways to register for RSNA 2013:

1. Internet

Go to RSNA.org/register

Fastest way to register!

2. Telephone

(Monday-Friday 8 a.m. – 5 p.m. CT)
1-800-650-7018
1-847-996-5876

3. Fax (24 hours)

1-888-772-1888
1-301-694-5124

4. Mail

Experient/RSNA 2013
PO Box 4088
Frederick, MD 21705 USA

Registration Fees

BY NOV. 8 AFTER NOV. 8

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

Virtual Meeting Registration Fees

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

institution, address, e-mail address, phone/fax numbers and radiologic specialty as provided at the point of registration. These codes can be scanned by a technical exhibitor when an attendee is choosing to request information or follow-up. If you prefer that exhibitors contact you at a different address than is on your registration record, provide alternate information directly to the exhibitor at the point of contact or at the RSNA Help Center.



please visit either Help Center onsite located in the Grand Concourse or Lakeside Center.

Pocket Guide

The *RSNA 2013 Pocket Guide* is an important, easy-to-use reference guide to items such as:

- Complete A-Z listing of everything available to attendees
- Room assignments for all courses and events
- Floor plans of each building and each floor of McCormick Place
- Shuttle bus schedules, routes and boarding locations
- Taxi fees, loading and unloading areas
- Airport transportation service with times, costs and boarding information
- Complete Metra Electric Line Train System schedule



Onsite Registration

Those who registered after the mail deadline (Oct. 25 international, Nov. 8 domestic) and/or who did not receive badges in advance should proceed to Professional Registration. Already Registered line in the Grand Concourse, Level 3, or Lakeside Center, Level 3, Hall D. Those that did not register in advance and wish to obtain a badge should proceed to Professional Registration/New Registration line in the Grand Concourse, Level 3, or Lakeside Center, Level 3, Hall D. RSNA encourages attendees to do this on Saturday, November 30, to avoid long lines later in the week.

Hours of Operation

Saturday, November 30
12 p.m. – 6 p.m.

Sunday, Dec 1 – Thursday, Dec 5
7:30 a.m. – 5 p.m.

Friday, December 6
7:30 a.m. – 12 p.m.

For more information about registering for RSNA 2013, visit RSNA2013.RSNA.org, e-mail reginfo@rsna.org, or call 1-800-381-6660 x7862.



Parking lot locations, hours and fees

RSNA 2013 Program in Brief, Official Meeting Bag and Lanyard

One complimentary copy of the *RSNA 2013 Program in Brief*, official meeting bag and lanyard are available with the presentation of a voucher at the distribution counters located in the Lakeside Center, Level 3, Hall D (across from registration), or in the Grand Concourse, Level 3. Additional copies of the *Program in Brief* will be available for purchase at the RSNA Store.

In addition to the printed RSNA 2013 *Program in Brief*, RSNA offers an online program (RSNA2013.rsna.org/program)

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with a user-friendly search engine to find presentations to fit your schedule. The complete roster of special interest/controversies/hot topic sessions, multisesion and refresher/informatics courses and vendor computer workshops are available in RSNA's online meeting program. To confirm tickets for courses, you must be registered for RSNA 2013 and guarantee your seat at RSNA.org/register before November 27.

Daily Bulletin

The *Daily Bulletin* is the official newspaper of the RSNA annual meeting. Featuring overnight news from the meeting, the newspaper can be found in bins throughout McCormick Place. Each day's issue will also be available on the RSNA 2013 Mobile App and online at RSNA.org/bulletin.

The *Daily Bulletin* also includes a New Products & Services section offered Sunday-Wednesday.

Press Conferences

More than 150 members of the news media typically attend the annual meeting to capture the breaking news coming out of the event. Print, broadcast and online media throughout the world carried more than 10,000 stories about RSNA 2012.

Press conferences will again be held onsite at the 2013 meeting to highlight some of the newsworthy research being presented. This year's press conferences will feature a lineup of current topics of great interest to the general public and will showcase radiology's contributions to disease and injury detection, diagnosis and treatment.

Residents and Fellows

RSNA 2013 offers a full roster of Resident and Fellow-focused programming along with unparalleled networking opportunities and perks for trainees. RSNA annual meeting registration is free for RSNA members-in-training. Go to RSNA.org/Register.

Residents/Fellows Program—Tailored specifically for radiology residents and fellows, the program launched in 2011 continues with a two-part Wednesday symposium, "Career 101: Planning for Success After Residency (An Interactive Session)," addressing the future of the radiology job market, finding a job in a tight market and job changes, from 1:30-3:30

p.m., and "Career 102: Survival Skills for Your Job (An Interactive Session)," focusing on the importance of advocacy, dictating radiology reports and how to become indispensable to your employer, among other issues, from 4-5:45 p.m.

Residents Lounge—Located in the Lakeside Learning Center, the lounge offers RSNA members-in-training and non-member residents a place to relax and network while enjoying complimentary refreshments. The lounge is open Sunday - Thursday, 8 a.m.-6 p.m.

Residents Reception—Offered in conjunction with the American College of Radiology, the reception gives residents a chance to eat, mix and mingle with their peers and network with longtime RSNA members and leaders. The reception is held Monday, 4-5 p.m., in the Hyatt Regency McCormick Place.

RSNA Research & Education

Foundation—Visit the R&E Foundation area in RSNA Services to explore grants available to residents and fellows. Learn about the work of past grant recipients and the application process.

Resident/Fellow Brochure—Residents and fellows attending the meeting will want to pick up the new "Resident/Fellow" brochure listing other courses and sessions with content of interest to residents and fellows.

Transportation

RSNA offers complimentary shuttle bus service to and from McCormick Place. A dedicated bus lane makes the trip quick and easy, even during rush hours. Check signage in the hotel lobby and at McCormick Place Convention Center for exact pick-up and drop-off locations.

Ride the Metra Electric Train for free using the Metra ticket located in your registration envelope. Trains run from downtown Chicago stations to the McCormick Place Convention Center Station in just 7 minutes. Stations are located within walking distance to many hotels. The ticket must be shown to the conductor when requested.

For more information, go to RSNA2013.RSNA.org and click Transportation.

International Attendees

- Certificate of Attendance—Use the computers in the Internet Zones to print a personalized certificate of attendance.

