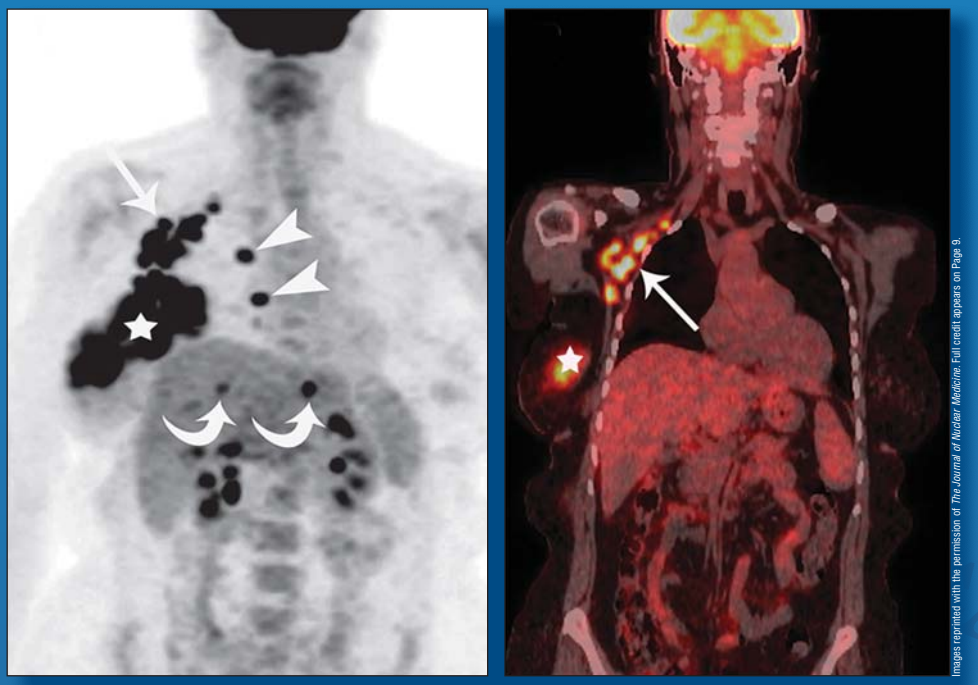
May 2009 • Volume 19, Number 5

RSNA News



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PET/CT May Improve Inflammatory Breast Cancer Prognosis

Also Inside:

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RSNA News

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Varian Endows R&E Education Grant

Varian Medical Systems has committed to donating $300,000 over 10 years to the RSNA Research & Education (R&E) Foundation. The funds will support an annual $30,000 education grant. The first grant will be awarded this year.

"The mission of Varian Medical Systems is to focus energy on saving more lives," said Varian Medical Systems President and CEO Tim Guertin. "Our commitment to supporting research and education in the radiologic sciences and radiation oncology is central to this mission."

Varian manufactures medical devices and software for treating cancer and other medical conditions with radiotherapy, radiosurgery, proton therapy and brachytherapy. Since 2001, Varian has been a member of the R&E Foundation Vanguard program and has supported research grants. The new funds represent the first education grant supported by Varian. The Vanguard program currently includes 14 companies that have committed more than $21 million to support R&E Foundation grants.

R&E education grants provide funding opportunities for individuals with active interest in radiologic education. The grants support a wide range of education projects including development and dissemination of educational materials, research of teaching methods, education in emerging nations and medical student or resident education.

Varian's $300,000 commitment will be counted toward the $15 million Silver Anniversary Campaign goal. The campaign has raised $13.8 million. For information on giving to the R&E Foundation, visit *RSNA.org/Foundation.*

FDA Warns Against Wearing Medicated Patches during MR

The U.S. Food and Drug Administration (FDA) has issued a public health advisory that certain transdermal drug patches may deliver skin burns during an MR exam. The warning came as a response to the FDA's finding that not all manufacturers included a safety warning on patches that contain aluminum or other metals in their non-adhesive backing. While not attracted to the scanner magnet, the warning noted, the metal can conduct electricity, generating enough heat to cause burns. The warning cited patient reports of skin burns at the patch site after MR.

The FDA is reviewing labeling and composition of all medicated patches to ensure that those containing metal include a warning to patients. In the meantime, the FDA recommends that patients wearing transdermal patches alert their healthcare professionals at the time of MR referral.

Read the alert at *www.fda.gov/cder/drug/advisory/transdermalpatch.htm.*

CCHIT Seeks EHR Testimonials

The Certification Commission for Health Information Technology (CCHIT) seeks to compile a catalog of case histories of physicians who have implemented electronic health records (EHRs). CCHIT wants to hear from practices large and small, anywhere in the U.S., that have examples of how EHR usage improves both patient care and practice management, such as:

- Containing or reducing costs
- Providing better patient care
- Keeping more complete records
- Increasing revenue
- Making safer and more informed decisions regarding diagnosis, clinical treatment and ongoing health management of patients

Physicians wishing to participate should contact John Morrissey, CCHIT Communications Manager, at *jmorrissey@cchit.org.*

Health Policy Statement Published on Structured Reporting in Cardiac Imaging

A dozen medical societies, including RSNA and the American College of Cardiology Foundation (ACCF), have published their 2008 Health Policy Statement on Structured Reporting in Cardiovascular Imaging. The statement describes components of a structured imaging report, implementation, involvement of standards-setting organizations, future directions and potential applications.

The statement, published in the January 2009 issue of the *Journal of the American College of Cardiology Foundation,* was created by a writing committee representing RSNA, ACCF, American College of Radiology, American Hospital Association, American Society of Echocardiography, American Society of Nuclear Cardiology, Heart Rhythm Society, North American Society for Cardiac Imaging, Society for Atherosclerosis Imaging and Prevention, Society for Cardiovascular Angiography and Interventions, Society of Cardiovascular Computed Tomography and the Society for Cardiovascular Magnetic Resonance.

Read the statement at *content.onlinejacc.org/cgi/content/full/53/1/76.*

SCCT Publishes CCTA Guidelines

THE Society of Cardiovascular Computed Tomography has published guidelines for interpretation and reporting of coronary CT angiography (CCTA).

The section on interpretation emphasizes various interpretation and reconstruction formats as well as principles for stenosis segmentation and grading. The section on reporting indicates key information that should be included in the report, with a special emphasis on structured reporting.

The guidelines were authored by the SCCT Writing Group, comprising radiologists, cardiologists and other researchers. The guidelines are available at *SCCT.org*.

MEDICAL IMAGING COMPANY NEWS

Merit Medical Systems Acquires Alveolus

■ Merit Medical Systems, a South Jordan, Utah, provider of proprietary disposable medical devices used in radiology and cardiology procedures, will acquire Alveolus for about $19 million. Alveolus, based in Charlotte, N.C., produces non-vascular stents used for esophageal, tracheobronchial and biliary stenting procedures.

Medicsight Restructures Management Team

■ London-based Medicsight, developer of computer-aided detection (CAD) and image analysis software, has restructured its management team. Current chief financial officer Allan Rowley will become CEO and current CEO David Sumner will become executive chairman.

ABMS Enhances MOC Assessment Standards

New maintenance of certification (MOC) standards adopted by the American Board of Medical Specialties (ABMS) are intended to help medical specialty boards keep pace with advances in medicine, changes in practice and efforts in healthcare reform.

At its meeting in March, the ABMS board set forth a timeline for officially adopting new lifelong learning assessment elements, including:

- Documentation that physicians are meeting CME and self-assessment requirements
- Evidence of participation in practice-based assessment and quality improvement activities every 2–5 years
- Completion of a patient safety self-assessment program at least once each MOC cycle
- Assessment of communication skills as a standard for all physician diplomates with direct patient care, using a Consumer Assessment of Healthcare Providers and Systems (CAHPS) or other ABMS-approved survey

More information is available at *abms.org*. Learn more about how RSNA helps members with the MOC process at *RSNA.org/Education/MOC*.

Kurtz Receives Outstanding Educator Award

Alfred B. Kurtz, M.D.

The Philadelphia Roentgen Ray Society has awarded its 2009 Mary S. Fisher Outstanding Educator Award to **Alfred B. Kurtz, M.D.,** a professor of radiology at Jefferson Medical College and Thomas Jefferson University Hospital in Philadelphia. Dr. Kurtz has served as president of the Greater Delaware Valley Ultrasound Society, Society of Radiologists in Ultrasound and American Institute of Ultrasound in Medicine.

ASNR Bestows Gold Medal, Honorary Membership

Glen Forbes, M.D.

Jian-Ping Dai, M.D.

The American Society of Neuroradiology (ASNR) will award **Glen Forbes, M.D.,** its gold medal during the ASNR annual meeting this month in Vancouver, Canada. Dr. Forbes, a professor of radiology with Mayo Clinic in Rochester, Minn., has served the society in major leadership positions including 1993–94 president and currently serves as the ASNR representative to the American Board of Radiology.

Also during the ASNR annual meeting, honorary membership is being awarded to **Jian-Ping Dai, M.D.,** a professor of neuroradiology at Beijing Neurosurgical Institute at Tiantan Hospital. Dr. Dai served as president of the Chinese Society of Radiology from 1996 to 2005 and in 1987 established the Chinese Society of Neuroradiology. Dr. Dai received RSNA honorary membership at RSNA 2008.

AMA Honors Radiologists

The American Medical Association (AMA) Foundation recently presented its Excellence in Medicine Awards in Washington, D.C. **AppaRao Mukkamala, M.D.,** chair of the Department of Radiology and vice-chair of the board of managers for Hurley Medical Center and clinical professor of radiology at Michigan State University College of Human Medicine, both in Flint, Mich., was awarded the Dr. Nathan Davis International Award in Medicine for his commitment to outstanding international service. Dr. Mukkamala established NRI Medical College and General Hospital in Andhra Pradesh, India, and founded the Chinmaya Vijaya Orphanage following the 2003 Asian tsunami.

Among the recipients of the 2009 AMA Foundation Leadership Award recognizing residents, fellows and early career physicians who have shown strong potential in leadership and service, are: **Alexander Ding, M.D., M.S.,** a second-year radiology resident at Massachusetts General Hospital in Boston; **Karen Marie Winkfield, M.D., Ph.D.,** a third-year resident in the Harvard University Radiation Oncology Program in Boston; **Christoph I. Lee, M.D.,** a third-year radiology resident at Stanford University School of Medicine in Stanford, Calif.; and **Shilpen Patel, M.D.,** an assistant professor of radiation oncology at the University of Washington in Seattle.

(Left to right) Karen Marie Winkfield, M.D., Ph.D.; Appa Rao Mukkamala, M.D.; Alexander Ding, M.D., M.S., and Shilpen Patel, M.D.

Chicago Society Honors Lasky, Mintzer

The Chicago Radiological Society (CRS) has honored **Harold J. Lasky, M.D.,** with the Harold J. Lasky Annual Oration. The first oration was given in February by Thomas Hoffman, J.D., C.A.E., of the American College of Radiology. Dr. Lasky, who received his medical degree from the University of Texas Medical Branch in Galveston, played a pivotal role in developing the national quality assurance program that resulted in the Mammography Quality Standardization Act (MQSA) passed in 1994 to better regulate breast imaging. Dr. Lasky served as 1977–78 CRS president and as 1985-86 president of the Illinois Radiological Society. He is a diagnostic radiologist at Medical Imaging of Northbrook Court in Northbrook, Ill.

CRS also honored **Richard A. Mintzer, M.D.,** president and CEO of Medical Imaging of Northbrook Court, with the society's Distinguished Service Award. Before opening Medical Imaging of Northbrook Court in 2001, Dr. Mintzer was a professor of radiology at Northwestern University and from 1985 to 2000 served as chairman of the Department of Radiology at Highland Park Hospital in Highland Park, Ill. Dr. Mintzer is a past-president of CRS and the Illinois Radiological Society.

Harold J. Lasky, M.D.

Richard A. Mintzer, M.D.

Schueler Elected to NCRP

Beth A. Schueler, Ph.D., an associate professor of radiology in the medical physics division at the Mayo Clinic in Rochester, Minn., has been elected to serve a 6-year term on the National Council on Radiation Protection and Measurements (NCRP). The election was held at the NCRP Annual Business Meeting, held in conjunction with the 2009 NCRP Annual Meeting in March.

Beth A. Schueler, Ph.D.

Stroke Association Recognizes Radiologists

Radiologists were among those recognized at the American Stroke Association (ASA) International Stroke Conference in February. **Raul G. Nogueira, M.D.,** an assistant radiologist in interventional neuroradiology at Massachusetts General Hospital and an instructor in radiology at Harvard Medical School in Boston, received the Robert G. Siekert New Investigator in Stroke Award. **Michael T. Froehler, M.D., Ph.D.,** a fellow in vascular neurology and interventional neuroradiology at the University of California at Los Angeles, received the Mordecai Y.T. Globus New Investigator Award.

Raul G. Nogueira, M.D.

Michael T. Froehler, M.D., Ph.D.

Smirniotopoulos Presents NERRS Holmes Lecture

James G. Smirniotopoulos, M.D., focused on neuroimaging in the 65th Annual George W. Holmes Lecture presented last month by The New England Roentgen Ray Society (NERRS). Dr. Smirniotopoulos, a professor and chair of radiology and radiological sciences and professor of neurology and biomedical informatics at the Uniformed Services University of the Health Sciences in Bethesda, Md., delivered "Tuberous Sclerosis, Sturge-Weber and von Hippel Lindau Syndromes."

IN MEMORIAM

Leon Love, M.D.

Leon Love, M.D., longtime radiology chair at Loyola University Medical Center in Chicago, died of an apparent heart attack March 24 while snorkeling in Mexico. He was 85.

