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RSNA News

9.4 T Promises Greater Function, New Purpose for MR

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- Inexpensive Medication May Prevent Contrast-Induced Kidney Damage
- RSNA 2008 Technical Exhibition to Span Three Halls
- RSNA Scholar Unravels Osteoarthritis Mysteries

July 2008

RSNA News

RSNA News
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RSNA News Survey Indicates Loyal Readership

Two out of three RSNA members read *RSNA News* on a regular basis.

A reader survey, conducted between January and March 2008, indicated that 41 percent of respondents read *RSNA News* monthly, while another 26 percent said they "almost always" read *RSNA News.* That compares to 29 percent and 30 percent in 2005.

Feature articles and highlights from RSNA's scholarly journals remain the most frequently read sections of the magazine, along with news about *Radiology* studies featured as press releases and annual meeting news. The percentage of respondents rating the appearance, readability, writing and content quality and article variety as "excellent" or "very good" increased over previous surveys in 2005 and 2001.

The *RSNA News* Editorial Board will use results of the survey to inform future enhancements to the magazine's print and online editions.

RadiologyInfo™ Contest Seeks Submissions

Residents, fellows and physics and medical students are invited to submit images or video clips for placement on *RadiologyInfo.org,* the RSNA-American College of Radiology (ACR) public information Web site. *RadiologyInfo.org* provides information on nearly 100 diagnostic, interventional, nuclear medicine and radiation oncology exams and procedures.

RADIOLOGYINFO.ORG
The radiology information resource for patients
La fuente de información sobre radiología para pacientes

Entrants should first determine the specific page on *RadiologyInfo.org* where the image or video clip belongs. Members of the RSNA-ACR Public Information Web Site Committee will review submissions for acceptance and designate some as "outstanding." All contributors of accepted submissions will be recognized on *RadiologyInfo.org.* Each month, a randomly selected contributor of an "outstanding" submission will receive a $100 Amazon gift card.

For more details and to enter, go to *RadiologyInfo.org/contest_upload.*

RSNA Ranked Among Largest Trade Shows

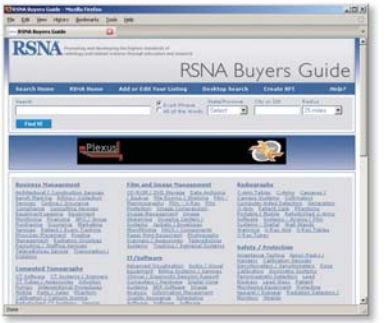
The RSNA annual meeting was ranked the 33rd largest tradeshow of 2007 in a list released by the publication *Tradeshow Week,* up from number 38 in 2006 and the highest-ever ranking for RSNA.

Tradeshows were ranked by net square feet of exhibit space. RSNA boasted 535,300 net square feet (49,749 square meters) at RSNA 2007, an RSNA record. RSNA is the largest healthcare-related meeting on the *Tradeshow Week* list. The second largest healthcare-related meeting is that of the Healthcare Information & Management Systems Society (HIMSS), at 371,300 square feet.

Topping the list was International CES®, the consumer technology tradeshow sponsored by the Consumer Electronics Association, with 1.8 million square feet of exhibit space.

A story about changes to the technical exhibition at RSNA 2008 appears on Page 12.

Online Buyers Guide Now Available



RSNA has launched the RSNA Buyers Guide, an online directory of hundreds of companies providing radiology-related products and services. Access the Buyers Guide via the link on the righthand side of the *RSNA.org* homepage or directly at *www.rsnabuyersguide.com.*

The guide, envisioned as an invaluable resource for RSNA members and others in radiology, is searchable by keyword and searches can be narrowed by state, city and ZIP code.

MEDICAL IMAGING COMPANY NEWS

McKesson Acquires Vivalog

■ Healthcare services and information technology company McKesson Provider Technologies, of Atlanta, has acquired Seattle-based Vivalog. Vivalog is a provider of Web-based solutions, including the *MyPACS.net* medical imaging reference site, that enable radiologists and other physicians to organize and share images and reference case information.

3M to Acquire Imtec

■ 3M, of St. Paul, Minn., has announced it will acquire IMTEC Corp., a manufacturer of dental implants and cone beam CT scanning equipment for dental and medical radiology. Headquartered in Ardmore, Okla., IMTEC employs approximately 230 people at its operations in Ardmore, Los Alamos, N.M., and Boulder, Colo.

NEMA Publishes Standards for Determining SNR in MR

The National Electrical Manufacturers Association (NEMA) has published MS 1-2008, *Determination of Signal-to-Noise Ratio (SNR) in Diagnostic Magnetic Resonance Imaging.* The publication was produced by the MR section of the Medical Imaging and Technology Alliance (MITA), a division of NEMA.

MS 1 is part of a series of test standards developed by the medical diagnostic imaging industry to measure performance parameters governing image quality of MR imaging systems. MS 1 describes four methods to measure image SNR and is intended for use by MR imaging manufacturers, manufacturers of accessory equipment and MR imaging users. MR imaging standards pertaining to SNR and uniformity measurements have been restructured to consider coil geometry.

An electronic copy of NEMA MS 1-2008 may be downloaded at no charge, or a hard copy may be purchased for $45, at *www.nema.org/stds/ms1.cfm.*

FLUOROSCOPY

Question of the Month

Q In the 1950s, radiologists dark adapted to be able to fluoroscope with a simple screen using a dose rate of a few Roentgens per minute. How low can the dose be if I use an image adapter and dark adapt?

[Answer on page 18.]

Status of Structured Radiology Reporting Examined

Representatives from more than 60 radiologic institutions and societies gathered June 17–18 at RSNA headquarters in Oak Brook, Ill., to propose a standard format for structured radiology reports.

"Our goal is to create an online library of best practice report templates," Curtis P. Langlotz, M.D., Ph.D., chair of the Structured Reporting Subcommittee of the RSNA Radiology Informatics Committee, told the group. "They should be based on RadLex® and other standard terminologies and the tools for generating the reports should work with text templates as well as speech recognition.

We should always have a way for radiologists to include their own forms of expression," Dr. Langlotz added.

After discussing issues surrounding structured reporting and studying examples of standard reporting efforts by other medical specialties, attendees then divided into smaller groups to identify the essential elements of a clinical radiology report. Also addressed were the operational needs that structured reporting should meet and technical questions of how templates will store and communicate the information.

A white paper generated at the conclusion of the workshops will guide RSNA's plan to establish a universal approach to structured reporting in radiology.

NCRP Elects New Members

The National Council on Radiation Protection and Measurements (NCRP) elected six new members and reelected 10 others at its annual business meeting in April. The newly elected members are:

Stephen V. Musolino, Ph.D., C.H.P., Brookhaven National Laboratory
Terry C. Pellmar, Ph.D., Uniformed Services University of the Health Sciences
J. Anthony Seibert, Ph.D., University of California, Davis, Medical Center
Robert C. Whitcomb Jr., Ph.D., Centers for Disease Control and Prevention
X. George Xu, Ph.D., Rensselaer Polytechnic Institute
R. Craig Yoder, Ph.D., Landauer, Inc.

There are 100 elected members of NCRP, which formulates and disseminates information and recommendations on radiation protection and measurements that represent the consensus of leading scientific thinking.

SPR Bestows Awards

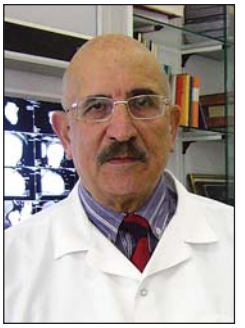
THE Society for Pediatric Radiology (SPR) bestowed several awards at its recent annual meeting.