- Interpretation Services—International attendees will be assisted at the Help Centers and at Professional Registration with their conference questions in the following languages: Chinese, Dutch, French, German, Italian, Japanese and Spanish.
- Travel Services—ESA Voyages, the official international travel provider at RSNA 2013, will be available at the Help Center (Grand Concourse, Level 3) and at Professional Registration (Lakeside Center, Level 3, Hall D) to assist with questions.
- Currency Exchange services can be found in Chicago and within both Chicago airports. Visit the International Traveler's page at www.travelex.com for locations.
- Visit RSNA.org/InternationalVisitors for information related to RSNA 2013 including continuing education credit transfers and Visa requirements.

Tours and Events

RSNA has teamed up with Hosts Chicago and Bloomingdale's to offer you exclusive ways to experience Chicago during your stay for RSNA 2013. This year's lineup offers multiple city tours, shopping excursions, culinary experiences, museum exhibits, and theater performances. Six days of action-packed tours are offered. The RSNA Tours & Events brochure is available at RSNA2013.RSNA.org.

5k Fun Run

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

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



2013 DINING GUIDE

Whether you prefer to eat your meals at McCormick Place or catch a cab to a trendy downtown Chicago eatery, we've got a full menu of dining options for RSNA 2013. Visit the Help Desk near the Grand Concourse for restaurant recommendations, reservations and concierge services.

Bistro RSNA—The Best Place to Eat, Meet & Network

With an extensive gourmet menu and ample seating, Bistro RSNA is an excellent option for a comfortable lunch and networking with colleagues. Each technical exhibit hall, as well as the Lakeside Learning Center, houses Bistro RSNA. One low price of \$20 gets you an all-inclusive meal, including tax, beverages and dessert. Purchase tickets online before Nov. 27 and save \$2.00 off the onsite price. Purchase tickets at Bistrorsna.com/attendee.php.



Wide Range of Dining Options

A variety of dining options are offered during RSNA 2013 throughout all buildings of the convention center. Along with a food court and an organic café, offerings include Starbucks, Jamba Juice, On the Go Stations, cafes, delis, McDonald's, Connie's Pizza and much more.

Chicago Offers World-class Dining Options

Round out your RSNA 2013 experience by taking an excursion to one of Chicago's eclectic roster of restaurants or relaxing at one of the city's wide array of clubs and lounges.

NEW—Indicates a restaurant appearing on the RSNA list for the first time.

AMERICAN Acadia

1639 S. Wabash Ave.; 1-312-360-9500
The minimalist chic of the room helps temper the complexity of the menu. Famous for the Yukon Gold potato and green apple risotto, this high-end, contemporary American restaurant has something for everyone, including a burger. *Very Expensive*

Ada Street

1664 N. Ada St.; 1-773-697-7069
Chicago restaurant greets Michael Kornick and David Morton teamed up again on Ada Street, a tavern featuring tasty, hearty, small plates. Take time to visit the restaurant's vinyl library to select a record for the staff to play. *Inexpensive*

The Bedford

1612 W. Division St.; 1-773-235-8800
Dinner and cocktails are served in the vault of a former bank. The German-influenced menu changes frequently to accommodate the availability of locally grown foods. Locals are streaming in to enjoy the bar scene and specialty drinks. *Moderate*

Blackbird

619 W. Randolph St.; 1-312-715-0708
This trendy hot spot serves contemporary American cuisine with seasonal emphasis. *Expensive*

NEW The Boarding House

720 N. Wells St.; 1-312-280-0720
A two-level dining room, a chandelier made of over 9,000 wine glasses, and a 500-bottle wine list set the atmosphere for this new River North eatery opened by Alpana Singh, recently named one of Food and Wine's top 10 sommeliers of 2013. *Expensive*

Brunch

644 N. Orleans St.; 1-312-265-1411
The perfect stop for guests at River North hotels, Brunch offers several choices including a breakfast bar, table service and carryout from one of the few breakfast options in the area. *Inexpensive*

NEW Carriage House

1700 W. Division St.; 1-773-384-9700
The southern fare here is offered in both classic and "reimagined" dishes over shared tables and family-style meals. *Moderate*

Chicago Firehouse Restaurant

1401 S. Michigan Ave.; 1-312-786-1401
Escargot and vegetable strudel share the appetizer menu at this restaurant housed in a turn-of-the-century firehouse, complete with the original fire poles. Casual or formal dining is available and wines are mostly American. *Expensive*

Deca

160 E. Pearson St.; 1-312-573-5160
Alongside the fountain in the lobby of the Ritz Carlton, this art deco-themed brasserie presents reasonably priced entrees, a large selection of salads and even sliders in a sophisticated setting. *Moderate*

Epic

112 W. Hubbard St.; 1-312-222-4940
American food with a French flair is served in a setting worthy of this restaurant's name. Two kitchens serve around 200 in the split-level dining room while the Chicago skyline is showcased through the 24-foot windows. *Expensive*

The Gage

24 S. Michigan Ave.; 1-312-372-4243
Housed in a 1930s hat factory across from Millennium Park, the Gage offers an atmosphere accentuated by brass, leather and subway tile. Comfort food is paired with a roster of 30 bottled beers and interesting small-batch whiskeys. *Moderate*

Girl & The Goat

809 W. Randolph St.; 1-312-492-6262
Make a reservation today (they fill up months out) for this unique Chicago favorite, featuring celebrity chef Stephanie Izard. She serves not just American food, but what some critics have termed "Chicago cuisine." *Moderate*

NEW Grace

652 W. Randolph St.; 1-312-234-9494
Diners choose from one of two prix-fixe menus, one all vegetable, that showcase local favorite Curtis Duffy's creative contemporary cuisine. *Very Expensive*

graham elliot

217 W. Huron St.; 1-312-624-9975
Graham Elliot Bowles left his throne at the nearby Peninsula Hotel's Avenues restaurant to open this warehouse space in River North. He makes haute cuisine accessible by providing paper menus and removing tablecloths and tuxedoed waiters. *Expensive*

Hackney's Printers Row

733 S. Dearborn St.; 1-312-461-1116
At this pub located in one of the oldest buildings in Printers Row—a neighborhood as famous and historic as the Hackneyburger—try the popular deep-fried onion loaf with one of the many imported tap beers. *Inexpensive*