Dr. Love, known for his urology expertise, began his career with Loyola in 1969 when he joined the Maywood, Ill., hospital shortly after it opened. Credited with bringing Loyola's radiology department to national prominence, Dr. Love was awarded the school's highest honor, the Stritch Medal, in 1991. He remained at Loyola until his retirement in 1994.

Following his retirement, Dr. Love taught part-time at Chicago Medical School until his death. He received the Distinguished Service Award from the Chicago Radiological Society in 1986 and the Distinguished Alumnus Award from Chicago Medical School in 1978.

Leon Love, M.D.

RSNA News Send news about yourself, a colleague or your department to *rsnanews@rsna.org*, 1-630-571-7837 fax, or *RSNA News*, 820 Jorie Blvd., Oak Brook, IL 60523. Please include your full name and telephone number. You may also include a non-returnable color photo, 3x5 or larger, or electronic photo in high-resolution (300 dpi or higher) TIFF or JPEG format (not embedded in a document). *RSNA News* maintains the right to accept information for print based on membership status, newsworthiness and available print space.

MY TURN

Sound Advice: Use Ultrasound

GIVEN THE turf wars besetting radiology, there is no better time than now to become an expert in ultrasound. There are many good reasons.

First, with increasing scrutiny of healthcare expenditures, patients who would have been imaged with CT or MR are now being sent for ultrasound. If we provide excellent service and diagnosis with ultrasound, we can keep this imaging technique within radiology; however, if we cannot provide a superior level of service, then other subspecialties may. Radiology practices should ensure that their laboratories have ultrasound accreditation and residency programs might consider extending their ultrasound rotation so that residents can become even more proficient at scanning.

My Turn
ONE RADIOLOGIST'S VIEW

Second, ultrasound is the ultimate "image gently" modality. In pediatric radiology much emphasis has been given to the *Image Gently* campaign to lower radiation dose when imaging children. This is a fantastic campaign, but I would argue that we should emphasize the total absence of radiation exposure with ultrasound. In particular, children and women of menstrual age, depending on indication, should be initially examined with ultrasound. I know some may disagree, and the availability and skillsets of sonographers and sonologists will ultimately have an impact; however, if a young woman presents in the emergency room with right lower quadrant pain, I recommend ultrasound as the initial imaging modality.

Deborah Levine, M.D.

Finally, ultrasound is a patient-centered imaging modality. RSNA advocates a patient-centered approach to radiology and the American College of Radiology "Face of Radiology" branding campaign advocates that each radiologist introduces himself or herself to at least five patients each day. Patients should understand that radiologists are physicians and the experts in medical imaging. By its very nature, ultrasound demands such patient interaction.

I advise my colleagues to pick up a probe and introduce yourself and your expertise to your patients.

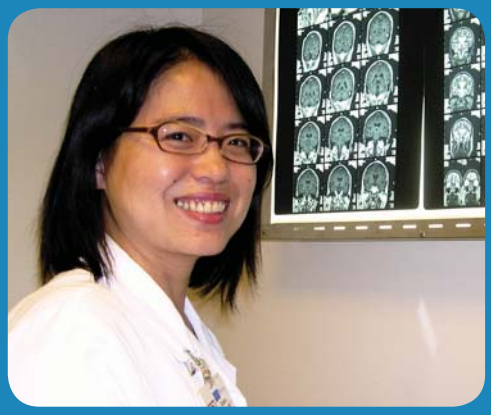
Deborah Levine, M.D., is a professor of radiology at Beth Israel Deaconess Medical Center Harvard Medical School in Boston. Dr. Levine is chair of the RSNA Daily Bulletin *Editorial Board, senior deputy editor of* Radiology *and chair of the American College of Radiology Ultrasound Commission.*

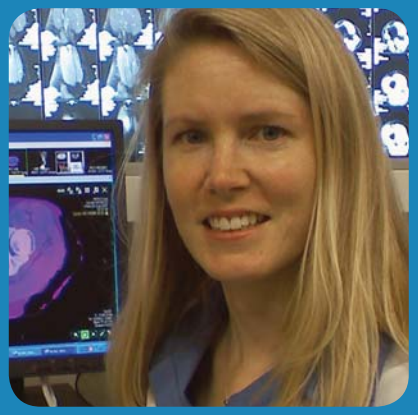
The Future of Radiology Depends on You











Tomorrow's practice depends on what you do today.

Help us reach our $15 million Silver Anniversary Campaign goal which will protect grant funding for radiologic research and education.

Support Your Future. Donate Today.
RSNA.org/donate

RSNA 25 YEARS R&E FOUNDATION 1984 2009 LOOK FORWARD GIVE BACK

Celebrating 25 years, the RSNA R&E Foundation provides the R&D that keeps radiology in the forefront of medicine.

RSNA Board of Directors Report

At its March meeting, the RSNA Board of Directors interviewed candidates for RSNA executive director, made important changes to the Society's strategic plan and continued preparations for RSNA 2009. The Board also met with chairs and vice-chairs of RSNA committees and the editors of *Radiology* and *RadioGraphics* to discuss future plans for the Society.

Watson is New Executive Director

Mark G. Watson became the new RSNA executive director on April 1. Watson has served RSNA in a variety of capacities for almost 20 years, including interim executive director since September 2008. Since 1994, Watson was the assistant executive director for finance and administration. In naming Watson as executive director, the Board recognized not only his history of distinguished service with RSNA but also his ability to provide the good counsel and effective leadership needed to realize the promise of RSNA's future. Watson was selected after a thorough search and from a field of candidates reviewed by an international search firm, five-member Executive Director Search Committee and the Board.

Strategic Plan Sets Sights on Radiology's Future

The Board approved a 2009–2012 strategic plan for the Society. Most significant was the addition of a new goal—to shape and advance the future of radiology. This new goal encompasses a variety of activities:

- Convening radiology thought leaders to articulate a vision for the future of the specialty
- Increasing awareness and stimulating the pursuit of cutting-edge developments and research opportunities vital to radiology's future
- Preparing professionals in the radiologic sciences for an increasingly quantitative future
- Advancing the frontiers of radiology informatics

RSNA's efforts to transform radiology to a quantitative science included a biomarker roundtable held in mid-March in Chicago. Coverage of the roundtable begins on Page 10.

RSNA 2009 Plans Continue

Planning is well under way for RSNA 2009, centering on the theme Quality Counts. This year's New Horizons Lecture will focus on extracting quantitative information from MR, while the Annual Oration in Diagnostic Radiology will explore quantitative imaging and reporting. The Annual Oration in Radiation Oncology will focus on radiation therapy in breast tumors and the RSNA/AAPM Symposium will be "Advances in Quantitative Imaging: Linking the Phenome to the Genome."

A mock jury trial will be presented on Sunday afternoon during RSNA 2009. Participants include the Honorable Stuart Nudelman as the judge, Tim Nickels, J.D., as the defense attorney, Thomas Demetrio, J.D., as the plaintiff's attorney, and Jonathan Berlin, M.D., as the defendant.

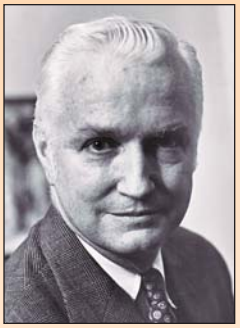
Series courses, which combine education and science on related topics, will be offered at RSNA 2009 in ER/trauma radiology, pediatrics, chest, musculoskeletal, emerging technology, ultrasound/gastrointestinal, genitourinary and breast.

Burton P. Drayer, M.D.
Chairman, 2009 RSNA Board of Directors

Next up in RSNA's "Presents" series is the United Kingdom. "U.K. Presents" will feature the best in radiology from that region. The series of Integrated Science and Practice sessions highlighting international advances featured Italy in 2007 and Japan in 2008. Argentina and China will be featured in 2010 and India and Germany in 2011.

New to RSNA 2009 will be special focus sessions offered at 7 a.m. Two sessions will be offered Monday and two on Thursday. In establishing the new time slot, RSNA seeks to maximize attendees' time at the RSNA annual meeting.

RSNA will dedicate the 2009 *RSNA Meeting Program* to the memory of 1978 RSNA President Henry P. Pender-



Henry P. Pendergrass, M.D.
1978 RSNA President

Hillier L. Baker Jr., M.D.
1980 RSNA President

A mock jury trial will be presented on Sunday afternoon during RSNA 2009. Shown is a mock trial conducted during RSNA 2004, which involved the case of a lung lesion missed on chest examination of a 60-year-old man who died a year later. That trial ended in a hung jury. Among this year's participants is the Honorable Stuart Nudelman, a Chicago-area judge who regularly presides in medical malpractice litigation. Judge Nudelman also participated in the RSNA 2004 mock trial.

grass, M.D., and 1980 RSNA President Hillier L. Baker Jr., M.D. The New Horizons Lecture will be dedicated to the memory of Edward V. Staab, M.D.

Reaccreditation Sought

RSNA has begun a 12-month process to renew its accreditation from the Accreditation Council for Continuing Medical Education (ACCME). The process calls on RSNA to demonstrate how it has implemented ACCME's 2006 Updated Accreditation Criteria, how the Society's educational planning and programming result in measurable outcomes and how CME plays an integral role in RSNA's collaborative relationships and practice improvement initiatives.

Intersociety Collaboration Expands

RSNA's new strategic plan continues to call for RSNA to strengthen radiology by fostering relationships with other organizations.

RSNA plans to use data from a recent survey of academic radiology chairs to assess learning needs in the area of quality and identify educational programming the Society can provide. More than half the chairs responding to the questionnaire have had a quality improvement/quality assurance program in place for one to five years. Thirty-three members of the Society of Chairs of Academic Radiology Departments responded to the survey in fall 2008 and identified areas of practice most vulnerable to medical or process errors.

RSNA will work with radiology societies around the globe to facilitate International Visiting Professor trips to the Philippines, Thailand, Brazil and Mexico in 2010.

BURTON P. DRAYER, M.D.
CHAIRMAN, 2009 RSNA BOARD OF DIRECTORS

■ Note: In our continuing efforts to keep RSNA members informed, the chairman of the RSNA Board of Directors will provide a brief report in *RSNA News* following each board meeting. The next RSNA Board Meeting is in June 2009.

MR

Tip of the Month

Fringe fields from an MR imaging scanner may adversely affect the functionality of a fluoroscopy unit with an image intensifier, a gamma camera or a PET scanner, if they are located close enough that the fringe fields are greater than 1 Gauss.

American Association of Physicists in Medicine

PET/CT May Improve Inflammatory Breast Cancer Prognosis

FOR PATIENTS diagnosed with inflammatory breast cancer (IBC), fluorodeoxyglucose (FDG) PET/CT may be helpful for staging the disease earlier than conventional imaging, according to a recent study.

Researchers at The University of Texas M.D. Anderson Cancer Center in Houston said that by using PET/CT, they were able to define the location and the extent of disease in patients with IBC, which can help improve prognosis by helping physicians find the most appropriate treatment.

"The standard thinking is that the cancer is local, but for patients diagnosed with this rare and aggressive form of breast cancer, PET helps see beyond the breast and may reveal more extensive disease," said Homer A. Macapinlac, M.D., co-author of the study and professor and chair of nuclear medicine at M.D. Anderson. "We rely on PET to call our attention to areas for potential biopsy, to establish the extent of the disease and to envision regional imaging that may need to be done."

The standard thinking is that the cancer is local, but for patients diagnosed with this rare and aggressive form of breast cancer, PET helps see beyond the breast and may reveal more extensive disease.

Homer A. Macapinlac, M.D.

The retrospective study, published in the February 2009 issue of *The Journal of Nuclear Medicine*, included records from July 2005 through July 2007. The study is the largest to date to evaluate PET/CT in the initial staging of IBC, said Dr. Macapinlac. "We looked at 41 women between the ages of 25 and 71, all patients newly diagnosed with unilateral primary IBC," he said.

The women had originally presented with breast swelling and pain or skin changes such as rash and skin discoloration. A palpable mass was not evident on physical examination in 26 patients (63 percent), which is not unusual in IBC. Ninety percent had no symptoms of distant metastases.

Each patient underwent a whole-body FDG PET/CT exam. Scans showed that nearly half of the patients (49 percent) had distant metastases and 27 percent had disease in multiple sites. The metastases had not been previously detected by conventional imaging modalities in 35 percent of those with distant disease. Results were confirmed by biopsy and supplementary imaging.

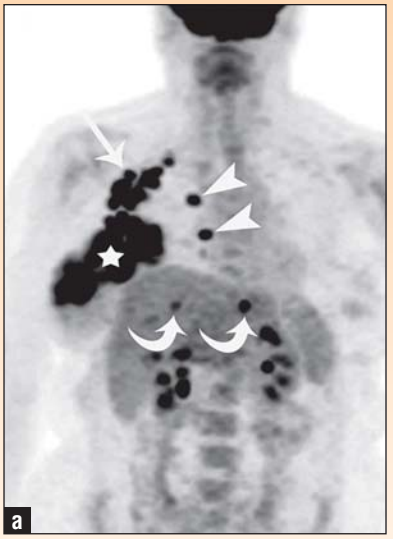
"The results were significant—in nearly half of these patients we identified distant metastatic disease," said Dr. Macapinlac. "Eleven of the 20 had disease in two or more organ sites, indicating extensive disease to begin with, which probably correlates with the poor prognosis."

In IBC, the cancer cells block the lymph vessels in the skin of the breast, causing swelling and redness. IBC accounts for 1 to 3 percent of all breast cancer cases in the U.S. and tends to be diagnosed in younger women when compared to non-inflammatory types. The disease occurs more frequently and at a younger age in African-Americans than in Caucasians. Like other types of breast cancer, IBC can occur in men, but usually at an older age than in women. Some studies have shown an association between family history of breast cancer and IBC.