Barry D. Fletcher, M.D., received the SPR gold medal. Dr. Fletcher served as director of the Division of Pediatric Radiology at Rainbow Babies and Children's Hospital in Cleveland from 1974 to 1987 and retired from St. Jude Children's Research Hospital in Memphis in 1999 after building its Pediatric Oncologic Imaging Department.

Paul S. Babyn, M.D., radiologist-in-chief in the Department of Diagnostic Imaging at the Hospital for Sick Children in Toronto, received the SPR Pioneer award for his contributions in musculoskeletal imaging.

SPR Presidential Recognition Awards went to **Harvey L. Neiman, M.D., Mary K. Martel, Ph.D.,** and **Connie L. Mitchell, M.A., R.T.** Dr. Neiman is executive director of the American College of Radiology. Dr. Martel, chair and immediate past-president of the American Association of Physicists in Medicine, is a professor and deputy chief of Clinical Services in the Department of Radiation Physics at The University of Texas M.D. Anderson Cancer Center. Mitchell is president of the American Society of Radiologic Technologists and radiography program director at the University of Nebraska Medical Center.


Paul S. Babyn, M.D.


Hassan Gharbi, M.D.


Dorothy I. Bulas, M.D.


M. Ines Boechat, M.D.

Hassan Gharbi, M.D., chair of the Department of Radiology at the Children's Hospital in Tunis, Tunisia, for 20 years, was named an SPR honorary member.

The Singleton-Taybi Award, recognizing personal commitment to SPR educational goals, was given to **Dorothy I. Bulas, M.D.** Dr. Bulas, chief of ultrasound at Children's National Medical Center in Washington, chaired the SPR Task Force on Education and the first Education Summit held at SPR 2007.

SPR also named its new president at the annual meeting. **M. Ines Boechat, M.D.,** is a professor and chief of pediatric radiology at the University of California, Los Angeles.

Hricak Appointed to National Academies Board

RSNA Board Chairman **Hedvig Hricak, M.D., Ph.D., Dr. h.c.,** has been appointed to the Nuclear and Radiation Studies Board of the National Academies. Dr. Hricak is the Carroll and Milton Petrie Chair in the Department of Radiology at Memorial Sloan-Kettering Cancer Center in New York.


Hedvig Hricak, M.D., Ph.D., Dr. h.c.

The Nuclear and Radiation Studies Board organizes and oversees studies on safety, security, technical efficacy and other policy and societal issues arising from the application of nuclear and radiation-based technologies. The board addresses such topics as generation, use, remediation and disposition of nuclear materials and radioactive wastes, as well as the risks, benefits and efficacies of nuclear and radiation-based applications, including medical applications.

Fellers to Receive Key Award

RSNA Executive Director **Dave Fellers, C.A.E.,** will receive the Key Award of the American Society of Association Executives (ASAE) and the Center for Association Leadership. RSNA Executive Director since 2001, Fellers previously served as executive director of the American Association of Neurological Surgeons and American Society of Plastic Surgeons.

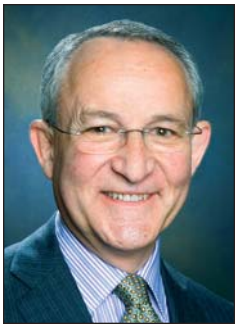

Dave Fellers, C.A.E.

Fellers will receive the award at ASAE's annual meeting in August in San Diego. The Key Award is ASAE's highest honor, recognizing executives who demonstrate exceptional leadership in their own organizations along with exemplary commitment to the association management profession.

Michigan Medical Society Selects Another Radiologist as President

Radiologist **Michael A. Sandler, M.D.,** has been named president of the Michigan State Medical Society.

Dr. Sandler, a senior staff member in the Department of Diagnostic Radiology at Henry Ford Hospital in Detroit, succeeds radiologist AppoRao Mukkamala, M.D., as president. Dr. Sandler serves on the board of directors of the Michigan Radiological Society and previously served as its president.



Jay R. Harris, M.D.

Harris Receives ASCO Breast Cancer Award

The American Society of Clinical Oncology (ASCO) has awarded **Jay R. Harris, M.D.,** its Gianni Bonadonna Breast Cancer Award recognizing a distinguished record of accomplishments in advancing the field of breast cancer treatment.

Dr. Harris is a professor and chair of the Department of Radiation Oncology at the Dana-Farber Cancer Institute and Brigham and Women's Hospital at Harvard Medical School in Boston. He also serves as residency program director for the Harvard radiation oncology program. He has focused his research on the use of radiation therapy in the multidisciplinary management of breast cancer.

Dixon is New Master of Peterhouse

The Fellows of Peterhouse have announced the election of radiologist **Adrian K. Dixon, M.D., F.R.C.R., F.R.C.P., F.R.C.S., F.Med.Sci.,** as the 51st known Master of Peterhouse.

Peterhouse is a college of the University of Cambridge. Succeeding Lord Wilson of Tillyorn as master, Dr. Dixon is the second medical master in the college's 700-year history and the first since 1500.

Dr. Dixon is a professor of radiology at Cambridge and an honorary consultant radiologist at Addenbrooke's Hospital. He was appointed editor-in-chief of *European Radiology* last year.

Adrian K. Dixon, M.D., F.R.C.R., F.R.C.P., F.R.C.S., F.Med.Sci.

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

Supporting Our Residents: Obligation and Privilege

Silvia D. Chang, M.D., F.R.C.P.C.

WHEN WE think about the future of radiology, technological advances naturally come to mind. However, the real future of any profession lies in its people—in our case, the future is our residents.

Training residents is a perk of academic life and also a large responsibility involving time and effort. Most radiologists use a Socratic method of teaching in the reading room, to focus trainees with questions and answers. However, this is just a small part of helping develop our future colleagues—radiology now encompasses both diagnostic and interventional procedures, which continue to expand with advances in technology.

My Turn
ONE RADIOLOGIST'S VIEW

As radiology has grown in scope, so too has our job as teachers and mentors. We are now responsible for developing future leaders and superspecialists. Just as "it takes a village to raise a child," the task of nurturing residents falls not only on academic centers but also on the radiology community as a whole. Mentorship extends beyond residents to fellows and junior colleagues. As a community, we must guide our upcoming colleagues and instill a sense of professionalism while maintaining the focus on patient care, which is why we all became physicians in the first place.

RSNA has long proven its dedication to radiology's future, launching on July 1 the new Resident Learning Portfolio (see article in the June 2008 issue of *RSNA News*). RSNA 2008 continues the tradition of activities aimed at helping residents, with such course offerings as "Sustaining a Radiology Residency Program: The Roles of the Chair, Program Director and Resident" and the RSNA/AUR/ARRS Introduction to Academic Radiology Program. As always, the Residents Lounge and Residents Reception offer residents a place to network during the annual meeting.

While technology holds promise for our future, the true promise lies in the hands that will hold the technology—our residents.

Silvia D. Chang, M.D., F.R.C.P.C., is an assistant professor in the Department of Radiology at the University of British Columbia and head of abdominal MR imaging at Vancouver Hospital and Health Sciences Centre in Vancouver, British Columbia. Dr. Chang serves on the RSNA News *Editorial Board and the RSNA Education Exhibits Committee.*

RSNA career connection

RSNA.org/Career

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Employers

Career Connection will help you find the ideal candidate for your open positions

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Career Connection

RSNA.org/Career

9.4 T Promises Greater Function, New Purpose for MR

A NEW 9.4 T MR imaging unit at the University of Illinois at Chicago (UIC)—the most powerful in the world for human use—has the power to go beyond imaging of hydrogen to imaging a palette of elements such as carbon, sodium, phosphorous, oxygen and nitrogen.