Henri

18 S. Michigan Ave.; 1-312-578-0763
Named for architect Louis Henri Sullivan who designed the façade of 18 S. Michigan Ave., Henri's French-influenced American menu is wowing diners and critics alike. The restaurant décor has been described as vintage salon with velvet, mohair and silk accents. *Very Expensive*

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Hub 51
51 W. Hubbard St.; 1-312-828-0051
The menu of this eclectic River North spot offers fare from Asia to Mexico. The high ceilings, exposed ductwork and concrete columns create a hip, urban feel for this casual restaurant. Kitchen is open until 2 a.m. *Inexpensive*

MK, The Restaurant
868 N. Franklin St.; 1-312-482-9179
Creative contemporary dishes superbly offset by stylish ambiance. Exposed bricks and beams reflect the building's past as a paint factory. *Expensive*

Naha
500 N. Clark St.; 1-312-321-6242
This bright, minimalist restaurant is becoming a hit with its Mediterranean-influenced American offerings. *Expensive*

North Pond
2610 N. Cannon Dr.; 1-773-477-5845
Seasonal Midwestern and French dishes served in well-executed arts-and-crafts-style. A former skaters' warming station, this popular restaurant is located in the heart of Lincoln Park on a pristine lagoon with a city skyline view. *Expensive*

Park Grill
11 N. Michigan Ave.; 1-312-521-7275
Chicago's answer to New York's Tavern on the Green, Park Grill features floor-to-ceiling windows for a great view of Millennium Park. The unpretentious menu includes a double-cut pork chop with port sauce. *Expensive*

Perennial Virant
1800 N. Lincoln Ave.; 1-312-981-7070
As a farm-to-table restaurant, Perennial couldn't be better positioned than its location across Clark Street from Lincoln Park's Green City Market. Watch for Chef Paul Virant's hallmark pickles. *Moderate*

Petterino's
150 N. Dearborn St.; 1-312-422-0150
Located in the southeast corner of the new Goodman Theatre building, Petterino's specializes in quality steaks, pastas and salads. The room and the food are substantial at this unmistakably 1940s Loop-style restaurant. *Expensive*

The Publican
837 W. Fulton Market; 1-312-733-9555
It's no surprise that this woody beer hall features an extensive selection of global beers, but the standout here is the menu that centers on seafood and pork and house-made charcuterie. *Inexpensive*

Sable
505 N. State St.; 1-312-755-9704
Many items at this contemporary spot in the Hotel Palomar come in both large and small portions to allow for sharing. Coined a "gastro-lounge," the menu features a large number of vegetarian selections and focuses on pairing with an extensive cocktail selection. *Moderate*

Sepia
123 N. Jefferson St.; 1-312-441-1920
This restaurant in a former print shop is visually spectacular and critically acclaimed for its contemporary menu driven by seasonally available foods. Renovations include a floor-to-ceiling wine rack and Art Nouveau floor. *Moderate*

Sixteen
401 N. Wabash Ave.; 1-312-588-8030
The restaurant in Donald Trump's new Chicago building features a mammoth Swarovski crystal chandelier and two-story high windows showcasing sweeping views of the Wrigley Building, Tribune Tower and Lake Michigan. The menu promises bold flavors and top-grade ingredients. *Very Expensive*

Table Fifty-Two
52 W. Elm St.; 1-312-573-4000
Art Smith, chef to Oprah and best-selling cookbook author, opened this small, 35-seat restaurant. Heavier weekend menu includes fried chicken, waffles and biscuits and gravy served with chicken gumbo. *Expensive*

ASIAN
Aria
200 N. Columbus Dr.; 1-312-444-9494
The Fairmont Hotel has recreated Aria as a Pan Asian restaurant, with an emphasis on seafood. A glass-enclosed private dining room adds to Aria's flair. *Very Expensive*

Japonais
600 W. Chicago Ave.; 1-312-822-9600
Combining industrial and chic decor in a converted industrial building, Japonais offers traditional Japanese sushi and smoked duck topped off with the Tokyo Tower—a huge helping of ice cream, sorbets and cookies. *Expensive*

Le Colonial
937 N. Rush St.; 1-312-255-0088
In the heart of Rush Street, this French-Vietnamese masterpiece vividly recaptures French colonial Southeast Asia. Sugar cane-wrapped shrimp, sea bass and filet mignon enhance the sophisticated menu. *Expensive*

Sunda
110 W. Illinois St.; 1-312-644-0500
Communal tables, a sushi bar and a hipster scene set the stage for a sleek new Asian experience. The "Devil's Basket" combines red chilis, toasted garlic and soft-shell crabs served up in a metal bucket. *Moderate*

Shanghai Terrace
108 E. Superior St.; 1-312-573-6744
The Peninsula Hotel's Asian restaurant sparkles with silver and red lacquer. The fried rice tastes just like the Hong Kong version, with more ambitious offerings such as wok-fried lobster also on the menu. *Expensive*

Slurping Turtle
116 W. Hubbard St.; 1-312-464-0466
Slurping Turtle offers a range of Japanese comfort foods including items from the bincho grill, dumplings, noodle dishes and sashimi. The bilevel River North venue is decked out in trendy industrial décor. *Inexpensive*

NEW Sumi Robata Bar
702 N. Wells St.; 1-312-988-7864
Showcasing the Japanese robata-yaki technique, the menu offers tasty skewers of grilled protein that can be paired with a vibrant selection of hot and cold appetizers. *Moderate*

NEW Talay Chicago
1222 W. Madison St.; 1-312-733-0812
In the shadow of the United Center, the expansive menu in this West Loop BYO offers a wide selection of both Thai and sushi dishes. *Inexpensive*

Tamarin
614 S. Wabash Ave.; 1-312-379-0970
Chinese, Japanese, Thai and Vietnamese dishes grace the menu at this ambitious South Loop restaurant, where sushi, rolls and sashimi selections—as well as personalized stir-fry—are local favorites. *Inexpensive*

CAJUN/CREOLE
Heaven on Seven on Rush
600 N. Michigan Ave.; 1-312-280-7774
Spicy Cajun and Creole dishes served steps from Michigan Avenue, up a steep escalator. "Feed me" fixed price menus, dependent on the chef's whims, are unforgettable. Sunday features a New Orleans-style brunch. *Moderate*