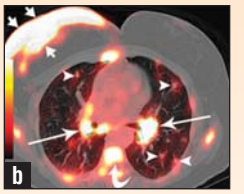
Homer A. Macapinlac, M.D.
The University of Texas

When diagnosed, IBC is already considered to be at least stage IIIB and in some cases stage IV if it has spread to distant parts of the body. That is why knowing the extent of the disease up front may have great implications for patient outcome, said Dr. Macapinlac.

"The median survival is one to three years, but the good news is there are many new clinical trials that can be offered to these patients," he said. "These treatments show very good promise, which is why I think this study is particularly important. In addition, in the future we will be investigating how this technique will be useful in



ON THE COVER
A 52-year-old woman with biopsy-proven right IBC.
(a) Maximum-intensity-projection reconstruction of CT-attenuation-corrected PET image shows global hypermetabolic uptake in right breast *(star)*, right subpectoral nodes *(arrow)*, and right internal mammary nodes *(arrowheads)* and bilobar liver metastases *(curved arrows). (b)* Coronal PET/CT shows right subpectoral *(arrow)* and right breast *(star)* uptake.



A 52-year-old woman with biopsy-proven right IBC.
(a) Maximum intensity-projection reconstruction of CT-attenuation corrected PET image shows multiple areas of 18F-FDG uptake consistent with extensive metastasis. *(b)* Axial PET/CT shows 18F-FDG uptake in right breast, with associated diffuse skin thickening *(short arrows)*, and uptake in bilateral hilar nodes *(long arrows)*, axial skeleton *(curved arrow)*, and pulmonary nodules *(arrowheads).*

Images reprinted with permission of *The Journal of Nuclear Medicine (JNM).* Co-authors of "Retrospective Study of 18F-FDG PET/CT in the Diagnosis of Inflammatory Breast Cancer: Preliminary Data" include Selin Carkaci, Homer A. Macapinlac, Massimo Cristofanilli, Osama Mawlawi, Eric Rohren, Ana M. Gonzalez Angulo, Shaheenah Dawood, Erika Resetkov, Huong T. Le-Petross and Wei-Tse Yang, all of the M.D. Anderson Cancer Center in Houston. *JNM,* February 2009.

assessing response to these new therapies."

A PET/CT procedure for IBC patients could be less than or equivalent to the cost of separately imaging multiple organs and would require a single hospital visit and decreased imaging time when compared to the time required for several regional staging studies, Dr. Macapinlac added.

David A. Mankoff, M.D., Ph.D., said this study is one of the first specifically examining inflammatory breast cancer and one of a number of studies of FDG PET and PET/CT showing that PET/CT is beneficial as part of initial staging in locally advanced breast cancer. Still more investigation is needed, he said.

"M.D. Anderson is one of the centers leading the way on this research," said Dr. Mankoff, a professor of radiology at the University of Washington and Seattle Cancer Care Alliance. "This study is part of a growing body of literature that shows that PET/CT for patients who present with what looks like locally advanced breast cancer can be very helpful.

"You can identify a subset of patients who may have more widespread disease than you would have suspected without PET," Dr. Mankoff continued. "The other important thing this study shows is that PET is very helpful in identifying spread to regional lymph nodes, which is important for determining treatment."

Previous studies have not supported the use of PET/CT for early stage breast cancer, said Dr. Mankoff.

"In early stage breast cancer, from a variety of viewpoints including cost-effectiveness, PET/CT is not recommended," he said. "But with locally advanced breast cancer, the studies have generally supported and found that PET is very helpful. This study helps to show which patients benefit from PET/CT at their initial staging." □

Guidelines Published for Evaluating Breast Cancer with MR

An article in the February 2009 *Journal of the National Comprehensive Cancer Network (JNCCN)* describes published peer-reviewed clinical research trials evaluating breast MR in patients with newly diagnosed breast cancer and details NCCN guidelines for breast MR imaging. The guidelines stress the importance of proper imaging equipment, technique and provider training, and recommend that MR practice sites have the ability to perform MR imaging-guided biopsy or needle localization.

NCCN recommends that MR be considered for patients with newly diagnosed breast cancer to evaluate the extent of ipsilateral disease and to screen the contralateral breast, particularly for women at increased risk for mammographically occult disease. Breast MR may also be used for patients with axillary nodal adenocarcinoma to identify the primary malignancy, the guidelines state. The JNCCN article provides further recommendations for high-quality breast MR and suggestions for future research. Read more online at *www.nccn.org/JNCCN.*

Learn More

■ The abstract for "Retrospective Study of 18F-FDG PET/CT in the Diagnosis of Inflammatory Breast Cancer: Preliminary Data," published in the February issue of *The Journal of Nuclear Medicine,* is available online at *jnm.snmjournals.org/cgi/content/abstract/50/2/231.*

Experts See Integration of Imaging Biomarkers by 2025

IT TOOK the 50 experts who gathered for the second RSNA-sponsored Imaging Biomarker Roundtable just a day-and-half to create an overarching vision for 2025—a plan that includes establishing a valid and accurate collection of quantitative imaging biomarkers that are seamlessly integrated into clinical practice and trials.

Creating the vision may have been easy, but it will take considerably longer to strategize the roadmap needed to put the plan into motion, said facilitator and keynote speaker David M. Dilts, Ph.D., M.B.A., director of clinical research at the Knight Cancer Institute at Oregon Health & Science University in Portland and a professor of healthcare management at the university.

Participants at the roundtable held in Rosemont, Ill., in March included a diverse mix of representatives from academic institutions, professional societies, pharmaceutical and device manufacturers and government organizations who vowed to continue their coordinated effort to help shape the future of imaging biomarkers. An RSNA-sponsored follow-up roundtable session is tentatively scheduled for July 9–10 in Chicago.

"Today is the tip of the iceberg toward roadmapping," said Dr. Dilts. "We're doing this top-down as opposed to bottom-up. We want to know what the world of biomarkers should look like in 2025 and then go backward and figure out the best way to get there."

RSNA organized its first biomarkers roundtable in 2008 to bring together experts who share a considerable stake in the coordinated progression of the field but have little communication with each other, said Daniel C. Sullivan, M.D., RSNA Science Advisor and chair of the RSNA Research Development Committee. RSNA remains committed to establishing radiology's role in the personalized medicine revolution by facilitating imaging as a biomarker in clinical trials and helping transform radiology from a qualitative to quantitative science, Dr. Sullivan said.

"What grew out of that first meeting was a sense that everybody thought that some higher level of coordination would be desirable," said Dr. Sullivan, a professor in the Department of Radiology at Duke University in Durham, N.C., and director of the Imaging Program at Duke Cancer Center. "It was clear we needed a roadmap we could follow to avoid duplication and promote greater synergy."

> *We want to know what the world of biomarkers should look like in 2025 and then go backward and figure out the best way to get there.*
>
> **David M. Dilts, Ph.D., M.B.A.**

Common Ground Located, New Paradigm Sought

At this year's roundtable, participants started on that process by breaking into three clinical groups—cardiology, oncology and osteoarthritis—as well as a group on funding, intellectual property (IP) and regulatory challenges. Charged with envisioning the role of biomarkers in 2025 while disregarding the current constraints of biology/pathology knowledge gaps and technology limitations, participants quickly found common ground on the need for everything from regulatory clarity to a national repository of biomarker data.

Participants also agreed that a whole new paradigm is needed for imaging biomarkers. "The shift needs to be made, with imaging biomarkers, from diagnosing end-stage disease to predicting and preventing disease," said Andrew J. Buckler, M.S., owner of Buckler Biomedical in Wenham, Mass., and facilitator of the oncology group. "Imaging may be the earliest tool in prevention and the least intrusive window into the preclinical phase of a disease."

Perhaps most pressing is the need to create standardized systems for the development, validation, qualification and use of accurate, repeatable and quantitative biomarkers across instruments and settings, said many roundtable participants.

Quantification will require developing hardware and/or software that significantly reduce quantitative image variances, resulting in imaging biomarker development that requires less money and time, as well as high quality clinical trials and better patient healthcare, roundtable members agreed.

As pointed out in the cardiovascular session, it will also require regulatory agencies to develop a clearer process for qualifying or validating biomarkers. "There should be an available suite of validated, qualified biomarkers, which should include getting regulatory agencies on the same page in terms of validation," said Mitchell D. Schnall, M.D., Ph.D., the Matthew J. Wilson Professor of Research Radiology and associate chair of research at the University of Pennsylvania Health System in Philadelphia.

To begin plotting the future for imaging biomarkers, roundtable participants divided into various interest groups. Here, members of group on funding, intellectual property and regulatory challenges discuss the need to establish nationally recognized standards for biomarkers and to create a national repository of imaging biomarkers using those standards. Pictured are Morgan W. Nields *(standing),* William Ott, Ph.D. *(seated, on left),* and Walter Wolff, Ph.D.

The RSNA roundtable held in Chicago in March is the tip of the iceberg toward roadmapping the future for imaging biomarkers, said keynote speaker David M. Dilts, Ph.D., M.B.A. "We're doing this top-down as opposed to bottom-up," he said.

National Biomarker Repository is Part of Vision

After using the breakout sessions to establish individual visions for the future, participants then met jointly to fuse core elements from each into one overarching vision for 2025. That plan includes creating:

- A valid and accurate collection of imaging biomarkers that are seamlessly integrated into clinical practice and clinical trials and are standard practice in prevention, screening and therapy, increasing the effectiveness, safety and quality of care. This will reduce overall cost and accelerate the transition of clinical research to the bedside.
- New imaging biomarkers supported by multiple partners—industry, government and foundations—and utilizing valid, widely used standards and endpoints as part of the majority of clinical trials.
- A national repository of well-characterized and quantified biomarker images maintained and linked with other biomarker repositories for use in evaluation of potential new imaging biomarkers.
- An infrastructure created to ensure the ongoing creation, optimization, validation and qualification of imaging biomarkers.

To that end, members of the funding/IP/regulatory breakout session, which included representatives from the U.S. Food and Drug Administration and the National Institutes of Standards and Technology, vowed to bring back to their management requests to establish nationally recognized standards for biomarkers within five years and to create a national repository of imaging biomarkers using those standards. "One of the most important things is regulatory clarity," said funding/IP/regulator facilitator Morgan W. Nields, president and CEO of INTIO in Broomfield, Colo.

In addition to the follow-up roundtable in June, other future steps include a meeting of RSNA's Quantitative Imaging Biomarkers Alliance (QIBA), planned for this month in Oak Brook, Ill. Formed in 2008, QIBA, chaired by Dr. Sullivan, is a group of stakeholders from pharmaceutical and medical device manufacturers, imaging informatics companies, government agencies, imaging societies and clinical trials groups committed to developing and adopting hardware and software standards to achieve accurate and reproducible quantitative results from imaging methods. QIBA's technical committees overseeing imaging biomarkers in three areas—fluorodeoxyglucose PET/CT, dynamic contrast-enhanced MR imaging and volumetric CT—will update their progress and strategize the next steps, said Dr. Sullivan.

Also growing out of these quantitative imaging activities will be an educational exhibit area at RSNA 2009 called the "Radiology Reading Room of the Future," in which industry vendors and academic research groups can demonstrate workstation tools for extracting quantitative results from imaging scans.

Learn More

■ More information is available online about RSNA's efforts to help transform radiology from a qualitative to a quantitative science. Go to *RSNA.org/Research/qiba.cfm.* Summary and breakout presentations from the March roundtable will be available at *RSNA.org/Research/roundtable.cfm.*

Radiologists See Opportunity in Overuse of Back Imaging

A RECENTLY published metaanalysis that questions the value of lumbar spine imaging on some patients presents an opportunity for radiology to strengthen its role as imaging gatekeepers for referring physicians and patients.

Taking responsibility for telling a physician or patient "no" or recommending other courses of action isn't always easy, said Michelle S. Barr, M.D., chair of the musculoskeletal subcommittee of the RSNA Scientific Program Committee. "A lot of education needs to be done with referring physicians and patients who may not understand," said Dr. Barr, an associate professor of radiology and chief of musculoskeletal interventional radiology at the University of Virginia in Charlottesville.

The study, "Imaging Strategies for Low-Back Pain: Systematic Review and Meta-Analysis," published in the February 7, 2009, issue of *The Lancet*, shows lumbar imaging on patients who do not have serious underlying conditions will not improve clinical outcomes and can unnecessarily raise lifetime radiation dose.

Lead researcher Roger Chou, M.D., and colleagues analyzed six controlled trials that compared the results of immediate lumbar imaging and results of typical clinical care without an immediate radiograph, MR or CT scan for low-back pain. Dr. Chou, an associate professor in the School of Medicine at the Oregon Health & Science University in Portland, and director of clinical guideline development for the American Pain Society, said he came up with the idea for the study after being asked repeatedly about imaging and low back pain during interviews.

"2007 Guidelines from the American College of Physicians and the American Pain Society say doctors should not routinely image patients with lower back pain," Dr. Chou said. Despite those guidelines, physicians have continued to order imaging, he said.

Researchers looked at the diagnostic accuracy of the imaging tests and found slightly worse, but not statistically significant, outcomes for those who were imaged. Looking at pain and function outcomes and anxiety outcomes for patients who might receive psychiatric benefits by getting lumbar images, Dr. Chou and colleagues were surprised to see no benefit. In terms of patient satisfaction, there were mixed results.

"We went in with open minds, but we confirmed there is no important benefit from routine imaging for patients who do not have serious underlying conditions," he said.

Another problem, researchers discovered, was that ordering doctors blame back pain symptoms on what they see in imaging studies—degenerative discs, bulging discs and arthritis; however, said Dr. Chou, these symptoms may not be the true cause of the back pain. "Fifty percent of patients over the age of 50 have degenerating discs," he said.

Many jump to imaging. I hope this dicourages doctors from ordering imaging immediately.
Michelle S. Barr, M.D.