The power to image those elements shifts the function of MR from anatomic to metabolic and its purpose from repair to prevention, said Keith Thulborn, M.D., Ph.D., director of the Center for MR Research at UIC.

UIC hired Dr. Thulborn—responsible for establishing the first 3.0 T clinical MR imager at the University of Pittsburgh in 1993—as it ushered in the 21st century with a goal to make UIC a center of excellence in human imaging. Eight years later, that decision has borne powerful imaging fruit, as safety trials were recently completed on the 9.4 T scanner.

Dr. Thulborn, a professor of radiology, physiology and biophysics, said his goal was not to simply increase the strength of the MR imager but to fundamentally change how it is used.

"The concept wasn't just to do what we can do at 3.0 T," said Dr. Thulborn. Rather than work with imaging of the hydrogen nucleus, as in most clinical uses, Dr. Thulborn envisioned the utility possible with the wider range of elements.

A new 9.4 T MR unit at the University of Illinois at Chicago (UIC) has the power to image a wide range of elements, shifting the function of MR from anatomical to metabolic and its purpose from repair to prevention, said Keith Thulborn, M.D., Ph.D. *(left),* director of the Center for MR Research at UIC. At right is Ian Atkinson, Ph.D., manager of the 9.4 T unit.

"We want to look at the development and expression of genes and the function of the cellular machinery they control," Dr. Thulborn said. "We want to look at the machinery of the cells and tissue, rather than just the anatomy, and to move in a completely new biochemistry dimension of medically relevant information."

> *The goal is to create a metabolic toolbox that should allow us to look at the cellular machinery very early in a disease and be able to monitor interventions early in the disease process.*
>
> **Keith Thulborn, M.D., Ph.D.**

"Metabolic Toolbox" Imagined

Metabolic imaging, now within reach using a powerful MR unit like the 9.4 T, is the key to predicting disease and preventing "catastrophic changes," thus potentially cutting healthcare costs, said Dr. Thulborn.

Dr. Thulborn said he believes MR imagers can image sodium as a measure of tissue viability, making it an invaluable tool when assessing, for example, the effectiveness of treatment to reduce the size or extent of brain tumors. Likewise, he said he sees the 9.4 T unit as effective for imaging oxygen-17 for measuring oxygen consumption in cells—his team's "next big target." The UIC researchers also hope to test the imaging of carbon-13 to monitor glucose metabolism in the brain and phosphorus metabolism in cells' central bioenergetic pathways.

"The goal is to create a metabolic toolbox that should allow us to look at the cellular machinery very early in a disease and be able to monitor interventions early in the disease process," said Dr. Thulborn.

3.0 T magnets are common in clinical use, with the number of 7.0 T magnets increasing across the country and the world. Currently, FDA safety limits for human MR are at 8.0 T. Dr. Thulborn's team is working through FDA safety trials in order to use the 9.4 T for its intended purpose.

The first of those safety trials has been led by Ian Atkinson, Ph.D., an assistant professor in the UIC Center for MR Research and manager of the 9.4 T unit. The safety trial conducted in the summer of 2007 involved 25 healthy volunteers, using sodium imaging and taking cognitive and vital sign readings before and after the subjects' exposure to the 9.4 T field. Subjects reported no significant side effects, other than mild discomforts such as a metallic taste in the mouth and spinning sensations, said Dr. Atkinson. He noted that these sensations are well-known and common at clinical field strengths.

The team is now proceeding with more trials for the imaging of oxygen in healthy volunteers as well as further testing of sodium imaging in hospitalized patients.

A summer 2007 safety trial on the 9.4 T MR unit at the University of Illinois at Chicago involved imaging sodium in 25 healthy volunteers and taking cognitive and vital sign readings before and after the subjects' exposure to the 9.4 T field. Subjects reported no significant side effects other than the mild discomforts, such as a metallic taste in the mouth and spinning sensations, commonly reported at clinical field strengths. More trials are under way to image oxygen in healthy volunteers as well as further testing of sodium imaging in hospitalized patients.

9.4 T Innovations Can Improve 3.0 T, 7.0 T

In addition to the obvious increase in power, the 9.4 T unit also increases acquisition speed, said Dr. Atkinson. "3.0 T takes roughly eight minutes to get an image," he said. "We can get a higher quality image in the 9.4 T unit in four minutes."

The UIC program is in year eight of its 10-year plan and Dr. Thulborn is pleased with the progress. "We are making sure these tools are appropriate for early investigation of disease," he said. "Then, after these 10 years, we'll be establishing the sensitivity of each tool in the toolbox for each of the diseases we're interested in." Those areas of interest, said Dr. Thulborn, include dementias and neurodegenerative and psychiatric diseases. "We want to basically cover the gamut of neurology and psychiatry," he said.

At this stage the 9.4 T MR unit is obviously a singular and unique research tool, but the data taken from the powerful MR unit will hopefully translate downward to 7.0 and 3.0 T units, said Dr. Thulborn.

"Many of the things that we've learned at 9.4 T imaging have improved the quality of imaging at 3.0 T," he said. "We're looking at how we can transfer technology down from 9.4 T to the 3.0 T platform."

Dr. Thulborn said he also believes that potential use of the team's "metabolic toolbox" with 7.0 T platforms could further enhance the use of those platforms in the near future. "We'll take our toolbox to the 3.0 T, but I think over the course of the next five years, the 3.0 T market will move to 7.0 T," he said.

With the shift from 3.0 T to 7.0 T, said Dr. Thulborn, "hopefully we'll start to see early interventions being made based on metabolic parameters, not just anatomic parameters."

Learn More

■ For more information about the Center for MR Research at the University of Illinois at Chicago, go to *www.cmrr.uic.edu/.*

Fluorine-18 Substitute Identified for PET Machine Calibration

As the number of positron emission tomography (PET) procedures continues to increase, so too does the need for more precise calibration of PET machines, enabling accurate and comparable measurements from center to center, patient to patient and in the same patient over time.

Surveys by both private and public sector groups estimate growth in the number of PET procedures at about 20 percent annually—some 650,000 procedures were performed in 2003, with 2.1 million predicted for 2010.

The very short half-life—just two hours—of fluorine-18 makes it ideal for use in patients undergoing PET procedures but impossible to use to calibrate machines, as precisely measured sources made by a single central lab would decay in the time it took to distribute them to distant imaging centers.

Enter germanium-68, a radioisotope with similar energy decay characteristics to fluorine-18, but a 271-day half-life. The National Institute of Standards and Technology (NIST) recently standardized germanium-68 as a calibration substitute in order to develop a functional measurement standard for fluorine-18.

Growth in the number of positron emission tomography (PET) procedures—estimated at 20 percent annually—has prompted the need for more precise calibration of PET machines. The National Institute of Standards and Technology (NIST) recently standardized germanium-68 as a calibration substitute in order to develop a functional measurement standard for fluorine-18.

"Measurement standards are very helpful to quality control, which is critical to quantitative scanning," said Steven M. Larson, M.D., chief of nuclear medicine service and vice-chair of research in the Department of Radiology at Memorial Sloan-Kettering Cancer Center in New York. "We need to set standards that do not vary day by day and week by week. Germanium-68 is perfect for that purpose. We are able to use it for a long period of time and be assured that the scanning is going to be the same from one week to the next."