CONTINENTAL
Au Cheval
800 W. Randolph St.; 1-312-929-4580
Enjoy Au Cheval's European take on a corner diner, including a pork porterhouse. For an additional treat try some of the more than 30 international beers on tap or select from the cocktail or wine list. *Inexpensive*

CUBAN
Habana Libre
1440 W. Chicago Ave.; 1-312-243-3303
It may worth practicing some Spanish for this Cuban food. Try the rellenas—ground beef encased in fried bread—as well as mashed potatoes with mango sauce and crusty empanadas with guava paste and cheese. *Inexpensive*

DUTCH
Vincent
1475 W. Balmoral Ave.; 1-773-334-7168
With dark wood tables and an extensive array of ales to choose from, meals at Vincent are composed of Dutch staples such as pate, mussels and pickled herring. This Andersonville hot spot also offers an extensive gin menu and a decent listing of Belgium-style ales. *Moderate*

FRENCH
Balsan
11 E. Walton St.; 1-312-646-1400
The décor of Balsan, located in the European-styled Elysian Hotel, was inspired by fashion designer Coco Chanel. The trendy brasserie offers selections from the raw bar as well as house-made charcuterie and several organ meat dishes. *Expensive*

Bistronomic
840 N. Wabash Ave.; 1-312-944-8400
Bistro fare with a touch of extra oomph is served alongside an excellent wine list in the heart of the Gold Coast. Burgundy walls with French photographs and mirrors set the tone for an intimate evening. *Moderate*

NEW Chez Moi
2100 N. Halsted St.; 1-773-871-2100
Classic French bistro served in a comfortable Lincoln Park setting. *Moderate*

Les Nomades
222 E. Ontario St.; 1-312-649-9010
Flawless French food served in a downtown mansion with a picturesque entrance is so entrancing, it is occasionally used as the setting for movie scenes. *Very Expensive*

Maude's Liquor Bar
840 W. Randolph St.; 1-312-243-9712
Catch the ultra, urban scene at Maude's. The downstairs walks the line between restaurant and bar, where basic drinks and food are served. The surprisingly dark upstairs bar offers serious specialty cocktails and doloes out whiskey bottles on the honor system. *Moderate*

Mon Ami Gabi
2300 N. Lincoln Park West; 1-773-348-8886
Mon Ami's French bistro serves steak seven ways piled high with Mon Ami's delicious frites. A clever and convenient rolling cart offers wines by the glass. *Moderate*

Paris Club
59 W. Hubbard St.; 1-312-595-0800
Paris Club took the French out of French dining. The mostly English menu is geared for a younger generation, although many traditional, much loved French dishes are served alongside small plates at this beautiful River North jewel. *Moderate*

Tru
676 N. St. Clair St.; 1-312-202-0001
Considered one of the top restaurants in the city, Tru juxtaposes flashy, contemporary dishes against a stunning white dining room. This exciting, trendy experience is one block off Michigan Avenue. *Very Expensive*

FUSION
Roy's
720 N. State St.; 1-312-787-7599
Combining French and Asian techniques, Hawaiian fusion cuisine includes hibachi-grilled salmon, blackened tuna and barbecued baby back ribs. Watch the exhibition kitchen from the bar or dining room. *Expensive*

Vermilion
10 W. Hubbard St.; 1-312-527-4060
Veering far from the traditional path, Vermilion presents a Latin-Indian fusion menu that works surprisingly well. The tapas-style menu includes roasted baby eggplants, fried plantain dumplings and various curries. *Expensive*

GREEK
Taxim
1558 N. Milwaukee Ave.; 1-773-252-1558
Dine on authentic regional Greek cuisine under Byzantine brass lanterns in Wicker Park. The dishes direct from Istanbul and Cyprus will expose many diners to a new take on what they know as Greek food. An all-Greek wine line completes the experience. *Moderate*

INDIAN
India House
59 W. Grand Ave.; 1-312-645-9500
The 150-item menu offers a vast array of India's offerings, from standard fare to street fair delicacies. A glass-enclosed kitchen encourages proud chefs to perform. Specialty drinks allow the adventuresome to experiment. *Moderate*

ITALIAN
312 Chicago
136 N. LaSalle St.; 1-312-696-2420
Situating in the heart of the Loop Theater District, the inviting and sophisticated 312 Chicago offers an Italian-influenced American menu with specialties such as artichoke and provolone tortellini and old standards. *Expensive*

437 Rush
437 N. Rush St.; 1-312-222-0101
This Italian steakhouse, a block off of Michigan Avenue, offers steak, lobster and regional fare in a classic setting. *Expensive*

Bar Toma
110 E. Pearson St.; 1-312-266-3110
Visit this imaginative Italian wine bar for a meal, drink or snack. Only steps from Michigan Avenue, fancy pizza and specialty cheeses are a mainstay in the dining room. A quick coffee or gelati can be had at the stand-up espresso bar. *Inexpensive*

Café Bionda
1924 S. State St.; 1-312-326-9800
Thick noodle Italian with traditional salumi, or cold cuts, is popular here. One half of this South Loop spot is an elegant room with the warm wood tones and original art while the other half offers a more casual sports bar. *Moderate*

Coco Pazzo
300 W. Hubbard St.; 1-312-836-0900
Tuscan cuisine served in a fabric-draped studio, complete with a beautiful bar. *Expensive*

The Florentine
JW Marriott, 151 W. Adams St.; 1-312-660-8866
Northern Italian cuisine is dished out in a stunning room with fantastic paintings and comfortable banquettes. The JW Marriott is located in the former Continental & Commercial National Bank building designed by famous Chicago architect Daniel H. Burnham. *Very Expensive*

Gioco
1312 S. Wabash Ave.; 1-312-939-3870
A big-portioned, contemporary Italian feast in a Prohibition-era speakeasy. In line with a trattoria, the menu offers tortellini, beef and octopus carpaccios, pizza, veal scaloppini, rabbit, mussels and seafood. *Moderate*

Osteria Via Stato
620 N. State St.; 1-312-642-8450
Get the feeling of dining in Italy with waiters swooping in serving course after course. Select a main course from a chalkboard menu and let the kitchen decide the rest. Seconds are available on everything but entrées. *Expensive*