Dr. Barr praised Dr. Chou's extensive literature review. "Many jump to imaging," she said. "I hope this discourages doctors from ordering imaging immediately."

Published Criteria Provide Direction

Since clinicians haven't policed themselves, radiologists must become the gatekeepers, said Drs. Chou and Barr. "Radiologists need to help clinicians better understand which back pain symptoms require diagnostic imaging and which symptoms are likely to improve with or without imaging," said Dr. Chou. "Radiologists need to ask if the patient really needs an imaging study."


Roger Chou, M.D.
Oregon Health & Science University

The best way to evaluate the necessity of an imaging test, said Dr. Barr, is to use the American College of Radiology (ACR) Appropriateness Criteria®. The criteria offer standards for the use of imaging based on medical conditions. (See sidebar for ACR Appropriateness Criteria for low-back pain).

"The criteria are used at my hospital," said Dr. Barr. "They should go to every hospital and every insurance company."

Ten so-called "red flags" in the ACR criteria that indicate the need for lumbar imaging studies are:

- Recent, significant trauma, or milder trauma for those older than 50
- Unexplained weight loss

- Unexplained fever
- Immunosuppression
- History of cancer
- IV drug use
- Prolonged use of corticosteroids and/or osteoporosis
- Age over 70
- Focal neurologic deficit with progressive or disabling symptoms
- Symptoms with duration longer than six weeks

Dr. Barr acknowledged that while finding the information to help make a decision may be easy, playing the role of gatekeeper often is not. She likened a back pain patient's desire for imaging to a patient who is sick and wants antibiotics. Even though antibiotics will help only those patients with bacterial infections—and imaging helps only those patients with serious underlying conditions—patients can be hard to persuade, said Dr. Barr.

Patient Education Needed

Patients themselves should question imaging tests, said Dr. Chou. "Patients want to know the cause of pain but imaging tests can be misleading and may lead to unnecessary procedures," he said, noting a strong correlation between rates of MR and rates of surgery.

For patients who demand an imaging study, Drs. Chou and Barr said clinicians must efficiently explain how imaging can help or harm them. Even still, there is a risk of litigation. "Four of the studies we analyzed followed 1,100 patients who did not get an imaging study, to see if any of them developed cancer. Not a single cancer was missed," Dr. Chou said.

In a separate commentary published in the same issue of *The Lancet*, Michael M. Kochen, M.P.H., F.R.C.G.P., and co-authors noted, "Over the past decade there has been a broad consensus among different scientific organizations worldwide on the benign self-limiting nature of unspecific low-back pain and hence the need for education of patients—to reassure patients and encourage them to continue with normal activities.

"Although most patients with back pain never undergo any radiologic tests because they do not seek medical attention, there remains a large group who seeks the dubious promise of imaging procedures despite contrary recommendations in evidence-based guidelines," Dr. Kochen and colleagues concluded.

While pleased with the 2,000 patients analyzed in his study, Dr. Chou said he would have liked to have seen greater numbers of patients and imaging studies. "Additional data always give you more confidence in the results," he said. For future studies, Dr. Chou said he'd like to determine when it is appropriate to get an imaging study, especially for patients with chronic low back pain or with sciatica.

Learn More

■ The abstract for "Imaging Strategies for Low-Back Pain: Systematic Review and Meta-Analysis," published in the February 7, 2009, issue of *The Lancet,* is available online at *www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)60172-0/abstract.* The American Pain Society funded the study.

Excerpts from the American College of Radiology Appropriateness Criteria® for Low Back Pain

Clinical Condition: Low Back Pain

Variant 1: Uncomplicated acute low back pain and/or radiculopathy, nonsurgical presentation. No red flags. (Red flags defined in text.)

Radiologic Procedure	Rating	Comments	RRL*
MRI lumbar spine without contrast	2		None
X-ray lumbar spine	2		Med
Myelography and postmyelography CT lumbar spine	2	In some cases postinjection CT imaging may be done without myelography.	High
X-ray myelography lumbar spine	2		Med
NUC Tc-99m bone scan with SPECT spine	2		Med
CT lumbar spine without contrast	2		Med
MRI lumbar spine without and with contrast	2		None

Rating Scale: 1=Least appropriate, 9=Most appropriate — *Relative Radiation Level

Clinical Condition: Low Back Pain

Variant 3: Suspicion of cancer, infection, or immunosuppression.

Radiologic Procedure	Rating	Comments	RRL*
MRI lumbar spine without and with contrast	8	See comments regarding contrast in text under "Anticipated Exceptions."	None
CT lumbar spine without contrast	6	MRI preferred. CT useful if MRI is contraindicated or unavailable, and/or for problem solving.	Med
X-ray lumbar spine	5		Med
NUC Tc-99m bone scan whole body with optional targeted SPECT spine	5		Med
X-ray myelography lumbar spine	2		Med
Myelography and postmyelography CT lumbar spine	2	In some cases postinjection CT imaging may be done without myelography.	High

Rating Scale: 1=Least appropriate, 9=Most appropriate — *Relative Radiation Level

Source Identified for Cancer Stem Cell Resistance to Radiation

ONE KEY to eradicating an entire tumor lies within its stem cells, according to a recent study that identified a source of cancer stem cell resistance to radiation and chemotherapy.

Researchers at the Stanford University School of Medicine, in collaboration with scientists at the City of Hope National Medical Center in Duarte, Calif., discovered a protective pathway that shielded cancer stem cells from DNA damage. When that pathway was blocked, researchers found the cells became more susceptible to radiation.

"Normal stem cells need to be around for the life of an organism and therefore, teleologically, you want to protect those cells as much as possible," said Maximilian Diehn, M.D., Ph.D., a radiation oncologist in the Department of Radiation Oncology at Stanford and the Stanford Institute for Stem Cell Biology and Regenerative Medicine. Dr. Diehn and Robert Cho, M.D., were co-first authors of the study published online Feb. 4, 2009, in the journal *Nature*.

"Prior work indicated that some normal tissue stem cells display enhanced reactive oxygen species (ROS) defenses," said Dr. Diehn. "We wondered whether cancer stem cells, which share many similarities with normal stem cells, may also display these enhanced defenses against ROS."

ROS are highly reactive molecules that include oxygen ions, free radicals and peroxides. ROS form as a natural byproduct of the normal metabolism of oxygen and are also critical intermediaries in cell killing by ionizing radiation and some chemotherapy drugs.

Maximilian Diehn, M.D., Ph.D.
Stanford

Bruce Haffty, M.D.
Robert Wood Johnson Medical School

We're going to find out that cancer stem cells are indeed resistant to standard therapies in many tumors and that they use a combination of resistance mechanisms that are likely to be somewhat unique to each tumor.
Maximilian Diehn, M.D., Ph.D.

Researchers studied breast cancer stem cells from humans and mice. They found that both normal breast stem cells and breast cancer stem cells contained lower levels of ROS than their progeny. This discovery suggests that cancer stem cells have enhanced free-radical scavenging systems—increased expression of molecules that bind and deactivate ROS—which could make them more resistant to radiation, said Dr. Diehn.

"If this turns out to be true in a significant fraction of human tumors, then this may be a reason why certain tumors are resistant or become resistant to chemotherapy or radiation," he said. "Now that we know about this mechanism, if one can come up with a way of abrogating those defenses in the cancer stem cells one might be able to sensitize them to currently available therapies."

Discovery is in Line with Previous Research

This recent discovery is also consistent with previous research demonstrating hypoxic cancer cell resistance to radiation and chemotherapy.

"What they've shown in this study is that some of these cancer stem cells are resistant to radiation and the whole hypoxia/oxygenation story may play into that as well," said Bruce Haffty, M.D., a professor in the Department of Radiation Oncology at the Robert Wood Johnson Medical School in New Jersey and co-chair of the radiation oncology-focused Bolstering Oncoradiologic and Oncoradiotherapeutic Skills for Tomorrow (BOOST) program at the RSNA annual meeting.

Dr. Haffty will present the Annual

Oration in Radiation Oncology, "Genetic Factors in the Diagnostic Imaging and Radiotherapeutic Management of Breast Cancer," at RSNA 2009.

"I see this study as combining a theory and a story that has been around for many, many years—that hypoxia is a problem in general," said Dr. Haffty. "What's unclear to me is whether you would address the ROS problem in stem cells differently than just hypoxia in general and whether this will have a greater impact than hypoxia-directed therapy that has been around for some time."

Dr. Haffty added that he sees this latest study as another part of ongoing puzzle-solving as doctors and scientists work to understand hypoxia-related agents.

"In general, I'd have to say that although attacking hypoxia in cancer in combination with radiation has been a success, it certainly has not been a home run by any means," he said. "There have been small incremental gains in the studies that have looked at hypoxia-directed therapy. It's possible that this new knowledge will help promote and fine tune those studies and lead us into better anticancer drugs.

"I'm not sure this particular finding is going to have an immediate clinical impact," Dr. Haffty continued. "It's a unique finding, but still there is a lot of work to be done to capitalize on that in terms of clinical gain."

Dr. Diehn agreed that studies must continue.

More than One Answer to Stem Cell Resistance

"As with most things in cancer research, it's unlikely that there is going to be one answer explaining cancer stem cell resistance to standard therapies," he said. "The fact that we are discovering multiple ways that these cells might resist radiation and chemotherapy fits well with the history of cancer biology."

That history includes earlier research within the cancer stem cell field, which has gained momentum over the past decade or so. During that time, Dr. Diehn said, it has been proposed that the cells may be resistant to radiation and chemotherapy.

"People have proposed a number of potential mechanisms," he said. "ROS defenses wasn't usually one of them, but the idea that cancer stem cells might be resistant has been around for a while. It's becoming apparent now, from studies such as ours and also from those of a number of other investigators, that cancer stem cells in many different tumors appear to be resistant to chemotherapy and radiation and that they use different mechanisms to accomplish this.

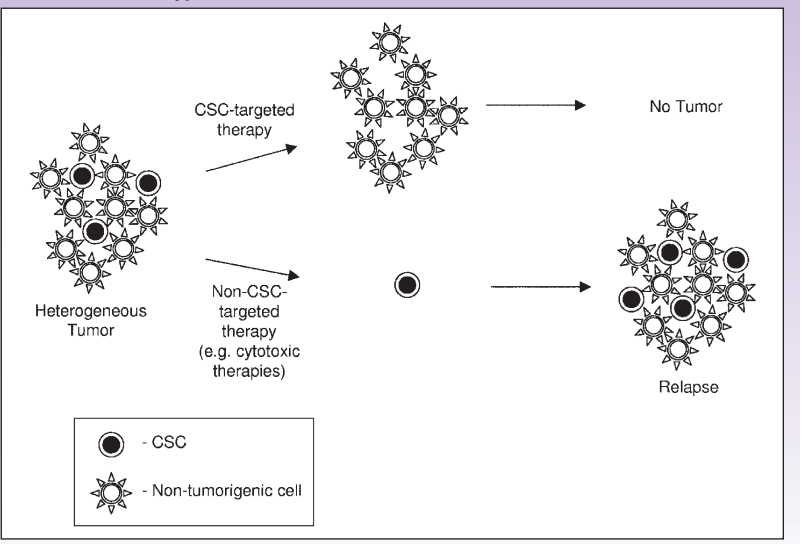
"In some tumors it appears to be these ROS defenses, in other tumors it appears to be enhanced DNA repair capabilities, and in still others it appears to be enhanced expression of drug transporters that can pump chemotherapy drugs out of the cells," Dr. Diehn continued. "It's my opinion that we're going to find out that cancer stem cells are resistant to standard therapies in many tumors and that they use a combination of resistance mechanisms that are likely to be unique to each tumor."

"The main hurdle to clinical application is that lowering ROS defenses is likely to sensitize all cells," he said. "But you'd like to do it in a way that doesn't also sensitize the normal tissues. That's always a problem in cancer therapy. Future work is going to focus on trying to come up with a way of sensitizing the cancer stem cells preferentially and not the relevant normal tissue stem cells.

"We're still in the early stages, but one potential way we might be able to do it is to try to attack the transcription factors, or let's say the gene expression programs, that are controlling the enhanced ROS defenses," Dr. Diehn concluded. "That's the next step." □

Implications of the cancer stem cell hypothesis for cancer treatment.

Conventional cytotoxic therapies can shrink tumors but may preferentially spare some cancer stem cells (CSCs). Because CSCs are left behind, tumors can eventually regrow. CSC-targeted therapies could remove the self-renewing tumor cells and thus lead to tumor stabilization and likely eventual regression.



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Learn More

- Read the abstract for "Association of Reactive Oxygen Species Levels And Radioresistance in Cancer Stem Cells," published online Feb. 4, 2009, in the journal *Nature*, at *www.nature.com/nature/journal/vaop/ncurrent/full/nature07733.html.*
- For more information about RSNA 2009 and the radiation oncology-focused Bolstering Oncoradiologic and Oncoradiotherapeutic Skills for Tomorrow (BOOST) program, go to *RSNA2009.RSNA.org.*

RSNA 2009 Quality Counts

Academy of Radiology Research Adds New Focus

THE NEW Academic Council formed by the Academy of Radiology Research (ARR) takes its mission to Capitol Hill this month, promoting the need for imaging research by bringing members of academic radiology departments face-to-face with their congressional representatives.