> *This makes it possible to calibrate all instruments in the clinics against a common standard.*
>
> **Brian E. Zimmerman, Ph.D.**

All Instruments Calibrated Against Common Standard

"Germanium-68 can never be used for patients studies because the half-life is too long, but it can be used to calibrate instruments as long as we know the correction factors necessary to make a comparison measurement between fluorine-18 and germanium-68," said Brian E. Zimmerman, Ph.D., research chemist and project leader for nuclear medicine standards at NIST. "This makes it possible to calibrate all instruments in the clinics against a common standard."

Cobalt-57, used in lieu of technetium-99m, is an example of another calibration surrogate used in radiology.

In 2007, NIST produced a national radioactivity standard for germanium-68 with an uncertainty of 0.3 percent. "This will be the first time that a calibrated source of germanium-68 will be available that can be directly traced back to an original NIST measurement," said Dr. Zimmerman.

RadQual, LLC, of Concord, N.H., has developed and patented a calibration source based on the NIST germanium-68 standard, a dose calibrator designed to mimic a 5 ml syringe filled with 3 ml of fluorine-18. RadQual established traceability to NIST to verify that its sources are related to a single

standard correlating to the national standard of germanium-68. RadQual expects to start accepting orders for delivery of these sources in September.

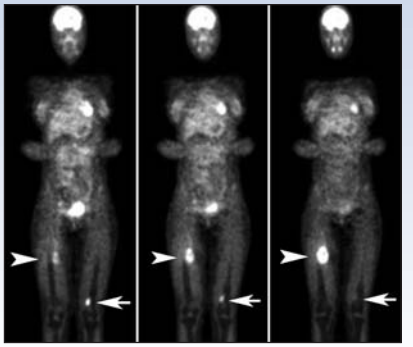
PET Phantom is Next Step

NIST is now working to develop a germanium-68 PET phantom, to be used not only for dosimetry but also for constancy checks and characterization of scanners used in clinical trials.

"I think that the capability of having a long-lived standard, or substitute standard, for fluorine-18 will provide more consistent data throughout clinical trials and through the course of patient treatment," said Dr. Zimmerman. "Calibrating sources for use in phantoms could give the FDA more confidence in the data from sites participating in clinical trials of a new drug and using imaging data as a benchmark for treatment performance."

NIST also plans to develop calibrated sources into a form that can be used for combined PET/CT scans, with even more ambitious plans to do the same for combined PET/MR.

"There is much more work to do," said Dr. Zimmerman. "We are still detailing the exact differences between measurements of fluorine-18 and germanium-68. We have a new set of experiments planned for this summer."



Whole-body FDG PET scans.
Posterior *(left)* to anterior *(right)* adjacent selected coronal images are displayed. Abnormal FDG-avid lesions include primary rhabomyosarcoma in the right thigh *(arrowheads; maximum SUV, 7.4)* and a smaller lesion in the distal left medial femoral diaphysis *(arrows; maximum SUV, 3.1)*.

The quantitative nature of instrumentation is very important to the future of molecular imaging research, said Dr. Larson, who also serves as a member of the *RSNA News* Editorial Board.

"I think germanium-68 is a very valuable radiotracer that will be useful in the future for many different radiopharmaceuticals, which can be used without the need to involve a cyclotron in the production process," he said. "The continuing production and availability of germanium-68 in significant quantity is something we hope will be assured, since it must be made in a very large cyclotron found only at the national laboratories."

PET at RSNA 2008

"PET/CT: Who Should Read It?" is an RSNA 2008 special focus session to be moderated by Milton J. Guiberteau, M.D., and Michael P. Federle, M.D. The session will address:

- Currently accepted indications for performance of a combined PET/CT scan
- The rationale for differences in protocols regarding use of oral and IV contrast agents
- Training and credentialing issues related to interpretation of a PET/CT scan.
- Departmental workflow logistics impacted by various scenarios for performance and interpretation of PET/CT studies
- Differences in training and experience required for PET/CT interpretation when a diagnostic CT component is employed

RSNA2008
Personal Learning in the Global Community

More information about RSNA 2008 is available at *RSNA2008.RSNA.org*.

Radioisotope Shortage Spurs Need for New Sources

Experts say the recent decision by Atomic Energy of Canada (AECL) to discontinue development of two reactors at Chalk River Laboratories in Ontario is just the latest incident in a spiraling medical isotope shortage.

"There may be serious supply problems, since the reactors that are now making radioisotopes are each more than 40 years old and could face unexpected long-term shutdowns," said Steven M. Larson, M.D., chief of nuclear medicine service and vice-chair of research in the Department of Radiology at Memorial Sloan-Kettering Cancer Center in New York.

The Maple reactors at Chalk River were promoted as the world's first dedicated solely to medical isotope production and promised an ample supply of molybdenum-99, iodine-131, iodine-125 and xenon-133. AECL will continue production through its National Research Universal reactor, which was shutdown for several weeks last fall due to safety concerns but is now back online.

A National Academies committee last year declared nuclear medicine in jeopardy and implicated aging facilities as a primary reason. The Committee on the State of the Science of Nuclear Medicine, led by RSNA Board Chairman Hedvig Hricak, M.D., Ph.D., Dr. h.c., recommended constructing a new, dedicated accelerator and upgrading an existing research nuclear reactor.

Most medical isotopes used in the U.S. come from Canada and Belgium, said Dr. Larson, meaning any shutdown can cause a shortage within days. Medical isotope suppliers such as radiopharmacy networks—which now supply about 90 percent of nuclear medicine products—cooperate to manage supply interruptions of a few days, however longer down times put patient procedures at risk for cancellation.

A variety of U.S.-based sources propose to fill the void in the short and long term. The Advanced Medical Isotope Corporation (AMIC) recently brought its accelerator in Kennewick, Wash., online, devoting it only to isotope production for positron emission tomography (PET) procedures, while University of Missouri Research Reactor officials are studying the feasibility of a facility that would meet at least half the U.S. need for molybdenum-99.

Researchers at Michigan State University's National Superconducting Cyclotron Laboratory (NSCL) are promoting "designer isotopes" built for specific research, and the U.S. Department of Energy expects to put its Facility for Rare Isotope Beams (FRIB) online in the next decade. FRIB is envisioned as the first to combine the production techniques of isotope separation on line and fragmentation, with intense isotope beams providing access to the rarest isotopes.

Inexpensive Medication May Prevent Contrast-Induced Kidney Damage

PATIENTS at risk for kidney damage from CT scanning may be able to avoid complications by taking a relatively inexpensive and available drug the day before the test.

A study from the University of Michigan Health System, published in the Feb. 19, 2008, issue of the *Annals of Internal Medicine*, reviewed data from 41 randomized and controlled studies that looked at a number of drugs that could potentially prevent contrast-induced nephropathy (CIN).

Mild to moderate kidney damage occurs in one in four high-risk patients and in one in 10 patients with normal kidneys who undergo CT scanning, said senior author Ruth C. Carlos, M.D., M.S. In particular, a number of articles in the literature detail how iodine-based contrast agents put some people at risk for renal damage. Dr. Carlos and colleagues looked at articles on ways to reduce the threat, specifically analyzing published reports on agents used to prevent CIN.

"We as radiologists have a responsibility to improve the quality and safety of the exams we conduct," said Dr. Carlos, an associate professor of radiology. Dr. Carlos also chairs the Health Services Policy & Research Subcommittee of the RSNA Scientific Program Committee.