Piccolo Sogno
464 N. Halsted St.; 1-312-421-0077
With Murano glass chandeliers, Venetian-plastered walls, an Italian marble bar and a terrazzo floor, executive chef Tony Priolo essentially transforms this Chicago eatery into his Naples home. *Moderate*

Prosecco
710 N. Wells St.; 1-312-951-9500
The menu at this River North restaurant provides the opportunity to sample cuisine from all 20 regions of Italy, including homemade pastas and risottos. Prosecco also offers the city's largest selection of the restaurant's namesake beverage. *Moderate*

Quartino
626 N. State St.; 1-312-698-5000
The Italian small-plate experience is the focus of Quartino, an old world-style restaurant. In addition to its featured cured meats and cheeses, Quartino also offers a well-known wine bar. *Inexpensive*

Rosebud on Rush
720 N. Rush St.; 1-312-266-6444
Handmade pastas are a trademark of this quaint two-story Italian restaurant in a beautifully renovated brownstone. Just a block away from Michigan Avenue, Rosebud is a great pick for a shoppers' lunch or a romantic evening. *Expensive*

Spiaggia
980 N. Michigan Ave.; 1-312-280-2750
Sophisticated Italian creations are appropriate for this breathtaking room filled with those desiring to see and be seen. This extremely popular destination boasts white tablecloths, large windows and first-class service. *Very Expensive*

Terzo Piano
159 E. Monroe St.; 1-312-443-8650
This glass-enclosed space on the top floor of the new Modern Wing of Art Institute of Chicago provides sweeping panoramic views of the Loop, Millennium Park and Grant Park. Traditional Italian fare presented with a contemporary flair. Lunch daily but dinner served only Thursdays. *Expensive*

Topo Gigio Ristorante
1516 N. Wells St.; 1-312-266-9355
Enjoy terrific Italian dining in Old Town. Topo Gigio is a great place for dinner before catching a show at Second City or Zanies. *Moderate*

Trattoria No. 10
10 N. Dearborn St.; 1-312-984-1718
Subterranean fixture in the Loop has it all. Pin lights add drama to a quiet dining room divided into intimate spaces by pillars and Italian-style archways. Chicagoans visit for amazing pastas, risottos and ravioli dishes. *Expensive*

Continued on next page



RSNA 2013 HONOREES

RSNA will pay tribute to a number of distinguished physicians during the 99th Scientific Assembly and Annual Meeting. All presentations will take place in the Arie Crown Theater.

Honorary Members

Presented Monday, Dec. 2 • 1:30 p.m.

Honorary Membership in RSNA is presented for significant achievements in the field of radiology. At RSNA 2013, Honorary Membership will be given to **Gabriel P. Krestin, M.D., Ph.D., of Rotterdam, Netherlands, Anne W. Lee, M.D., of Shenzhen, China, and Malgorzata Szczerbo-Trojanowska, M.D., of Lublin, Poland.**

An international ambassador for radiology, **Gabriel P. Krestin, M.D., Ph.D.**, a professor of radiology and chair of the Department of Radiology at Erasmus University Medical Centre Rotterdam, the Netherlands, has worked passionately to widen the specialty's reach while unifying the focus of its membership.

As 2012 president of the European Society of Radiology (ESR), Dr. Krestin oversaw the launch of the first International Day of Radiology (IDoR) aimed at building greater awareness of the value that radiology

contributes to patient care and healthcare overall. The success of the joint initiative of ESR, RSNA and the American College of Radiology (ACR)—which grew from the first European Day of Radiology in 2011—demonstrates Dr. Krestin's commitment to keeping radiology in the spotlight across the globe.

Born in Romania, Dr. Krestin immigrated to Germany at the age of 19. He graduated from the faculty of medicine at the University of Cologne, Germany, where he completed his radiology residency and his doctoral thesis. In 1990 he was appointed staff radiologist and head of the MRI Centre at the Department of Radiology at Zurich University Hospital in Switzerland, where he became associate professor of radiology, head of the clinical radiology service and acting chair of the Department of Diagnostic Radiology.

Dr. Krestin's research interests primarily focus on imaging of abdominal organs and cardiovascular disease, molecular imaging and population imaging. He worked with ESR to establish the European Institute for Biomedical Imaging Research (EIBIR) in 2006 to foster and strengthen biomedical imaging research in Europe.

Dr. Krestin has authored more than 350 original articles and 80 book chapters and has edited seven books, some of which have been translated in several languages.

He has served as president of the European Society for Magnetic Resonance in Medicine and Biology (ESMRMB) and the Association of University Radiologists Europe (AURE), of which he is a founding member.

Among his numerous accolades, Dr. Krestin received honorary membership in the Belgian, French, Hungarian, Italian, Spanish and Swiss societies of radiology. ESMRMB bestowed Dr. Krestin Honorary Fellowship in 2011 and Honorary Membership in 2013.

Decreasing mortality from nasopharyngeal cancer—a disease far more prevalent in Southeast Asia than in the Western world—can be attributed in large part to the efforts of **Anne W. Lee, M.D.**, and her dedicated teams of colleagues. In addition to spending much of her career researching nasopharyngeal cancer, Dr. Lee has established departments of radiation oncology in hospitals in Hong Kong and mainland China and facilitated robust clinical trials testing new therapies in head and neck cancer worldwide.

Dr. Lee is the chief of service at the Center of Clinical Oncology at the University of Hong Kong–Shenzhen Hospital in Shenzhen, China. She is also an honorary consultant in the Department of Clinical Oncology at Pamela Youde Nethersole Eastern Hospital, Hong Kong, honorary consultant in healthcare management for the Hong Kong East Cluster, Hospital Authority, and an honorary clinical professor at the University of Hong Kong Li Ka Shing Faculty of Medicine.

In 2012, after more than 35 years of service to public hospitals in Hong Kong, Dr. Lee took up the challenge of starting the Center of Clinical Oncology at the University of Hong Kong–Shenzhen Hospital in Shenzhen, China, a project that attempted to introduce medical service reforms in mainland China. Dr. Lee also initiated the Hong Kong Nasopharyngeal Cancer Study Group to encourage multicenter collaboration in clinical trials and large scale retrospective studies. She is also the leader of clinical sciences in the Center of Nasopharyngeal Carcinoma Researches, an area of excellence project awarded by the University Grant Committee of Hong Kong.