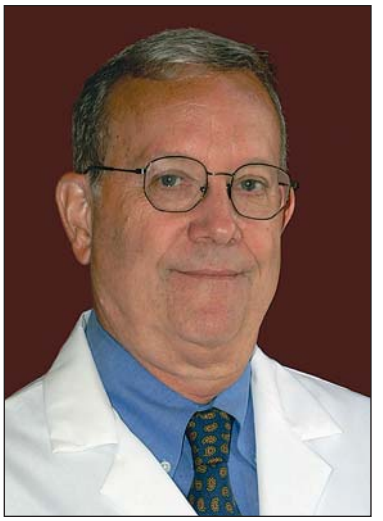
"This grassroots effort directly involves the departments where the radiology research is being done, which didn't happen before we formed the Academic Council," said ARR President R. Nick Bryan, M.D., Ph.D., a professor and chair of the Department of Radiology at the University of Pennsylvania Health System in Philadelphia. Dr. Bryan represents RSNA and the R&E Foundation in ARR.

The Academic Council is the latest accomplishment of the 14-year-old ARR, which continues its work on other fronts, including ensuring that imaging gets its fair share of stimulus package dollars. The new council is chaired by Carolyn Meltzer, M.D., chair of radiology at Emory University and James H. Thrall, M.D., radiologist-in-chief at Massachusetts General Hospital.

Twenty-three academic radiology departments have already joined the Academic Council, created in mid-2008 to strengthen the role of ARR in advocating for the limited pool of National Institutes of Health (NIH) funds and to educate lawmakers on the need for imaging research, according to Renee Cruea, M.P.A., executive director of the Washington, D.C.-based ARR.

"We now have all imaging stakeholders at the table," said Cruea. "Increased funding for imaging research at NIH benefits these departments and engages them in our initiatives."

This month's Washington forum includes an NIH tour and a Capitol Hill briefing on imaging research and coincides with the Association of University Radiologists (AUR) annual meeting.



R. Nick Bryan, M.D., Ph.D.
Academy of Radiology Research
President

Renee Cruea, M.P.A.
Academy of Radiology Research
Executive Director

Patient Outreach Continues

Incorporating all segments of the imaging community has been an ARR goal since it formed in 1995 as a consortium of 19 imaging societies to promote imaging research and fight for legislation to establish an imaging institute at NIH. The latter goal was realized in 2000 with the creation of the National Institute of Biomedical Imaging and Bioengineering (NIBIB), which gave medical imaging a long-sought home at NIH and re-directed the academy's focus to advocating for NIBIB appropriations.

"The creation of NIBIB would never have happened if the academy had not spearheaded the lobbying and information effort," said Hedvig Hricak, M.D., Ph.D., Dr. h.c., chair of the Department of Radiology at Memorial Sloan-Kettering Cancer Center in New York City, RSNA representative on the academy's executive committee and RSNA president-elect for 2009.

Academy members soon realized, however, that raising funds—and the profile of imaging—would mean casting an even wider net for support.

"It became clear to us that it wasn't just legislators who didn't understand or appreciate how imaging benefits patients, but also that many of the patient groups didn't recognize imaging research as a tool to boost their mission and goals—no one was out there speaking to them about it," said Cruea.

In 2004, the late Ed Nagy, former ARR director, and Cruea, then government relations associate for ARR, developed the concept for a broad new coalition to bring patient groups and medical manufacturers to the advocacy table along with scientific associations. Created in 2006 as an ARR division, the Coalition for Imaging and Bioengineering Research (CIBR) now comprises 30 patient advocacy groups,

The new Academic Council of the Academy of Radiology Research is promoting the need for imaging research by bringing members of academic radiology departments face-to-face with their congressional representatives in meetings this month.

27 imaging organizations, nine industry groups and 23 academic radiology departments. The coalition incorporates the entire, diverse membership of the academy and the Academic Council.

CIBR has quickly grown into the ARR advocacy arm that puts a human face on the need for imaging research. For example, during a 2008 imaging briefing on Capitol Hill sponsored by CIBR and the Diabetes Research Foundation, former Pittsburgh Steelers guard Kendall Simmons spoke about his Type 1 diabetes diagnosis in 2003 and the need for research.

> *This grassroots effort directly involves the departments where the radiology research is being done, which didn't happen before we formed the Academic Council.*
>
> **R. Nick Bryan, M.D., Ph.D.**

"The idea is that when we talk to Congress and their staffs about imaging, we do so from the perspective of a patient with the disease," said Dr. Bryan.

NIBIB Seeks New Funds via Stimulus Package

Since its inception, NIBIB has funded bold and far-reaching projects that rapidly facilitate discoveries and translate them into clinical practice. Among them are nanotechnology to detect single cancer cells and prevent metastases and image-guided, minimally-invasive robotic assisted therapies to replace more invasive treatments commonly used today.

Although the NIBIB budget has increased each year, from its first grant of about $112 million in 2002 to its current allotment of approximately $300 million, Cruea and Dr. Bryan said NIH funding has remained essentially "flat" over the last eight years. They are both hopeful that the two-year $10.4 billion funding increase—$8.2 billion in support of scientific research—granted to NIH under the economic stimulus bill will get the research dollars flowing.

"We're ecstatic over what we think is getting ready to happen," said Dr. Bryan. "We will be advocating for more money for NIBIB from the pool that has become available."

"Go-To" Destination for Imaging Envisioned

The academy, funded through its membership, has nearly doubled its yearly budget by adding the Academic Council and CIBR and bolstering its general membership, said Cruea. After operating for 12 years on about $400,000 a year, the academy's budget is now almost $800,000 annually.

Plans for those funds this year include growing membership, raising the overall profile of imaging, focusing on the imaging role in health information technology development and overhauling the academy's Web site to reflect its role as the "go-to" destination for imaging, Cruea said.

The academy's primary goal never wavers, said Dr. Hricak. "The goal is to make sure that Congress, various foundations and patient organizations are aware of the importance of radiology and its need for research support," she said. "That doesn't change."

Listen In

■ Go to *RSNANews.org* for the online version of this story, where you can hear an interview with R. Nick Bryan, M.D., Ph.D., president of the Academy of Radiology Research, who discusses the academy's newly formed Academic Council as well as the creation of the National Institute of Biomedical Imaging and Bioengineering and the Coalition for Imaging and Bioengineering Research (CIBR) and funding challenges facing NIBIB in 2009. Listen In is the new *RSNA News* feature designed to enhance understanding of some of the latest topics in radiology.

Learn More

■ The Academy of Radiology Research plans an overhaul of its Web site to reflect the academy's role as the "go-to" destination for imaging. The academy can be found online at *www.acadrad.org.*

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THE Board of Trustees of the RSNA Research & Education Foundation and Foundation grant recipients gratefully acknowledge the contributions made to the Foundation February 7 – March 20, 2009.

Thanks to the support of individuals, corporations and private practices, the Silver Anniversary Campaign has reached $13.8 million of its $15 million goal.

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Donald P. Frush, M.D.
Aaron Y. Fu, M.B.B.S.
Jeffrey R. Gambach, M.D.
John P. Gerhold, M.D.
Diane Pappas, M.D. & Laurence D. Goldstein, M.D.
Srikumar Gopalan, M.D.
Jeanne & James M. Grimson, M.D.
Jonathan Grynspan, M.D.
Ellen E. & John R. Haaga, M.D.
Ester P. Van der Wal, M.D. & Djavid Hadian, M.D.
Jacquelyn & Roger K. Harned, M.D.
Darel E. Heitkamp, M.D.
Helen M. Higgins-Minetti, M.D.
Stephen Hulse, M.D.
Diego Jaramillo, M.D., M.P.H.
Vivien G. Kane, M.D.
Eun-Ju Son & Heoung-Keun Kang, M.D.
Delia M. Keating, M.D.
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Eun Jung Lee, M.D.
Stephen M. Lindsey, M.D.
Archie R. McGowan, M.D.
Flora & Oliver A. Meissner, M.D.
Jeffrey H. Newhouse, M.D.
Keith R. Olbrantz, M.D.
Hernando G. Ortiz, M.D.
Harold S. Parnes, M.D.
Andrew K. Peppin, M.D.
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Jesus Rodriguez-Carbajal, M.D.
Nancy K. Rollins, M.D.
David J. Ryder, M.D.
Akihiko Sakata, M.D.
Manash K. Sarcar, M.D.
Charles J. Savoca, M.D.
Amar B. Shah, M.D.
Gregory S. Shields, M.D.
Mark I. Silverstein, M.D.
Audrey & W.C. Sims, M.D.
Charles J. Singer, M.D.
Craig Stewart, M.D.
Faith B. & Theodore A. Tristan, M.D.
In memory of Hillier L. Baker Jr., M.D.
Thomas T. Tsin, M.B.B.S.
Leslie K. Tutt, M.D.
Giuseppe Vadala, M.D.
Adam Z. Voorhees, M.D.

Celebrating 25 years, the RSNA R&E Foundation provides the R&D that keeps radiology in the forefront of medicine. Support your future, donate today at RSNA.org/campaign.

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RSNA Outstanding Researcher and Educator Awards

Nomination Deadline—June 15

THE RSNA R&E Foundation is accepting nominations for the 2009 RSNA Outstanding Researcher and Outstanding Educator. The awards annually honor one senior physician or scientist in each award category who has made a career of significant contributions to the field of radiology or radiologic sciences through research or teaching/education. The 2008 Outstanding Researcher Award was presented to Ralph Weissleder, M.D., Ph.D., and the 2008 Outstanding Educator Award was presented to Richard B. Gunderman, M.D., Ph.D.

To nominate someone for an award, send a one-page letter of intent and the nominee's complete curriculum vitae to Scott Walter, Assistant Director, Grant Administration, at *swalter@rsna.org.* More details and a listing of past recipients are available at *RSNA.org/Foundation/Awards.cfm.*

Journal Highlights

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

Diagnostic and Interventional Radiology for Budd-Chiari Syndrome

A PATHOLOGICAL DISORDER with multiple causes, Budd-Chiari syndrome is the result of partial or complete obstruction of hepatic venous outflow. Because clinical manifestations are often nonspecific, imaging may be critical for early diagnosis of venous obstruction and accurate assessment of disease extent.

RadioGraphics

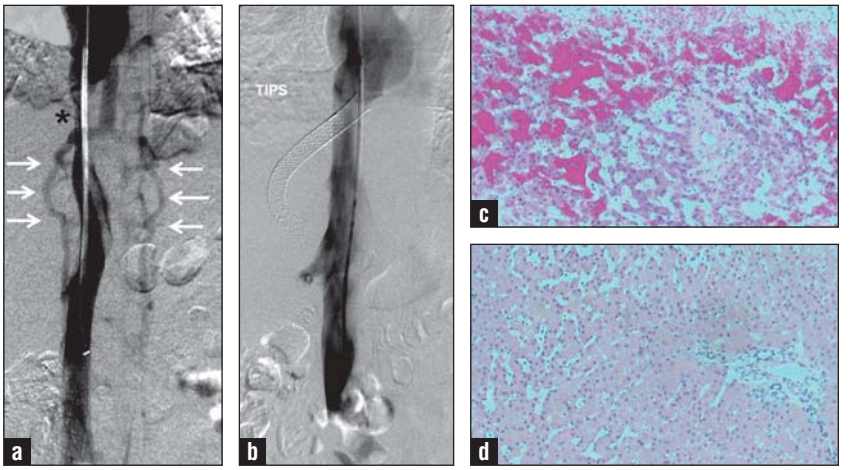
In the May-June issue of *RadioGraphics (RSNA.org/radiographics)*, Marco Cura, M.D., of The University of Texas Health Science Center, and colleagues describe and illustrate the clinical, pathologic and venographic features of the syndrome and discuss possible outcomes after treatment with medical, surgical and endovascular methods.

Specifically, the authors explain:

- Indications for a particular method of treatment
- How a transjugular intrahepatic portosystemic shunt works to treat the syndrome

Authors stress the necessity of comprehensive imaging—in combination with pathologic analyses and clinical testing—in determining disease severity, stratifying risk, selecting the appropriate therapy and objectively assessing the response.

"Clinical and imaging evaluations and histologic analyses of liver biopsy specimens obtained in patients in whom the presence of Budd-Chiari syndrome is suspected play an important role in the detection and classification of the disease, helping guide case management at presentation and providing valuable information at post-treatment follow-up," the authors conclude.



(a) Cavogram obtained before transjugular intrahepatic portosystemic shunt (TIPS) creation in a 24-year-old woman with Budd-Chiari syndrome and a history of oral contraceptive use depicts a reversible intrahepatic inferior vena cava (IVC) stenosis (*). The presence of perilumbar and azygos collateral veins *(arrows)* is indicative of hemodynamically significant caval narrowing. *(b)* Cavogram obtained two months after TIPS creation shows resolution of the intrahepatic IVC stenosis and decompression of venous outflow, findings that correlated with a decrease in the portosystemic gradient from 20 to 6 mm Hg. Comparison of photomicrographs of liver biopsy specimens obtained before *(c)* and two months after *(d)* TIPS creation shows post-treatment resolution of perivenular congestion with residual sinusoidal dilatation.

(*RadioGraphics* 2009;29:669–681)

This article meets the criteria for 1.0 *AMA PRA Category 1 Credit™*. CME is available online only.

Vessel Growth and Function: Depiction with Contrast-enhanced MR Imaging

MR IMAGING not only depicts established and developing vasculature but also can be used to investigate blood vessel growth at different spatial and temporal scales. Recent experimental evidence also demonstrates molecular characterization of neovascularization with MR imaging.