We as radiologists have a responsibility to improve the quality and safety of the exams we conduct.

Ruth C. Carlos, M.D., M.S.

N-acetylcysteine Significantly Cuts Damage Risk

Comparing N-acetylcysteine, theophylline, fenoldopam, dopamine, iloprost, statins, furosemide and mannitol, the researchers concluded, "N-acetylcysteine significantly decreased the risk for contrast-induced nephropathy compared with saline alone." An inexpensive drug commonly stocked by pharmacies, N-acetylcysteine is used to help clear mucus from the lungs of cystic fibrosis patients and help treat overdoses of acetaminophen.

While a lack of studies on some agents made it difficult to fully understand their true effects, Dr. Carlos said there was a great deal of information available on the use of N-acetylcysteine.

Not everyone who receives a CT scan needs to receive N-acetylcysteine, she said. "Physicians who refer patients for iodine-based contrast exams should consider this medication for the elderly and for those with tenuous renal function," she said.

The study suggests people with diabetes or heart failure are at greatest risk for problems with contrast agents and could gain the most by taking the kidney-protecting drug.

Primary Physician Must Be Involved

While N-acetylcysteine is inexpensive and relatively risk free, the patient's primary physician must be responsible for prescribing it, said Michael Bettmann, M.D. "For radiologists, it's tough to give N-acetylcysteine orally since we don't get to see the patient until the day of the procedure—we don't have contact with the patient 24 hours ahead of time," said Dr. Bettmann, who was not involved with the study.

Ruth C. Carlos, M.D., M.S.
University of Michigan

Dr. Bettmann, a professor and vice-chair for interventional services in the Department of Radiology at Wake Forest University Baptist Medical Center in Winston-Salem, N.C., is among the instructors of an RSNA 2008 refresher course addressing CIN (see sidebar). He said intravenous N-acetylcysteine could potentially be given a half-hour before the procedure. University of Michigan researchers did not look at intravenous N-acetylcysteine in this study, only the pill form.

Radiologists need to raise awareness of CIN by educating their colleagues in radiology, other clinical colleagues and patients about the problem and the potential solution, said Dr. Carlos. She recommended that hospitals institute a policy of administering N-acetylcysteine prior to CT scans for those patients with high creatinine levels, a sign of potential kidney problems. Patients who

aren't sure if they have kidney problems should ask their physicians to order a blood test to check their creatinine levels before getting a scan, she said.

Radiologists also need to work with physicians beforehand, just as they would if a patient was allergic to a medication, Dr. Carlos added. "We need to do this because a patient will follow up with his or her regular physician, not the radiologist who conducted the exam," she said. "This is an important way we as radiologists can reintegrate ourselves into patient care."

Further Study Must Examine Risk from Intravenous Contrast

Dr. Bettmann praised the University of Michigan study as important but noted the many variables in dealing with CIN research. Most studies of CIN involve intracardiac or other intra-arterial administration of contrast, he said, with essentially all N-acetylcysteine studies looking at reduction of risk among those patients.

"Many people question whether the risk of CIN is actually the same when contrast is given intravenously, as for CT, and I don't think the meta-analysis really is able to address that risk specifically," said Dr. Bettmann. "Although it is pretty clear that N-acetylcysteine helps for intracardiac/intra-arterial contrast, it remains to be proven both that there is a comparable risk of CIN with intravenous contrast and that N-acetylcysteine helps in that group.

"This is crucial for radiologists, since most of the contrast we give is intravenous," Dr. Bettmann continued. "We assume that the risk is the same and the benefit of N-acetylcysteine is the same, and they probably are, but as yet we have no proof."

Learn More

■ The full text of the study, "Meta-analysis: Effectiveness of Drugs for Preventing Contrast-Induced Nephropathy," published in the *Annals of Internal Medicine*, is available at *www.annals.org/cgi/content/full/148/4/284.*

CIN and NSF at RSNA 2008

An RSNA 2008 refresher course, "Contrast Material and the Kidneys: Issues and Controversies Concerning Contrast-induced Nephropathy (CIN) and Nephrogenic Systemic Fibrosis (NSF)," will cover:

- Pathophysiology, incidence and natural history of CIN
- Methods for, and the efficacy of, prophylaxis for CIN
- Limitations in the current understanding of CIN
- Current understanding of and limitations of knowledge about NSF, particularly its incidence, etiology, risk factors and prevention
- Practical guidance on how to deal with patients at risk for CIN and NSF

RSNA2008 Personal Learning in the Global Community

Enrollment is under way for this and all RSNA 2008 courses at *RSNA2008.RSNA.org.*

NSF Incidence Declining as Studies Continue

While the number of new cases of nephrogenic systemic fibrosis (NSF) has dropped precipitously over the last year, experts say there is still significant misunderstanding about the disease and ways to prevent it.

"We have learned a lot about who is actually at risk for the disease," said Jeffrey C. Weinreb, M.D., a professor of diagnostic radiology and chief of the body imaging section at the Yale University School of Medicine in New Haven, Conn. Dr. Weinreb addressed the 2nd Annual Scientific Symposium on Nephrogenic Systemic Fibrosis and Gadolinium-Containing Contrast Agents, held at Yale in early May.

NSF is a progressive and debilitating condition affecting the skin, muscles and vital organs. It has only occurred in patients with acute kidney injury, stage IV or V chronic kidney disease or patients who are on dialysis and who received very high doses of gadolinium or repeated doses over a relatively short period of time, said Dr. Weinreb. The approximately 320 well-documented, biopsy-proven NSF cases may be an underestimation of the disease's true incidence, he said.

"The number of cases is going down, but are there cases not being reported?" Dr. Weinreb asked. "Are there cases not being diagnosed?"

Part of the decline in reported cases can be attributed to better patient screening by providers, he said. Some physicians screen patients verbally, looking for chronic kidney disease risk factors such as diabetes and hypertension. Others, including Dr. Weinreb and his Yale colleagues, measure a patient's estimated glomerular filtration rate to determine his or her level of renal function.

"There are a wide range of policies and pre-test procedures for prevention," said Dr. Weinreb, pointing to various protocols set by academic medical centers and recommendations issued by organizations such as the American College of Radiology (ACR) and U.S. Food and Drug Administration (FDA). He said he hopes some of the confusion can be cleared up when an ACR/National Kidney Foundation group he helped organize issues its recommendations later this year.

Dr. Weinreb said that while there was "indiscriminate" use of gadolinium-containing agents prior to the discovery of their association with NSF, the pendulum has now swung the other way—in some cases, unrealistic concern about who is at risk has led to patients being unnecessarily denied contrast-enhanced MR.

Basic and clinical research studies into NSF continue, looking in particular at co-factors for the disease. "It's not just bad kidneys causing this disease," said Dr. Weinreb. An FDA-mandated phase IV clinical trial with prospective data registries, just getting under way, will provide data from 1,000 patients for each gadolinium-containing agent used in the U.S.

"If there is a silver lining to the cloud, I think it's that we've all learned to be more careful about using contrast and keeping better records," said Dr. Weinreb. "And a lot of research in a short period of time is proving scientifically useful."

RSNA 2008 Technical Exhibition to Span Three Halls

A NEW LAYOUT and more dining options for the Technical Exhibition at RSNA 2008 is intended to help attendees see more in less time.

Three exhibit halls—Hall A in the South Building, Hall B in the North Building and Hall D in the Lakeside Center—will now house the Technical Exhibition. The education exhibit and scientific poster area, called the Lakeside Learning Center, will move down a level to Hall E, across from the main entrance to the Arie Crown Theater.