Currently Dr. Lee is the vice-president of the Hong Kong College of Radiologists and vice-chair of the Hong Kong Anti-Cancer Society, she has served as chair of the Hong Kong Nasopharyngeal Cancer Study Group and president of the Hong Kong Head and Neck Society. Her service to international organizations includes helping the Union for International Cancer Control set up the national Cancer Staging Committee in China.

Neither interventional radiology nor radiology in Poland would be what they are



Krestin



Lee



Szczerbo-Trojanowska

today without the contributions of **Malgorzata Szczerbo-Trojanowska, M.D.** Thanks to her commitment to education, she is also shaping the future of radiology across all of Europe.

Dr. Szczerbo-Trojanowska is a professor of radiology, chair of the Department of Radiology, and head of the Department of Interventional Radiology and Neuroradiology at the Medical University in Lublin, Poland.

Some of Dr. Szczerbo-Trojanowska's greatest accomplishments include her work with societies to raise the profile of radiology in Poland and across Europe. She co-founded the interventional radiology section of the Polish Medical Society of Radiology and co-founded the Polish Society of Magnetic Resonance. In 2001, Dr. Szczerbo-Trojanowska was elected president of the Polish Medical Society of Radiology and in that same year presided over its congress—she was the first female to hold either of those positions. Dr. Szczerbo-Trojanowska also has served on various committees of the European Congress of Radiology (ECR), as the first ECR president from Eastern Europe and as a member of the executive council of the

Cardiovascular and Interventional Radiological Society of Europe (CIRSE).

Since 2006, Dr. Szczerbo-Trojanowska has been a member of the steering committee of the European School of Radiology. She also helped establish the first European School of Interventional Radiology (ESIR) courses in Eastern Europe. She has been a mentor to 26 radiologists who obtained their doctorate under her supervision.

With research interests in vascular interventions including embolizations, carotid stenting, aortic aneurysms and stent grafting, Dr. Szczerbo-Trojanowska has authored and co-authored 208 peer-reviewed publications and 10 book chapters. She has given more than 250 scientific presentations at numerous international scientific meetings, including more than 100 invited lectures. Dr. Szczerbo-Trojanowska is a reviewer for and editorial board member of many radiological and medical journals including *Cardiovascular and Interventional Radiology*, *Acta Angiologica* and the *Polish Journal of Radiology*.

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RSNA 2013 DEDICATIONS

K. Kian Ang, M.D., Ph.D.—The Annual Oration in Radiation Oncology is being dedicated to the memory of Dr. Ang, a leading head and neck radiation oncologist who died in June 2013.

David H. Hussey, M.D., and Philip E.S. Palmer, M.D. — *The RSNA Meeting Program* is being dedicated to the memory of RSNA past-president David H. Hussey, M.D., and Philip E.S. Palmer, M.D. Dr. Hussey, a radiation oncologist known for his outstanding contributions to patient care, research and training of medical students and residents, died in April 2013. Dr. Palmer, a pioneer in promoting the use of radiology and radiation therapy in Africa and developing countries, died in January 2013.



Ang



Hussey



Palmer

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Gold Medalists

Presented Tuesday, Dec. 3 • 1:30 p.m.

RSNA will award three individuals its Gold Medal—RSNA's highest honor—at the 99th Scientific Assembly and Annual Meeting. They are Theresa C. McLoud, M.D., of Boston, Harvey L. Neiman, M.D., of Reston, Va., and J. Frank Wilson, M.D., of Milwaukee.

A world-renowned thoracic radiologist, 2008 RSNA President **Theresa C. McLoud, M.D.**, is one of the foremost educators in her field as well a passionate promoter of the globalization of radiology. Dr. McLoud has forged new territory for women, serving as the first woman in the history of radiology at the Massachusetts General Hospital (MGH) in Boston to hold the rank of professor at Harvard.

A Boston native, Dr. McLoud earned her medical degree from the McGill University Faculty of Medicine in Montreal, Quebec, Canada, where she also completed her residency training in radiology. Following a thoracic imaging fellowship at the Yale University School of Medicine in New Haven, Conn., she quickly became an assistant professor of diagnostic radiology at Yale. In 1976, she returned to Boston and joined Harvard Medical School where she has been professor of radiology since 1993.

Dr. McLoud served as chief of Thoracic Radiology from 1982 to 1996, chief of Thoracic and Cardiac Radiology from 1996 to 2001 and is currently vice-chair of education in the Department of Radiology at MGH.

Dr. McLoud's impact is felt in the daily work of nearly all who practice thoracic radiology. Dr. McLoud's research in interstitial lung disease, CT of the thorax, lung cancer imaging and occupational lung disease has taken her around the world to conduct postgraduate teaching and visiting lectures.

An RSNA member since 1979, Dr. McLoud began her term on the RSNA Board of Directors in 2001, was board chair in 2006 and served as president in 2008. She has also worked on the Scientific Program Committee, serving as its chair from 1998 to 2000.

Dr. McLoud's long list of awards includes gold medals from the American Roentgen Ray Society (ARRS) in 2003, the Society of Thoracic Radiology in 2010 and the International Cancer Imaging Society in 2012. In 2003 she received the Marie Curie



McLoud



Neiman



Wilson

Award, the highest honor bestowed by the American Association for Women Radiologists.

Highlights of her extensive scholarly career include serving as associate editor for *Radiology*, for which she received *Radiology's* Editor's Recognition Award for reviewing, with distinction. She has conducted more than 150 postgraduate courses and published more than 200 scientific papers, reviews and book chapters.

Throughout his career, **Harvey L. Neiman, M.D.**, has combined skill in patient care, radiologic research, and education with business savvy and knowledge of health policy and economic issues to benefit patients, his fellow radiologists and all of medicine.

Dr. Neiman has served as chief executive officer of the American College of Radiology since 2003 and will retire in spring 2014. He is accomplished as an educator and administrator—he began his career in Washington, D.C., as an instructor at the Armed Forces Institute of Pathology and chief of cardiovascular radiology at Walter Reed Army Medical Center. He spent the next 10 years as a professor at Northwestern University in Chicago, where he also served as director of angiography and sectional imaging. He also was director of angiography at Children's Memorial Hospital in Chicago. Dr. Neiman was a clinical

professor of radiology at the University of Pittsburgh from 1985 to 2002 and a professor of radiology at Temple University in Philadelphia from 2000 to 2003; during that time he also served as chair of the Department of Radiology at the Western Pennsylvania Hospital in Pittsburgh.