Radiology

In an article in the May issue of *Radiology (RSNA.org/radiology)*, Marlies Oostendorp, M.Sc., Mark J. Post, M.D., Ph.D., and Walter H. Backes, Ph.D., of Maastricht University Medical Center and Eindhoven University of Technology in The Netherlands, review current contrast-enhanced (CE) MR imaging techniques for depicting established and developing vasculature. The authors describe the basic principles, potential acquisition and interpretation pitfalls, solutions and applications and specifically address:

- Morphologic imaging (CE MR angiography and vessel size imaging)
- Functional imaging (dynamic CE MR imaging and myocardial perfusion imaging)
- Molecular imaging (cellular imaging)

The authors also explain current shortcomings and the impact of future

Continued on Page 21

Radiology in Public Focus

A press release has been sent to the medical news media for the following article appearing in the May issue of *Radiology (RSNA.org/radiology):*

Utilization of Imaging in Pregnant Patients: 10-year Review of 5270 Examinations in 3285 Patients—1997–2006

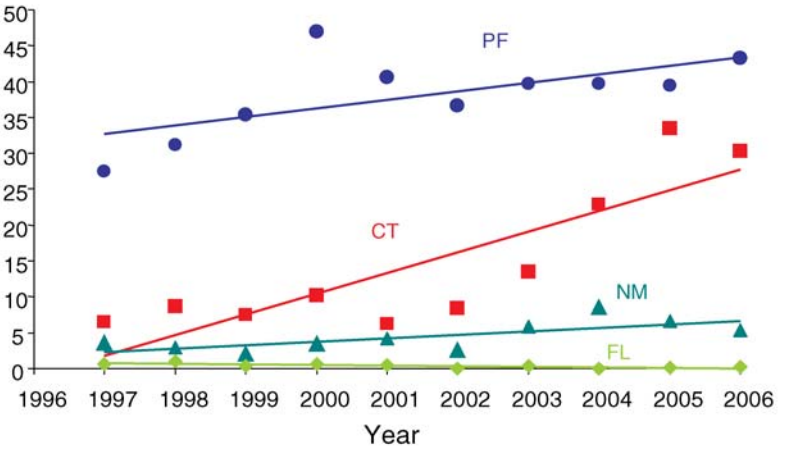
UTILIZATION RATES for plain film, nuclear medicine, fluoroscopy and CT imaging in pregnant women, measured by exams per 1,000 deliveries, increased 107 percent between 1997 and 2006, according to a study at one institution.

Elizabeth Lazarus, M.D., and colleagues at the Department of Diagnostic Imaging at Brown University found that while plain film remained the most common examination, CT utilization increased at the highest rate.

"If current utilization trends were to continue, we would expect CT utilization to surpass plain film in 2015, as the rate of increase in CT utilization has been more than twice that of any other modality," Dr. Lazarus and colleagues wrote.

One of the most dramatic increases was in CT pulmonary angiography (CTPA), the researchers noted, a trend observed in previous research in the general population. "Our data demonstrate that the increased utilization of CTPA is occurring in the pregnant population as well and has not resulted in a decrease in nuclear medicine scans performed to evaluate for pulmonary embolus."

Of all exams with available data, Lazarus and colleagues found that the fetus was within the beam of radiation in 15 percent. Of those exams, 85 percent were reported normal or revealed only hydronephrosis associated with pregnancy. "Despite the increase in the number of abdominal and pelvic CT exams during our study, the percentage of positive exams did not decrease," the authors wrote. "This supports the assumption that the increase in examinations was not due to inappropriate imaging."



Graph shows utilization trends for each modality according to year.
FL = fluoroscopy, NM = nuclear medicine, PF = plain film (conventional radiography).
(*Radiology* 2009;251:517-524)

May Public Information Activities Focus on Stroke

In recognition of American Stroke Month in May, RSNA will distribute public service announcements (PSAs) focusing on:

- Signs of stroke
- Stroke imaging
- Interventional treatments for stroke
- Importance of receiving stroke treatment quickly

In addition to the PSAs, RSNA will distribute the "60-Second Checkup" audio program to radio stations. 60-Second Checkup, which also focuses on stroke imaging this month, starts with a short introduction by a reporter and includes a brief interview with an expert.

Radiology Among 100 Most Influential Journals

Radiology has been named one of the 100 most influential journals of biology and medicine over the last 100 years by the Special Libraries Association's (SLA) BioMedical & Life Sciences Division (DBIO), in conjunction with the association's centennial celebration.

The DBIO asked its 680-plus members to cast their votes for the most influential journals in biology and medicine over the last 100 years. The list features a balanced assortment of journals in clinical medicine and allied health sciences, molecular and cellular biology and natural history.

Certificates will be delivered to the publishers and editors of the top 100 journals during SLA's Centennial Conference in June.

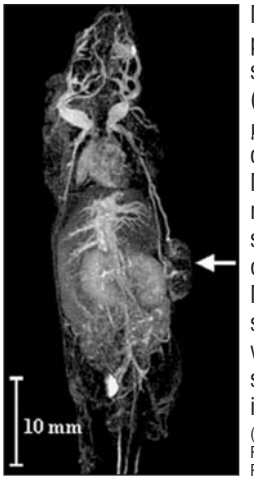
Radiology, founded in 1923, is published by RSNA. For a complete list of SLA's 100 most influential journals over the last 100 years, go to *www.sla.org/centennial.*

Vessel Growth and Function: Depiction with Contrast-enhanced MR Imaging

Continued from Page 19

developments on the visualization of blood vessel growth and function with CE MR imaging. CE MR imaging is suitable for depicting both established and developing vasculature at morphologic, functional and molecular levels, authors conclude.

"The ability to detect these diverse aspects of neovascularization makes CE MR imaging, in theory, attractive to follow the entire time course of neovascularization, from the first onset until the establishment of a functional mature vasculature," they conclude. "It is expected that CE MR imaging will further grow in importance to address advanced scientific and clinical needs concerning vessel growth and to depict vessels at a submillimeter resolution."



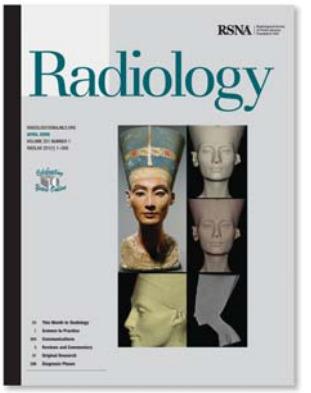
Maximum intensity projection from high-spatial-resolution (166 × 206 × 320 μm) whole-body contrast-enhanced MR angiography of nude mouse with subcutaneous tumor on its flank *(arrow).* Medium-molecular-sized contrast agent was used. Blood vessels can be observed in tumor periphery. (*Radiology* 2009;251:317-335)

Media Coverage of *Radiology*

In March, media outlets carried 208 news stories generated by articles appearing in the print and online editions of *Radiology*. These stories reached an estimated 142 million people.

News releases promoted findings from a study on the stress induced by waiting for breast biopsy results (*Radiology* 2009;250:631-637) and the study by Lazarus et. al. (see opposite page) on imaging utilization in pregnant patients (*Radiology* 2009; 10.1148/radiol.2512080736).

Coverage included *The New York Times, Daily Herald* (Chicago), *Woman's World, RT Image*, Ivanhoe News Wire, United Press International, KCBS-AM (San Francisco), WFLA-TV (Tampa, Fla.), WBAL-TV (Baltimore), KSDK-TV (St. Louis), KGW-TV (Portland, Ore.), WTLV-TV (Jacksonville, Fla.), WCNC-TV (Charlotte, N.C.), WCMH-TV (Columbus, Ohio), KMBC-TV (Kansas City, Mo.) and WWBT-TV (Richmond, Va.), Yahoo! News, WebMD, MSN Health, Discovery Health, Everyday Health, *nytimes.com, cnn.com, forbes.com, usnews.com, washingtonpost.com, modernmedicine.com* and *iVillage.com.*



In late March, a news release was issued about a special report on CT imaging of the famous bust of Nefertiti (*Radiology* 2009;251:233-240). The story received widespread international coverage with 463 media placements reaching an estimated 322 million people. Prominent coverage included Associated Press, *USA Today, The New York Times, The Los Angeles Times, Chicago Tribune, Houston Chronicle, Philadelphia Inquirer, Science*, Yahoo! News, ABC News Online, *MSNBC.com, Newsweek.com, NYTimes.com, Discovery.com* and *nationalgeographic.com.*

New Cases of the Day Available on InteractED®

RSNA Education

Many of the RSNA 2008 Cases of the Day are now available online for *AMA PRA Category 1 Credit*™ as an RSNA member benefit. Included are cases in:

- Cardiac radiology
- Emergency radiology
- Gastrointestinal radiology
- Genitourinary radiology
- Musculoskeletal radiology
- Neuroradiology
- Nuclear medicine
- Obstetrics/gynecology
- Pediatric radiology
- Physics
- Ultrasound
- Vascular/interventional radiology

For more information, go to *RSNA.org/education.*

Working For You

Associated Sciences Consortium

RSNA News continues its series highlighting the work of organizations working with RSNA in the Associated Sciences Consortium.

Association of Educators in Imaging and Radiologic Sciences (AEIRS)

"With so many pressures and challenges competing for educators' attention and resources, we strive to make the Association of Educators in Imaging and Radiologic Sciences (AEIRS) a worthwhile investment," said AEIRS president Mari P. King, Ed.D., RT(R), CDT. "It is our goal to provide professional networking opportunities and education that will enhance their professional development."

AEIRS, founded in 1967 as the Association of University Radiologic Technologists (AURT), has more than 500 members.

Networking with colleagues online and at professional meetings, the *Spectrum* newsletter and the peer-reviewed journal *Radiologic Science and Education* provide AEIRS members access to a strong community, said Dr. King. "Members are encouraged to communicate directly with board members and committee chairs, or through the executive office," she said.

AEIRS is working to provide more online resources for members. "We are also increasing networking and professional development opportunities for educators by partnering with other professional organizations, strengthening our efforts to identify potential educators, and growing new leaders by offering new educators the mentoring opportunities they need," Dr. King said. The organization is also offering opportunities such as research grants, scholarships, special projects and international travel for scholarly presentations, she added.

In March, AEIRS held its first New Educators Workshop in conjunction with the Virginia Society of Radiologic Technologists and North Carolina Society of Radiologic Technologists Student/Educator Seminar in Virginia Beach. AEIRS's second solo annual meeting will be held this summer.

Also this summer, the AEIRS Joint Review Committee on Education in Radiologic Technology will hold a series of seminars in topics including accreditation and outcomes assessment. Also continuing are efforts to reach out to members in tough economic times, with opportunities such as advertising an open position free on the AEIRS online job board and the new "Invest in the Future" fund, which will help technologists who serve as clinical instructors to continue their education in a degree program.

Leadership opportunities through AEIRS ensure that all voices in all modalities are heard, Dr. King said. "Participation in RSNA's Associated Sciences Consortium, recommending appointees to certification boards, officially commenting on proposals by professional regulatory groups, collaborating in the development of curriculum standards, representing educators in the National Institute of Health's Radiology Research Academy—these give AEIRS a strong voice in the profession."

Resident Learning Portfolio Gains Ground

The RSNA/Association of Program Directors in Radiology (APDR) Resident Learning Portfolio now lists 86 registered institutions with more than 2,400 potential users. The portfolio is a free Web-based tool that can be customized with an institution's individual program materials to organize residents' educational progress and credentials.

Since the portfolio was launched in July 2008, approximately 228 administrators—program directors and coordinators—and 2,190 residents have been granted access. RSNA presented the portfolio at the Association of University Radiologists annual meeting this month and met with program directors and coordinators to get feedback.

Just as the current residency year draws to a close, the Resident Learning Portfolio will reach its first full year of use. RSNA is in the process of developing an archiving option for the graduating residents and making registration preparations for the new class of residents that will begin to use the portfolio this July.

Interested residents and program directors/coordinators can e-mail *residents_portfolio@rsna.org* to find out how to get their institution involved.

Program and Grant Announcements

World Congress on Interventional Oncology

June 25–28 • Beijing International Convention Center, China

The World Congress on Interventional Oncology (WCIO) is a scientific and educational forum where international experts from multiple disciplines can advance the future of cancer therapy by exploring the potential combination of minimal invasive strategies with traditional and other new therapeutic procedures.

WCIO welcomes all oncology specialists interested in learning more about collaborating with other specialties in caring for patients using image-guided technology. The congress includes scientific sessions and a technical exhibition.

RSNA is represented on the WCIO planning committee. For more information, go to *www.chinamed.com.cn/wcio2009.*

RSNA Derek Harwood-Nash International Fellowship

Application Deadline—July 1

International radiologists three to 10 years beyond training are invited to apply for this 6- to 12-week fellowship at a North American institution. One or two fellows will be selected.

The application for this program is available at *RSNA.org/international/CIRE/dhnash.cfm.* For more information, contact Fiona Miller at *fmiller@rsna.org* or 1-630-590-7741.

RSNA Clinical Trials Methodology Workshop

January 9–15, 2010 • Hyatt Regency Scottsdale, Arizona • Application Deadline—June 8

Over the course of this 6½-day workshop, each trainee will develop a protocol for a clinical study, ready to include in an application for external funding. Participants will learn how to develop protocols for the clinical evaluation of imaging modalities. A dynamic and experienced faculty will cover topics including:

- Principles of clinical study design
- Statistical methods for imaging studies
- Design and conduct of multi-institutional studies
- Sponsorship and economics of imaging trials
- Regulatory processes

Applicants will undergo a competitive selection process for entrance into the course. Once admitted, trainees will participate in advance preparation, didactic sessions, one-on-one mentoring, small discussion sessions, self-study and individual protocol development. Familiarity with basic concepts and techniques of statistics and study design is required of all applicants.

Applications are available online at *RSNA.org/CT2010.* For more information, contact Fiona Miller at 1-630-590-7741 or *fmiller@rsna.org.*

RSNA/AUR/ARRS Introduction to Academic Radiology Program

Application Deadline—July 15

Sponsored by RSNA, the American Roentgen Ray Society (ARRS) and Association of University Radiologists (AUR), this program introduces second-year residents to academic radiology, demonstrates the importance of research in diagnostic radiology, illustrates the excitement of research careers and introduces residents to successful clinical radiology researchers. Successful applicants will be assigned to either a seminar held during RSNA 2009 or the ARRS annual meeting in 2010.