The new configuration provides access to technical exhibits in any of the three buildings and is intended to reduce the need to trek long distances across McCormick Place, said Jonathan Alexander, M.D., chair of the RSNA Technical Exhibits Committee.

"We're looking to create a uniform experience in each of the exhibit halls," said Dr. Alexander. "The largest exhibitors will be distributed among the three halls, along with a mix of smaller and mid-size exhibitors. Attendees can choose the hall nearest their educational activities and see a balanced selection of products and equipment.

We're looking to create a uniform experience in each of the exhibit halls.
Jonathan Alexander, M.D.

"The layout will also give exhibitors and attendees more—and more accessible—space," Dr. Alexander continued. "The aisles will be wider and more navigable to accommodate the increasing complexity of the displays."

Jonathan Alexander, M.D.
Chair, RSNA Technical Exhibits Committee

RSNA Bistro Offers Improved Dining Experience

Dr. Alexander said attendees should find mealtimes more pleasant as well, with more floor space in each of the exhibit areas and Lakeside Learning Center reserved for food vendors and seating. The new dining option, known

Hands-on Workshops, Informatics Classrooms Relocated

Some annual meeting content previously located in the Lakeside Learning Center will move to new locations at RSNA 2008.

Hands-on Workshops—Hall A

Hands-on computer workshops, offering attendees the chance to learn from experts about using computers in the field of radiology, will be presented this year in Hall A, South Building. Presented by commercial vendors on their respective proprietary systems, sessions cover such topics as:

- Radiology information systems (RIS)
- Picture archiving and communication systems (PACS)
- New techniques used in computer-aided diagnosis (CAD)

Hours are 10 a.m. – 6 p.m., Sunday, November 30 – Wednesday, December 3, and 10 a.m. – 2 p.m., Thursday, December 4.

Advance online registration is required for Hands-on workshops. Please note that *AMA PRA Category 1 Credit™* is not available for these workshops. For the latest schedule and registration information, go to *RSNA2008.RSNA.org.*

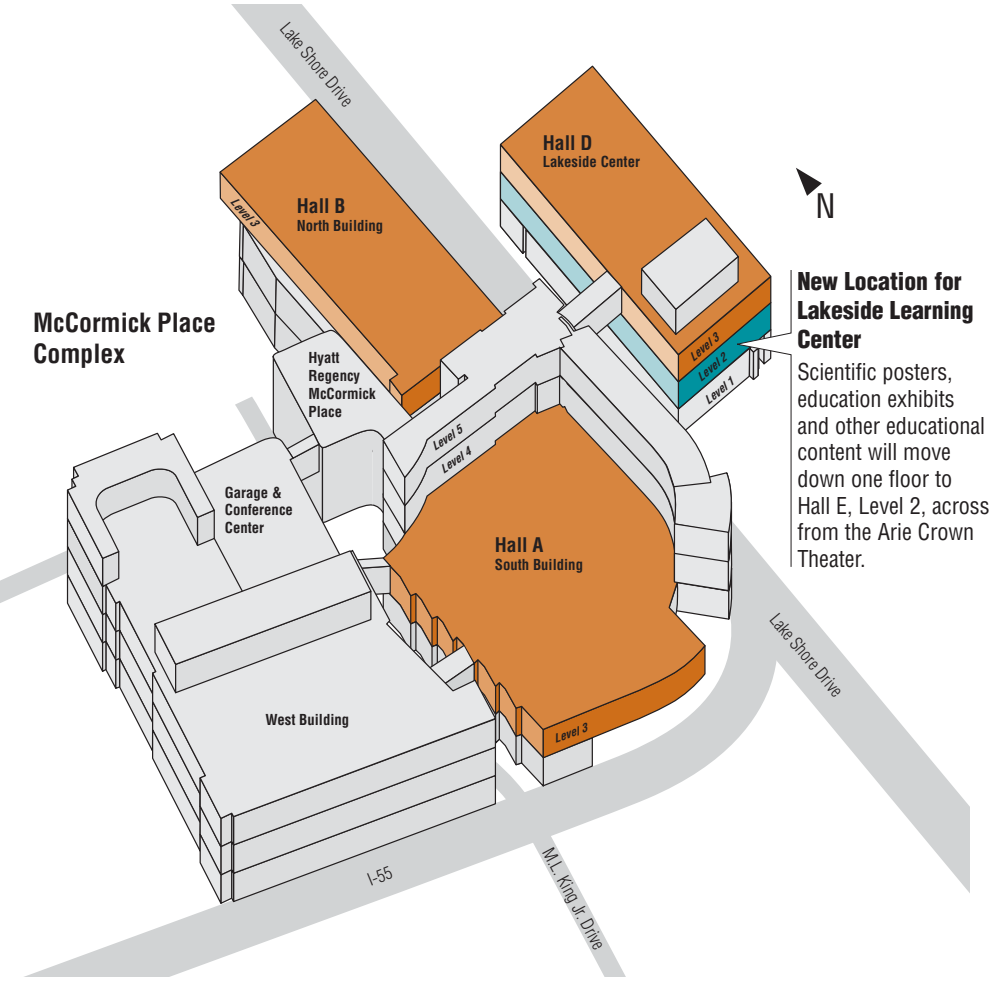
Informatics Courses—South Building

The Advanced Imaging, Web and Informatics classrooms, where informatics courses such as RadLex® for Radiologists and What's New in DICOM are presented, will be located in meeting rooms in the South Building. See the Advance Registration, Housing and Course Enrollment brochure for more information about these courses.

as RSNA Bistro, will be uniform in all four halls and give attendees the option of purchasing a meal from a kiosk or a one-price buffet.

The Lakeside Learning Center will also be closer to lecture rooms and directly across from the Arie Crown Theater, where plenary sessions including the President's Address, annual orations, Sunday Image Interpretation Session and special symposia take place.

"There will also be a direct escalator from Hall D down to the scientific exhibit and poster area, for quicker access between the two," Dr. Alexander said.

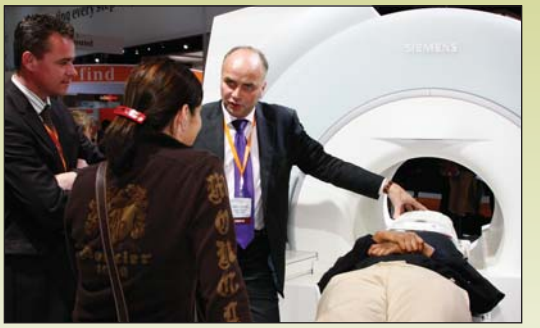


New Location for Lakeside Learning Center

Scientific posters, education exhibits and other educational content will move down one floor to Hall E, Level 2, across from the Arie Crown Theater.

The RSNA Technical Exhibition has grown colossally since its inception in 1919, offering attendees the opportunity to witness a panoply of advances in radiologic technology. Each year, the displays have become more creative and more spectacular, said Dr. Alexander.

"We have had record square footage for the exhibitors—over 500,000 square feet (49,749 square meters)—and a record number of exhibitors the last two years," he said. "The trend seems to be continuing upward this year as well. Adding a third space will continue to improve the overall experience for everyone. We are excited to see the new arrangement in action." □



The RSNA Technical Exhibition, moving into three halls this year, continues to set new records. Last year's exhibition featured 535,000 square feet (49,749 square meters) and 757 exhibitors.

RSNA Scholar Unravels Osteoarthritis Mysteries

HAVING ALREADY helped resolve a longstanding "chicken or egg" question about the relationship between osteoarthritis and joint degeneration, 2004 GE Medical Systems/RSNA Research Scholar Christine B. Chung, M.D., continues her work to demystify the disease's progression.