An RSNA member since 1977, Dr. Neiman has served as a refresher course faculty member and plenary session moderator for numerous RSNA annual meetings. Within the ACR he has served on numerous committees and commissions including those on education, ultrasound, and economics. Dr. Neiman chaired the ACR commissions on ultrasound and economics, served as a member of the Board of Chancellors from 1994 to 2002 and as chairman of the board from 2000 to 2002.

During his tenure as ACR CEO, Dr. Neiman has helped establish the ACR Education Center, Radiology Leadership Institute, Harvey Neiman Health Policy Institute, and the American Institute for Radiologic Pathology. Dr. Neiman has published more than 125 scientific papers, 26 book chapters and is the author of the book, *Angiography of Vascular Disease*. He has given nearly 300 invited lectures and scientific presentations.

Renowned for his leadership and commitment to radiation oncology, **J. Frank Wilson, M.D.**, was an early advocate for breast conservation therapy and is



internationally regarded as an authority on breast cancer. He has been consistently recognized as one of the top physicians in America.

Dr. Wilson has lent his considerable expertise to teaching his colleagues the most cutting-edge radiation therapy techniques—including brachytherapy—and mentoring countless radiation oncology students, residents and junior faculty who rank among the specialty's finest leaders today.

Born in Huntsville, Mo., Dr. Wilson joined the Medical College of Wisconsin (MCW) in 1974 as an assistant professor of radiology, rising to the position of professor of radiation oncology in 1985 and department chair in 1986. He served as director of the MCW Cancer Center from 1994 to 2000.

Today, Dr. Wilson serves as the chair and Bernard & Miriam Peck Family Professor of Radiation Oncology and director emeritus of the MCW Cancer Center.

Dr. Wilson has published more than 200 papers and abstracts, 21 books or chapters and has presented lectures across the globe. He served as chair and principal investigator of the National Cancer Institute-funded American College of Radiology (ACR) Quality Research in Radiation Oncology project (Q-RRO).

Dr. Wilson has served as editor of the *International Journal of Radiation Oncology Biology Physics (IJROBP)* and on the editorial board of the *Journal of the American College of Radiology*.

Throughout his career, Dr. Wilson has consistently been listed among Woodard

& White's *Best Doctors in America* and named one of America's top breast cancer doctors by *Good Housekeeping* and *Redbook* magazines.

An RSNA member since 1985, Dr. Wilson delivered the Annual Oration in Radiation Oncology in 1998 and has held numerous positions within the Society, serving as RSNA second vice-president in 1999.

Dr. Wilson served six years on the ACR Board of Chancellors and as ACR vice-president in 2004. He was named an ACR Fellow in 1988. He is past-president of the American Society for Radiation Oncology and of the American Radium Society.

Continued on next page

ALEXANDER R. MARGULIS AWARD FOR SCIENTIFIC EXCELLENCE

This annual award recognizes the best original scientific article published in *Radiology*. Named for **Alexander R. Margulis, M.D.**, a distinguished investigator and inspiring visionary in the science of radiology. The name of the honoree will be revealed at the beginning of the Monday Plenary Session.

OTHER AWARDS

Trainee Research Prize

RSNA awards the Trainee Research Prize to honor an outstanding scientific presentation in each subspecialty presented by a resident/physics trainee, fellow or medical student. This year one trainee research prize in breast imaging is endowed by Tapan K. Chaudhuri, M.D.

A list of Trainee Research Prize recipients can be viewed in the Arie Crown Theater lobby.

Molecular Imaging Travel Award

The Travel Awards for Young Investigators in Molecular Imaging support candidates invited to present high-quality science. To be eligible, abstract presenters or poster exhibitors must be pre-doctoral students or have been awarded their doctoral degrees no more than seven years prior to submission. A list of recipients of the Molecular Imaging Travel Awards can be viewed in the Nuclear Medicine/Molecular Imaging Campus.

France Presents

In recognition of the contribution from France for the "France Presents" session, ten select proffered abstract presenters receive a travel award from RSNA. See the list of presenters next to the Société Française de Radiologie exhibition in the South Hall, Hall A, Booth 1122

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Outstanding Researcher and Educator

Presented Sunday, Dec. 1 • 8:30 a.m.

RSNA will honor two individuals at RSNA 2013 for their contributions to research and education. **Norbert J. Pelc, Sc.D., of Stanford, Calif., is Outstanding Researcher.** **Bruce G. Haffty, M.D., of New Brunswick, N.J., is Outstanding Educator.**

Outstanding Researcher

Radiologists' understanding of the imaging modalities they use each day would not be the same without the career of **Norbert J. Pelc, Sc.D.** Having conducted research into all medical imaging modalities, and in particular digital X-ray, CT and MR imaging, Dr. Pelc possesses extraordinary knowledge of the technical aspects of imaging and a one-of-a-kind insight into advanced applications and basic research.

Chair of the Department of Bioengineering at Stanford University, Dr. Pelc also serves as a professor in the departments of Radiology and Electrical Engineering and spent 10 years as associate chair for research in the Department of Radiology at Stanford. He received his master's and doctorate degrees from Harvard University; his doctoral dissertation was titled, "A Generalized Filtered Backprojection Algorithm for Three Dimensional Reconstruction."

Dr. Pelc's current research focuses on CT, specifically in methods to improve the information content and image quality and reduce the radiation dose. In addition to hundreds of peer-reviewed publications and presentations, Dr. Pelc is an inventor in more than 80 issued U.S. patents.

Dr. Pelc served on the first national advisory council of the National Institute of Biomedical Imaging and Bioengineering of the National Institutes of Health. He served RSNA as third vice-president in 2010, as an annual meeting session moderator and as a member of the physics subcommittee of the Scientific Program Committee.

Dr. Pelc is a member of the National Academy of Engineering and a fellow of the American Association of Physicists in Medicine, the International Society for Magnetic Resonance in Medicine and the American Institute of Medical and Biological Engineering.