More information and an application/nomination form are available at *RSNA.org/Research/educational_courses.cfm*

News about RSNA 2009

Member Registration and Housing Now Open

RSNA and AAPM members can register now for RSNA 2009. Non-member registration and housing opens May 27. The Advance Registration and Housing brochure is available online only at *RSNA.org/register.*

Course Enrollment Begins June 30

Course enrollment information will be mailed in late June and will also be available online at *RSNA.org/register.* People registering for RSNA 2009 prior to June 1 who wish to view course enrollment information online only can "opt out" of receiving the copy by mail.

International Visitors

International Letters Available—Act Now for Visa

Personalized letters of invitation to RSNA 2009 are available for request at *RSNA2009.RSNA.org.* Click International Visitors. This section of the annual meeting Web site also includes important information about the visa application process. Visa applicants are advised to apply as soon as they decide to travel to the U.S. and at least three to four months in advance of their travel date. International visitors are advised to begin the visa process now.

Registering for RSNA 2009

There are four ways to register for RSNA 2009:

❶ Internet—Fastest way to register!
Go to *RSNA.org/register*

❷ Fax (24 hours)
1-800-521-6017
1-847-996-5401

❸ Telephone
(Monday–Friday, 8:00 a.m.–5:00 p.m. CT)
1-800-650-7018
1-847-996-5876

❹ Mail
Experient/RSNA 2009
568 Atrium Dr.
Vernon Hills, IL 60061
USA

Registration Fees

BY 11/6	ONSITE	
$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
$150	$250	Non-Member Resident/Trainee
$150	$250	Radiology Support Personnel
$680	$780	Non-Member Radiologist, Physicist or Physician
$680	$780	Hospital or Facility Executive, Commercial Research and Development Personnel, Healthcare Consultant and Industry Personnel
$300	$300	One-day registration to view only the Technical Exhibits

■ For more information about registering for RSNA 2009, visit *RSNA2009.RSNA.org*, e-mail *reginfo@rsna.org* or call 1-800-381-6660 x7862.

Important dates for RSNA 2009

May 27	Non-member registration and housing open
June 30	Course enrollment opens
October 23	International deadline to have full-conference materials mailed in advance
November 6	Final discounted advance registration, housing and course enrollment deadline, to have full-conference materials mailed in advance
Nov. 29 – Dec. 4	RSNA 95th Scientific Assembly and Annual Meeting

Register by Nov. 6 to receive the discounted registration fee and full conference materials mailed to you in advance. International visitors must register by Oct. 23 to receive these materials in advance. Registrations received after Nov. 6 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 Nov. 6.

News about RSNA 2009

Quality Improvement Storyboard Abstracts Due June 15

THE DEADLINE for submitting abstracts describing quality assessment and improvement in radiology for possible display in the Quality Storyboard section of the Lakeside Learning Center at RSNA 2009 is midnight CDT on June 15.

Abstracts should be limited to 500 words and describe quality initiatives undertaken to improve care or services to patient. Abstracts should contain:

- Project title
- Authors' names, titles and institution
- Corresponding author's name and contact information
- Institution where project was conducted
- Problem addressed by the project
- Approach used to solve the problem
- Data collected before and after solving the problem
- Conclusions and follow-up actions

Abstracts will be considered by the RSNA Quality Improvement Committee on the basis of purpose, methods, results and conclusions. Authors of chosen projects must be available to speak in person with meeting attendees about their projects for at least one 30-minute session during the annual meeting. Chosen authors will be notified by July 15.

Storyboards will be similar to scientific posters in format and will be displayed on backboards 2 meters wide by 4 feet high. Additional instructions will be provided to selected authors.

E-mail your abstract as a Word document attachment to *lberesoff@rsna.org* or fax to the attention of Lynn Beresoff at 1-630-571-7837. For more information, contact Fiona Miller at 1-630-590-7741 or at *fmiller@rsna.org*.

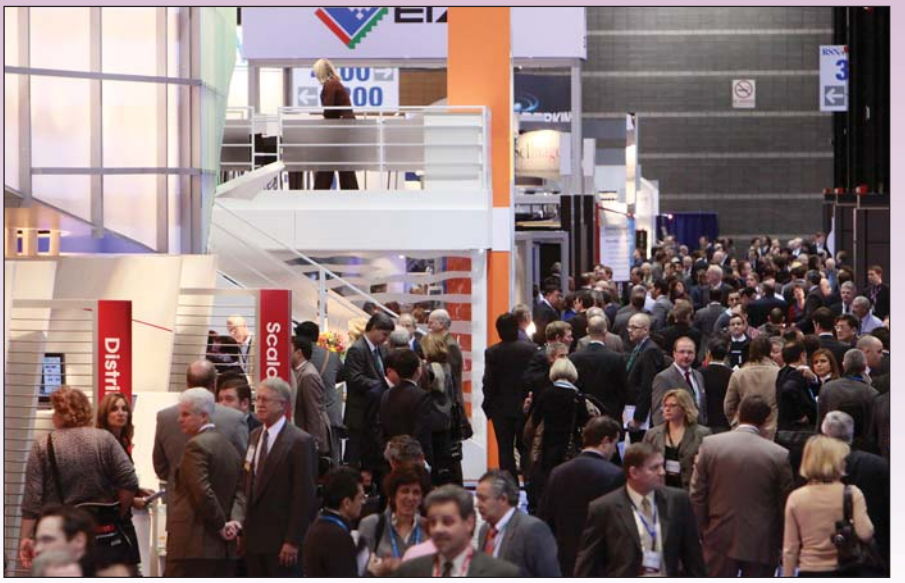
New Plenary Sessions Added to Virtual RSNA 2008

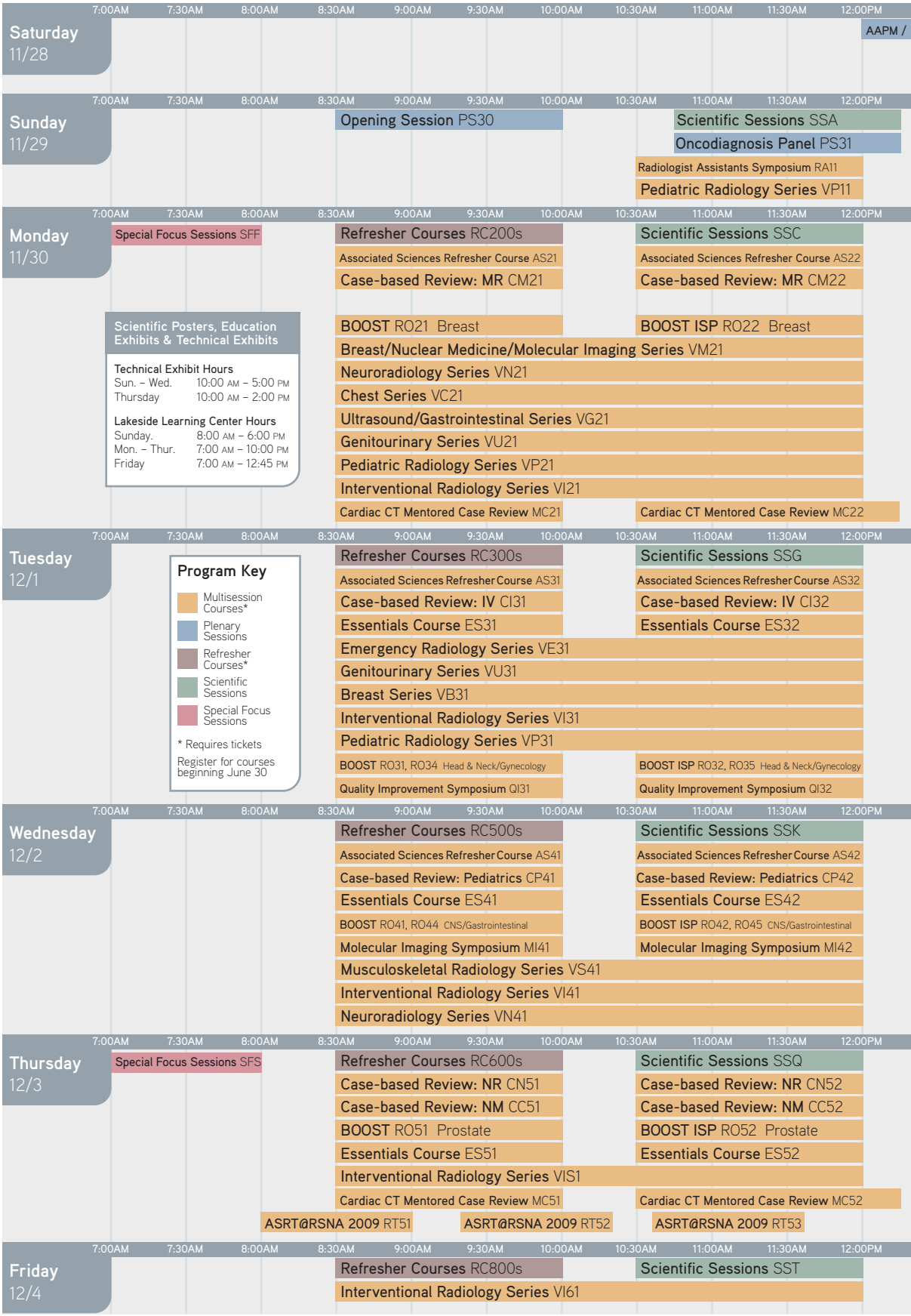
Three new sessions have been added to the virtual annual meeting at *RSNA.org/virtual2008.cfm*, which allows visitors to experience portions of RSNA 2008. Two opening session presentations are available:

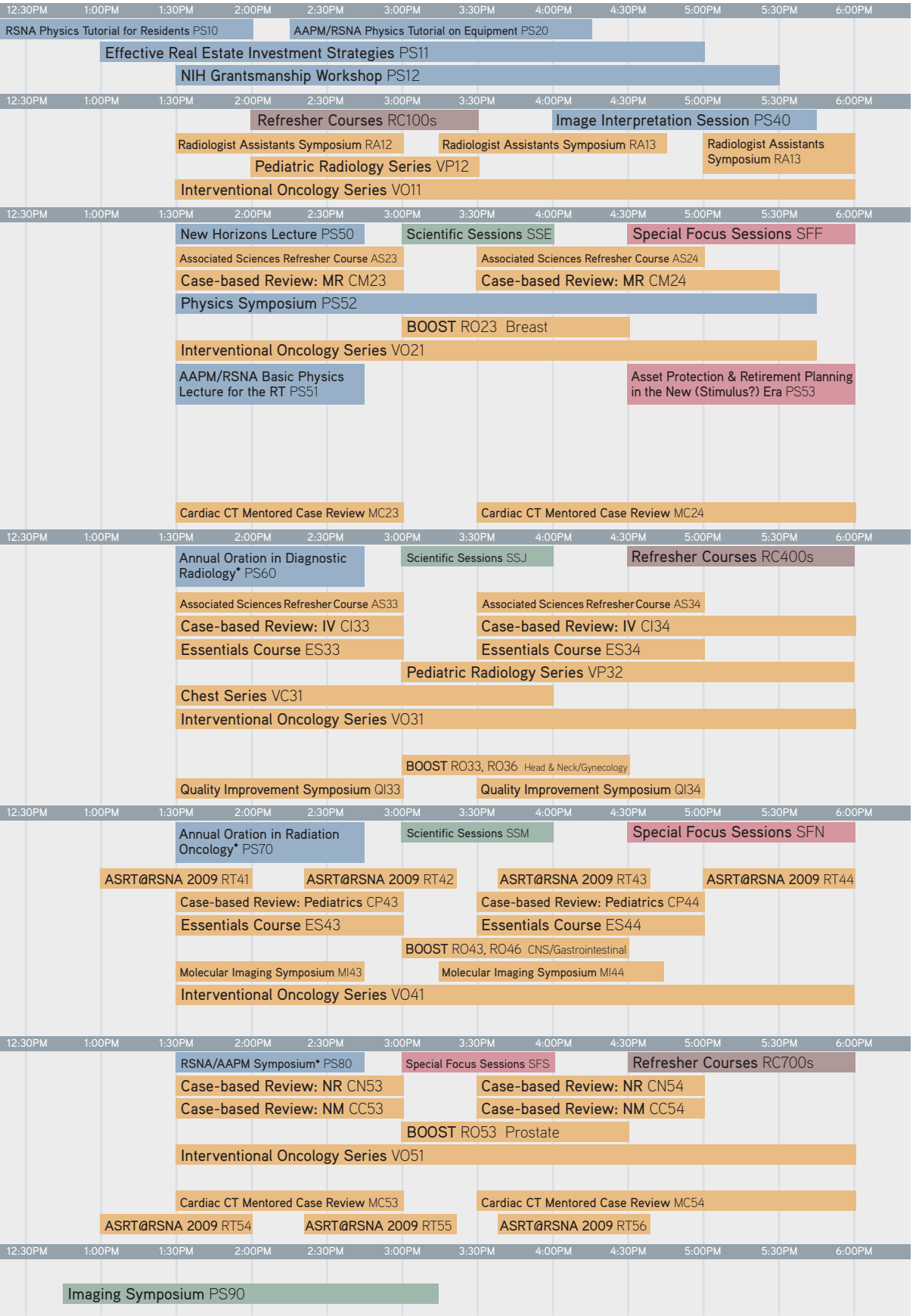
- "Trends in Radiologic Training—National and International Implications" 2008 RSNA President Theresa C. McLoud, M.D.
- "Lifelong Learning in the 21st Century and Beyond" Jannette Collins, M.D., M.Ed.

Also available online is the RSNA 2008 Annual Oration in Radiation Oncology, "Alchemy, Early Detection, Precision Guidance and Radiotherapy," by Minesh P. Mehta, M.D.