Central to osteoarthritis is the degeneration of articular cartilage lining the joints in the musculoskeletal system. Articular cartilage is a complex tissue with the deepest layers relatively unexplored through standard commercially available MR imaging. These tissues and their role in cartilage degeneration have been difficult to characterize, as the deepest layers of cartilage have very short T2 magnetic characteristics making them virtually undetectable with MR imaging.

Dr. Chung, an associate professor of radiology at the University of California, San Diego (UCSD), and an internationally recognized musculoskeletal radiology expert, launched her quest to find a way to image these tissues after learning about ultrashort TE imaging (UTE), a new technology introduced at UCSD by her mentor Graeme Bydder, M.B., B.S., F.R.C.R.

Debilitating osteoarthritis affects nearly 27 million Americans, according to the Arthritis Foundation. The incidence of the condition continues to rise as the U.S. population ages and obesity becomes ever more common.

Christine B. Chung, M.D.
University of California, San Diego

While the excitation and relaxation of protons in more shallow or superficial tissue is visible using MR imaging, technological limitations prevented the deepest layers of articular cartilage—those with very short T2 values, an MR property intrinsic to all tissues—from being detected in the clinical setting prior to the advent of UTE, said Dr. Chung, who also received a 2002 Philips Medical Systems/RSNA Research Seed Grant.

> *Using UTE, we could see lesions or places where the deepest layers of cartilage looked abnormal, but where there was preservation of the superficial layers of cartilage.*
>
> **Christine B. Chung, M.D.**

Drs. Chung and Bydder established feasibility data to show that it was possible to use UTE to noninvasively look at the deepest layers of articular cartilage tissue and structural regions. These findings formed the basis for Dr. Chung's 2004 GE Medical Systems/RSNA Research Scholar Grant, "MR Imaging of Patellofemoral and Femorotibial Articular Cartilage: Qualitative and Quantitative Assessment with Ultrashort TE (UTE) Imaging."

"UTE imaging has really opened the door to a whole new level for evaluation of this tissue, which will hopefully lead to our ability to identify degenerative changes in these tissues much, much earlier," said Dr. Chung. "It's really exciting."

Dr. Chung's RSNA research went on to resolve vexing questions about the relationship between joint degeneration and osteoarthritis. At the time, two conflicting theories were being presented in the medical literature about the onset and progression of the disease.

The "outside in" theory suggested that the onset of osteoarthritis was caused by an initial wearing away of the superficial cartilage, which then brought on joint degeneration. An opposing theory hypothesized that an initial injury to the foundation of cartilage—where it meets the bone—destabilized the superficial layers of cartilage, causing degeneration from the inside out.

"Using UTE, we could see lesions or places where the deepest layers of cartilage looked abnormal, but where there was preservation of the superficial layers of cartilage," said Dr. Chung. "These findings not only gave credence to the 'inside out' theory, but also made us want to launch more advanced animal studies where we would place lesions and sequentially see how the degeneration occurs."

Dr. Chung continues to seek funding from the National Institutes of Health (NIH) for this work, recently receiving an R21 grant to use UTE to look at the deep tissues in the meniscus of the temporomandibular joint and the cartilage that lines the articulation of

Continued on Page 16

A Few More Questions for…

Christine B. Chung, M.D.

What is the most daring thing you've ever done or would like to do?
Attempted a climb to the top of Cotopaxi in Ecuador—I got altitude sickness at 17,000 ft.

If you weren't a radiologist, what profession would you be in?
I would pursue a career in fashion.

What is the last CD you bought?
Leona Lewis. I love all types of music and am often choosing between R&B and opera.

What is the last book you read?
The Memory Keeper's Daughter.

What do you do for relaxation?
I like to exercise. It clears my mind.

If you had one piece of advice for someone considering your field, what would it be?
You have to love what you do. You spend far too much time working to not have a passion and love for it.

What projects are you working on at home?
A major remodel that is scheduled to begin October 2008.

Do you have any pets?
My 3 year old has two fish (betta) who are both named Otto!

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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.

Educational Scholar Grant Available to International Applicants

THE RSNA Research & Education (R&E) Foundation has announced that its Educational Scholar Grant will be available to international applicants beginning in 2009.

Providing up to $75,000 USD per year for two years, the Educational Scholar Grant is designed to fund individuals in radiology or related disciplines seeking an opportunity to develop their expertise in radiologic education. The goal is to develop teachers and educational leaders who can effectively share their knowledge with the radiology community.

The Educational Scholar Grant is the second grant program available to international applicants. The Research Seed Grant has been available to investigators throughout the world for more than 10 years.

The application deadline for the Educational Scholar Grant and other education grants is January 10. The deadline for R&E research grants is January 15. Applicants should begin preparing their applications via the online process starting in October 2008. For more information on all Foundation grant and award programs, go to *RSNA.org/Foundation* or contact Scott Walter, M.S., Assistant Director, Grant Administration at 1-630-571-7816 or *swalter@rsna.org.*

Journal Highlights

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

Nonenhanced MR Angiography

A COMBINATION of recent technical advances and concerns about the safety of gadolinium-based contrast agents has spurred a resurgence of interest in MR angiographic methods that do not require exogenous contrast material.

In an article in the July issue of *Radiology (RSNA.org/radiology),* Mitsue Miyazaki, Ph.D., and Vivian S. Lee, M.D., Ph.D., review established nonenhanced MR methods and discuss new strategies. Focusing on arteriographic applications, they detail:

- Basic considerations in vascular imaging
- Time-of-flight and phase-contrast MR angiographic techniques
- Electrocardiographically gated partial-Fourier fast spin echo sequence
- Balanced steady-state free precession with and without arterial spin labeling

Dr. Miyazaki, of Toshiba Medical Systems Corporation, and Dr. Lee, of New York University Medical Center, also recommend strategies for specific angiographic applications and discuss emerging developments.

Nonenhanced MR angiogram of the hands and forearms in a healthy volunteer with 3D electrocardiography-gated partial-Fourier fast spin echo. Additional flow spoiling was used to achieve sensitivity to slower flowing arteries in the hand.

Image courtesy of Jian Xu, Siemens Medical Solutions and New York University Medical Center.

(*Radiology* 2008;248:20–43)

"It is also important to note that nonenhanced MR angiography can play a useful role as a supplement to gadolinium-enhanced MR angiography, particularly when the contrast-enhanced methods fail or have serious artifacts," the authors write.

Continued from Page 14

the joint.

"She has taken the traditional strength of UCSD in anatomic-radiologic correlation into the 21st century with these specific musculoskeletal pulse sequences and purpose-designed coils and linked it with biomechanical studies," said Dr. Bydder, a professor of radiology at UCSD. "This regularly results in visualizing structures that have not been seen previously with MR imaging and allows detailed correlation of structure with function at a level not previously possible. It's not hard to see why she is in demand as a lecturer throughout the world both for clinical teaching and her research."

While UCSD Department of Radiology Chair William G. Bradley, M.D., Ph.D., called Dr. Chung "one of radiology's emerging superstars," she maintains that success in today's challenging research environment is a team effort.

"In this day and age, when funding is so hard to obtain, it really takes a united front using every possible source of help that a clinical researcher can get—from professional organizations like RSNA and our radiology departments to our chairs and mentors," said Dr. Chung. "Without each one of these spokes in the wheel it would not have been possible for me to succeed. I was really lucky."