Pelc



Haffty

Outstanding Educator

An internationally recognized expert in breast radiation oncology, **Bruce G. Haffty, M.D.**, has forged a legacy as one of the specialty's premier educators through a lifelong commitment to mentoring, educating and advising the scores of students fortunate enough to call him "teacher."

Dr. Haffty's groundbreaking work as a clinician and breast cancer researcher has consistently garnered him national recognition as one of the country's leading physicians. His research has focused on developing novel methods of delivering radiation therapy targeting breast cancer and exploring novel molecular targets that may enhance the effects of radiation.

Dr. Haffty completed his medical school and residency training at Yale University School of Medicine in 1988 and spent the next 18 years specializing in breast and head and neck cancers in Yale's Department of Therapeutic Radiology. Dr. Haffty served as a professor of therapeutic radiology from 1992 to 2001, as residency program director from 1992 through 2004, and vice-chairman and clinical director from 2002 to 2005. He accepted his current position as professor and chairman, Department of Radiation Oncology, Robert Wood Johnson Medical School and New Jersey Medical School of Rutgers Univer-

sity, and associate director of the Cancer Institute of New Jersey, in 2005.

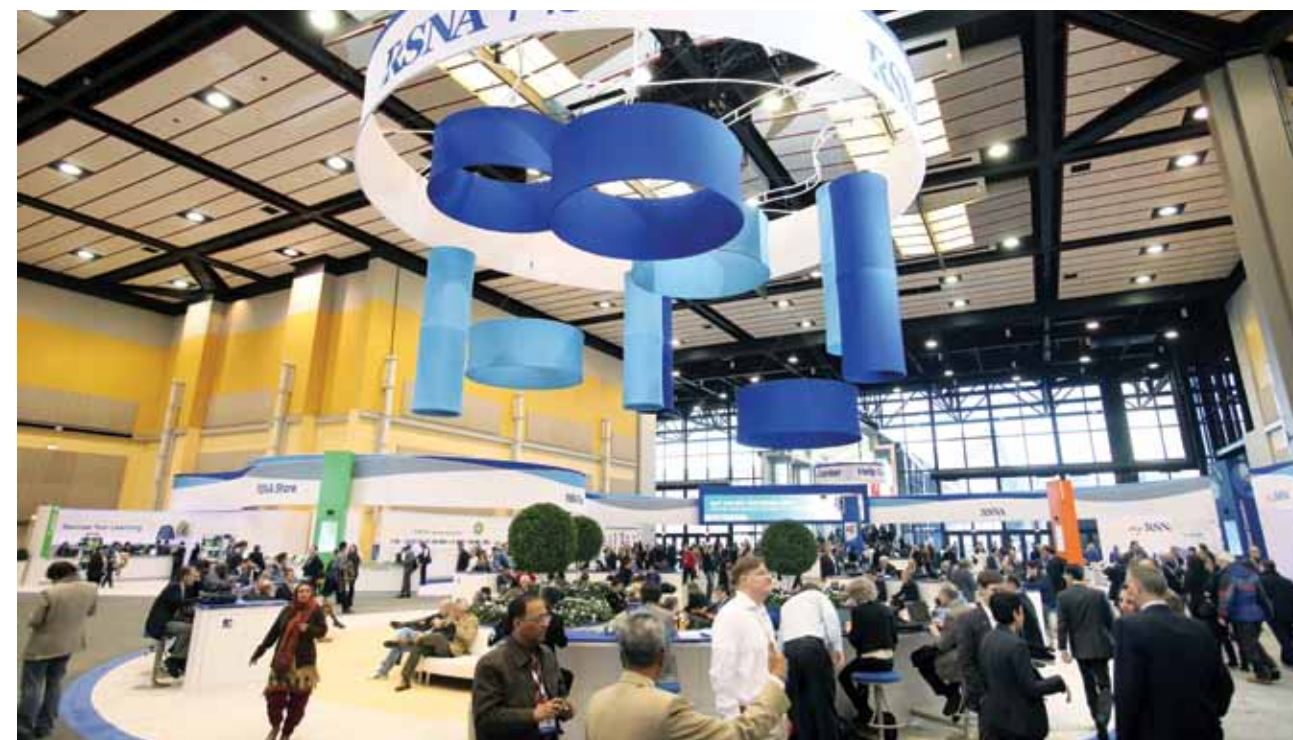
As director of Yale's Residency Training Program, Dr. Haffty personally mentored countless medical students, residents, fellows and junior attending physicians who have gone on to carve their own indelible marks within the specialty.

Through his extensive work with the American Society for Radiation Oncology (ASTRO), Dr. Haffty founded the Association of Directors of Radiation Oncology Programs (ADROP) in 2000 and served as ADROP president from 2000 to 2003.

Dr. Haffty is currently associate editor of the *Journal of Clinical Oncology* and has served on the *RSNA News* Editorial Board since 2009.

Dr. Haffty served as president of the American Board of Radiology (ABR) from 2010 to 2012 and of the American Radium Society from 2008 to 2009. In 2009, Dr. Haffty delivered the RSNA Annual Oration in Radiation Oncology and is current co-chairman of RSNA's Bolstering Oncoradiologic and Oncoradiotherapeutic Skills for Tomorrow (BOOST) program. He is the current president of ASTRO.

A full biography of Dr. Pelc will appear in the January 2014 issue of *Radiology*. A full biography of Dr. Haffty will appear in the November-December 2013 issue of *RadioGraphics*.



Honored Educator

Established in 2011, the award recognizes RSNA members who have produced RSNA educational resources in the past calendar year. To be eligible for the award, members participate in qualifying activities including:

- Serving as faculty at one or more of RSNA's educational meetings
- Authoring an Education Exhibit, Quality Storyboard and/or Cases of the Day track for the RSNA Annual Meeting
- Authoring educational articles in *Radiology* and *RadioGraphics*
- Authoring online education materials, including online modules or original SAMs, and/or creating CME questions in support of repurposed online SAMs
- Donating a refresher course and writing CME questions for online learning

Eligible candidates must also participate in at least two educational categories to be considered for the award and may not earn credit for more than two activities in any given category. Based on the number of qualifying activities completed, the most eligible RSNA members are presented with the Honored Educator award in recognition of their contributions. This year's recipients are:

Helen C. Addley, M.R.C.P., F.R.C.R.

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