Minesh P. Mehta, M.D.




7:00AM 7:30AM 8:00AM 8:30AM 9:00AM 9:30AM 10:00AM 10:30AM 11:00AM 11:30AM 12:00PM
Saturday 11/28
AAPM /
Sunday 11/29
Opening Session PS30
Scientific Sessions SSA
Oncodiagnosis Panel PS31
Radiologist Assistants Symposium RA11
Pediatric Radiology Series VP11
Monday 11/30
Special Focus Sessions SFF
Refresher Courses RC200s
Scientific Sessions SSC
Associated Sciences Refresher Course AS21
Associated Sciences Refresher Course AS22
Case-based Review: MR CM21
Case-based Review: MR CM22
Scientific Posters, Education Exhibits & Technical Exhibits
Technical Exhibit Hours
Sun. – Wed. 10:00 AM – 5:00 PM
Thursday 10:00 AM – 2:00 PM
Lakeside Learning Center Hours
Sunday. 8:00 AM – 6:00 PM
Mon. – Thur. 7:00 AM – 10:00 PM
Friday 7:00 AM – 12:45 PM
BOOST RO21 Breast
BOOST ISP RO22 Breast
Breast/Nuclear Medicine/Molecular Imaging Series VM21
Neuroradiology Series VN21
Chest Series VC21
Ultrasound/Gastrointestinal Series VG21
Genitourinary Series VU21
Pediatric Radiology Series VP21
Interventional Radiology Series VI21
Cardiac CT Mentored Case Review MC21
Cardiac CT Mentored Case Review MC22
Tuesday 12/1
Program Key
Multisession Courses*
Plenary Sessions
Refresher Courses*
Scientific Sessions
Special Focus Sessions
* Requires tickets
Register for courses beginning June 30
Refresher Courses RC300s
Scientific Sessions SSG
Associated Sciences Refresher Course AS31
Associated Sciences Refresher Course AS32
Case-based Review: IV CI31
Case-based Review: IV CI32
Essentials Course ES31
Essentials Course ES32
Emergency Radiology Series VE31
Genitourinary Series VU31
Breast Series VB31
Interventional Radiology Series VI31
Pediatric Radiology Series VP31
BOOST RO31, RO34 Head & Neck/Gynecology
BOOST ISP RO32, RO35 Head & Neck/Gynecology
Quality Improvement Symposium QI31
Quality Improvement Symposium QI32
Wednesday 12/2
Refresher Courses RC500s
Scientific Sessions SSK
Associated Sciences Refresher Course AS41
Associated Sciences Refresher Course AS42
Case-based Review: Pediatrics CP41
Case-based Review: Pediatrics CP42
Essentials Course ES41
Essentials Course ES42
BOOST RO41, RO44 CNS/Gastrointestinal
BOOST ISP RO42, RO45 CNS/Gastrointestinal
Molecular Imaging Symposium MI41
Molecular Imaging Symposium MI42
Musculoskeletal Radiology Series VS41
Interventional Radiology Series VI41
Neuroradiology Series VN41
Thursday 12/3
Special Focus Sessions SFS
Refresher Courses RC600s
Scientific Sessions SSQ
Case-based Review: NR CN51
Case-based Review: NR CN52
Case-based Review: NM CC51
Case-based Review: NM CC52
BOOST RO51 Prostate
BOOST ISP RO52 Prostate
Essentials Course ES51
Essentials Course ES52
Interventional Radiology Series VIS1
Cardiac CT Mentored Case Review MC51
Cardiac CT Mentored Case Review MC52
ASRT@RSNA 2009 RT51
ASRT@RSNA 2009 RT52
ASRT@RSNA 2009 RT53
Friday 12/4
Refresher Courses RC800s
Scientific Sessions SST
Interventional Radiology Series VI61



◆ *Awards to begin at opening of Plenary Session (1:30-1:45)*

Product News

FDA CLEARANCE

Prone Position Breast Radiotherapy Table

ORBITAL THERAPY *(www.orbitaltherapy.com)* announces FDA clearance to market the ClearVue™ prone position breast radiotherapy treatment table. ClearVue is a carbon fiber add-on table that can be used with existing CT simulators and linear accelerators to plan and deliver radiation treatments. Prone position increases the distance between the target and surrounding critical organs and minimizes target motion caused by breathing, resulting in less radiation dose to organs such as the lung and heart and more precise dose to the intended target.

NEW PRODUCT

Wireless Digital Speech Recording

Royal Philips Electronics *(www.philips.com)* has announced the launch of SpeechMike Air, a wireless version of its SpeechMike audio recording device. SpeechMike Air features include a dictation microphone, playback speaker, dictation control with PC navigation. Included software is compatible with Dragon Naturally Speaking® speech recognition software. Streamlined shape and enlarged function buttons keep movement to an absolute minimum. "Push-to-dictate" enables the start and stop functions to be controlled with a single button. The SpeechMike Air system also includes the AirPort computer docking station for recharging and data transfer.

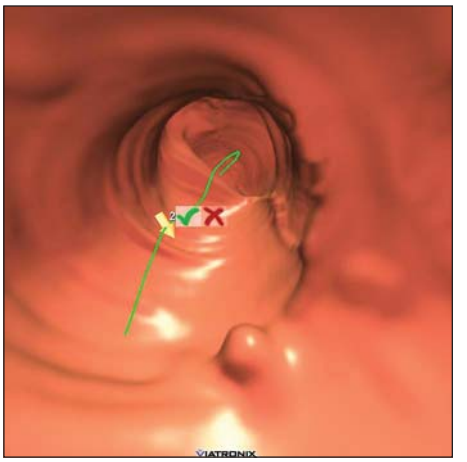
NEW PRODUCT

Data Migration Freeware

Laitek *(www.laitek.com)* has launched its MigrateNow free data migration tool, which enables streamlined migration of data from existing digital storage to a new PACS. Available as a download from the Laitek Web site, MigrateNow performs basic DICOM migration in an application that is easy to install and use. The tool is designed for simple, limited-scale migration needs and enables sites to build batches of images through user-defined queries and migrate them from one DICOM server to another using DICOM C-MOVE operations. The MigrateNow license has no time limitations.

NEW PRODUCT

Colon CAD Software



Medicsight *(www.medicsight.com)* has launched ColonCAD API 4.0, the latest version of its computer-aided detection (CAD) software. The software is designed to assist radiologists in the detection of colorectal polyps in CT colonography image data. Version 4.0 includes a significant increase in the performance of the polyp detection algorithm, reducing the number of false positive CAD marks displayed for each patient case.

RSNA News Information for *Product News* came from the manufacturers. Inclusion in this publication should not be construed as a product endorsement by RSNA. To submit product news, send your information and a non-returnable color photo to *RSNA News*, 820 Jorie Blvd., Oak Brook, IL 60523 or by e-mail to *rsnanews@rsna.org*. Information may be edited for purposes of clarity and space.

RSNA.org

RSNA 2009 Registration

RSNA and AAPM members can register now for RSNA 2009. Non-member registration opens May 27. To register, go to *RSNA.org/register.*

❶ Information from the Profile page will be used to create your name badge and send your materials prior to the meeting.

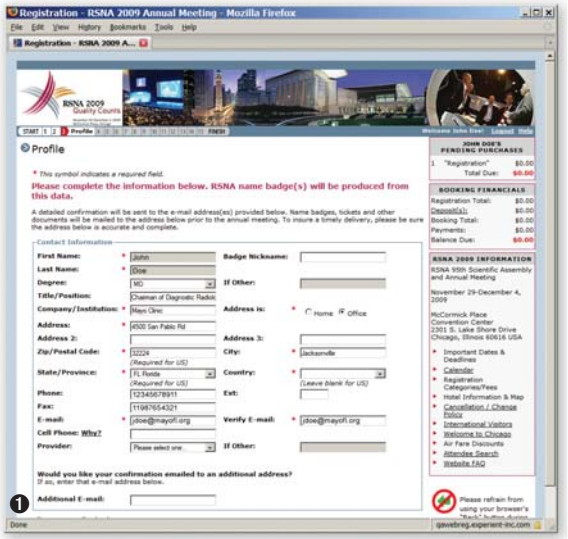
❷ On the Demographic Information page, select various demographics including subspecialty and continuing education certificate needs.

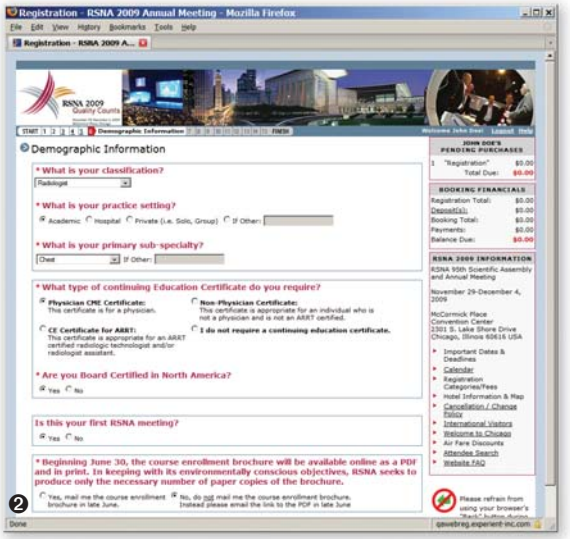
❸ Booking your hotel reservations during registration gives you a choice of more than 70 hotels offering the lowest rates in Chicago and access to RSNA's free shuttle to McCormick Place. Indicate your arrival and departure dates to see a list of hotels meeting your criteria.

❹ On the Payment Information page, enter your credit card information.

A meeting confirmation will appear on the page and a complete e-mail confirmation of your arrangements will be sent to you within 24-48 hours.

Course enrollment for RSNA 2009 and Chicago tours registration begin June 30.





Connections

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CALENDAR

Medical Meetings May – October 2009

MAY 30–JUNE 2
2nd World Congress of Thoracic Imaging and Diagnosis in Chest Disease, Valencia Conference Centre, Spain • *www.geyseco.es/thoracicimaging.htm*

MAY 31–JUNE 2
American Brachytherapy Society (ABS), Annual Meeting Westin Harbour Castle Hotel, Toronto • *www.americanbrachytherapy.org*

JUNE 2–5
Latin American Association of Radiation Oncology Therapy (ALATRO), 2nd Congress, Cancún, México • *www.alatro.org*

JUNE 4–7
Society for Imaging Informatics in Medicine (SIIM), Annual Meeting, Charlotte Convention Center, North Carolina • *www.siim2009.org*

JUNE 7–10
Radiology Business Management Association, Radiology Summit, Loews Royal Pacific Resort, Orlando, Fla. • *rbma.org/conferences/radiology_summit*

JUNE 7–11
International Stereotactic Radiosurgery Society (ISRS), 9th Congress and Exhibition, Sheraton Grande Walkerhill Hotel and Congress Center, Seoul, Korea • *www.isrs2009.org*

JUNE 8–10
U.K. Radiological Congress (UKRC), Manchester Central • *www.ukrc.org.uk*

JUNE 13–17 **VISIT THE RSNA BOOTH**
Society of Nuclear Medicine (SNM), 56th Annual Meeting, Metro Toronto Convention Center • *www.snm.org*

JUNE 23–26
European Society of Gastrointestinal and Abdominal Radiology (ESGAR), 20th Annual Meeting, Palacio de Congresos de Valencia, Spain • *www.esgar.org*

JUNE 25–28
World Congress on Interventional Oncology (WCIO), Beijing International Convention Center • *www.chinamed.com.cn/wcio2009*

JULY 12–16
Society of Radiopharmaceutical Sciences (SRS), 18th International Symposium on Radiopharmaceutical Chemistry, Edmonton, Alberta • *www.srs.snm.org*

JULY 23–25
Latin American Society of Pediatric Radiology/Brazilian College of Radiology, International Symposium on Pediatric Radiology, Rio de Janeiro • *www.pedrad2009.com.br*

JULY 26–30
American Association of Physicists in Medicine (AAPM), 51st Annual Meeting, Anaheim Convention Center, California • *www.aapm.org/meetings/09AM*

JULY 31–AUGUST 2
Royal Australian and New Zealand College of Radiologists (RANZCR), New Zealand Branch, Annual Scientific Meeting, Te Papa, Wellington, New Zealand • *www.ranzcr2009.co.nz*

AUGUST 30–SEPTEMBER 3
World Federation for Ultrasound in Medicine and Biology (WFUMB), 12th World Congress, Sydney Convention and Exhibition Center, Australia • *www.wfumb2009.com*

SEPTEMBER 10–13
European Society of Urogenital Radiology (ESUR), European Symposium on Urogenital Radiology, Royal Olympic Hotel, Athens, Greece • *www.esur2009.gr*

SEPTEMBER 13–17
National Cancer Institute (NCI), Academy of Molecular Imaging (AMI) and the Society for Molecular Imaging (SMI), Imaging in 2020: A Conference on Molecular Imaging, Jackson Lake Lodge, Jackson Hole, Wyo. • *www.Imagingin2020.com*

SEPTEMBER 23–26
Academy of Molecular Imaging (AMI), the Society for Molecular Imaging (SMI), the European Society for Molecular Imaging (ESMI) and the Federation of Asian Societies for Molecular Imaging (FASMI), World Molecular Imaging Congress 2009, Palais des Congress de Montreal, Canada • *www.wmicmeeting.org/dev*

SEPTEMBER 30–OCTOBER 3
American Society of Emergency Radiology (ASER), Annual Meeting, Loews Royal Pacific Resort, Orlando, Fla. • *www.erad.org*

NOVEMBER 29–DECEMBER 4
RSNA 2009, 95th Scientific Assembly and Annual Meeting, McCormick Place, Chicago • *RSNA2009.RSNA.org*