Dr. Chung said she gleans inspiration not only from her clinical work but also from the stimulating and rewarding collaborations with colleagues committed to supporting the scientific mission of fact finding and solving questions.

"We don't just do it by ourselves," said Dr. Chung.

Role of Static and Dynamic MR Imaging in Surgical Pelvic Floor Dysfunction

IMAGING plays a major role in the clinical management of pelvic floor dysfunction.

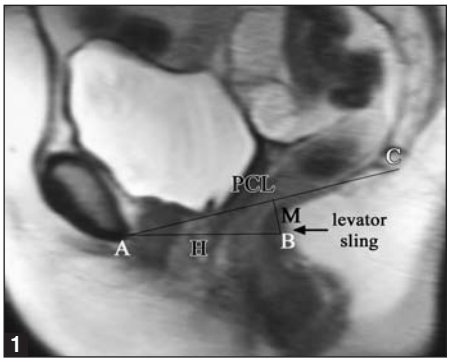
In an article in the July-August issue of *RadioGraphics (RSNA.org/radiographics)*, Lousine Boyadzhyan, M.D., Steven S. Raman, M.D., and Shlomo Raz, M.D., describe current concepts in surgical pelvic floor dysfunction, including pelvic organ prolapse and pelvic floor relaxation, and illustrate how MR imaging assists urogynecologists in localizing and grading pelvic floor dysfunction for surgical triage and planning.

The authors, of the University of California, Los Angeles, specifically address:

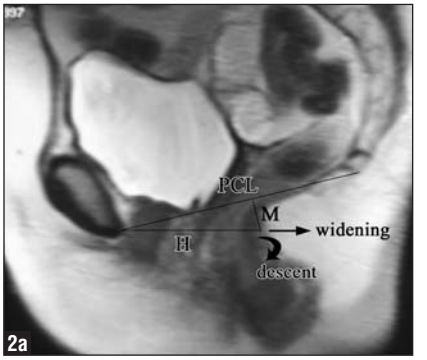
- Surgically relevant anatomy of the pelvic floor
- MR imaging techniques and findings
- The H line, M line, organ prolapse (HMO) system of interpreting and grading pelvic floor disorders with MR imaging

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

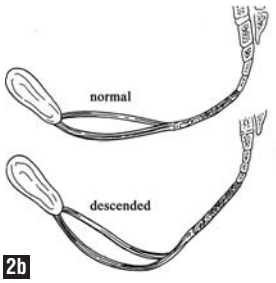
"MR imaging is an important diagnostic resource in triaging patients [with pelvic floor dysfunction] to surgery and in helping surgeons plan specific repairs," the authors state. "It provides clinicians with an objective assessment of the problem in a single examination. In addition, MR imaging has tremendous potential to be used as a research tool in trying to understand the pathophysiology of these complex disorders. It is hoped that better insight into the mechanisms of this disease will lead to more efficient treatment planning."

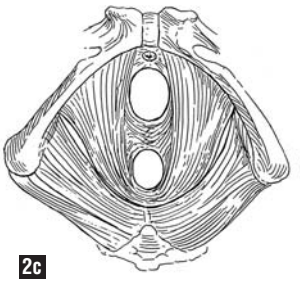


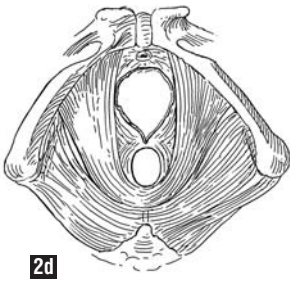
1. Midsagittal T2-weighted single-shot fast SE relaxed image, obtained in a female patient who had undergone hysterectomy, shows anatomic landmarks used in the H line, M line, organ prolapse (HMO) classification system.
Point landmarks are *A* (the inferior margin of the symphysis pubis), *B* (the posterior aspect of the puborectalis muscle sling), and *C* (the junction between the first and second coccygeal elements). Reference lines are the pubococcygeal line *(PCL)*, which is drawn from *A* to *C* and is a fixed anatomic reference line; *H* (the puborectal line), which represents the anteroposterior hiatal dimension and is drawn from *A* to *B;* and *M*, which is the shortest distance between *B* and the *PCL* and is a measure of pelvic floor descent.



2. Two components of pelvic floor relaxation.
(a) Midsagittal T2-weighted single-shot fast spin echo (SE) image, obtained in a female patient in a relaxed position, shows the two vectors of pelvic floor relaxation or prolapse: widening and descent. On radiologic images, these vectors are defined as an enlarging *H* and an enlarging *M,* respectively. *H* is the anteroposterior dimension of the levator hiatus, whereas *M* represents the descent of the levator from the *PCL*.
(b) Diagram shows changes associated with pelvic floor descent. Diagrams show a normal *(c)* and a pathologically widened *(d)* pelvic hiatus.







Quality- and Informatics-Focused *RadioGraphics* Articles Available Ahead of Print

STARTING WITH the September-October issue of *RadioGraphics*, articles designated for the Quality Initiatives and Informatics sections will be posted online as soon as two months before the print edition mails.

The articles will be available in the new Published Ahead of Print section of *RSNA.org/radiographics.* Articles on informatics and quality topics will be expedited through the publication process so that they appear online in a timely manner and will also still be included in the print issue.

"I am very pleased with the new Published Ahead of Print section," said William W. Olmsted, M.D., *RadioGraphics* editor. "The Quality Initiatives and Informatics sections frequently feature time-sensitive and breaking issues. The ability to publish electronically ahead of print allows our readers to learn the latest material in these important areas in a very timely way."

An editorial from Dr. Olmsted addressing the new online publishing and other developments for RSNA's education journal appears in the July-August issue.

Continued on next page

Journal Highlights

Continued from previous page

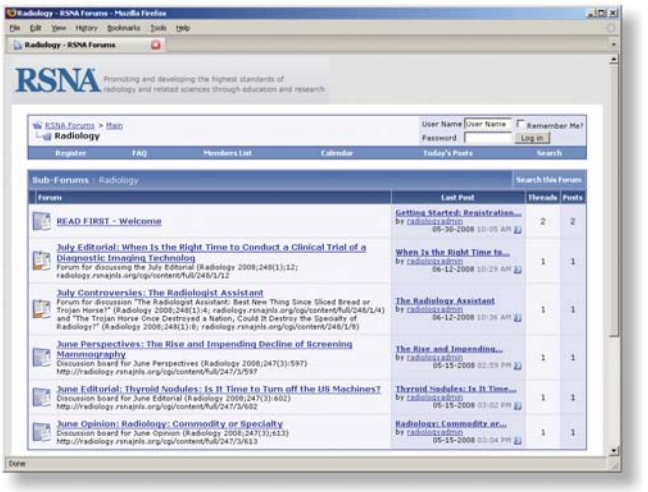
Talk to Other *Radiology* Readers via Online Boards

SELECT ARTICLES in each month's issue of *Radiology* now have an associated online discussion board to facilitate dialogue among readers. Look for articles with this line near the title: "Discuss this article online at *RSNA.org/radiology/discuss.*"

Discussion boards are open to all *Radiology* readers. Registration is required, however RSNA membership or a *Radiology* subscription is not. Discussions will be monitored but not moderated, although all participants are expected to adhere to the rules of conduct as presented in the registration agreement.

"The discussion boards provide the opportunity for our readers to share their views on major issues facing our field," said *Radiology* Editor Herbert Y. Kressel, M.D. "The boards are a vehicle for rapid interactive communication and feedback that has not previously been available. I hope our readers will register and actively participate."

For help with posting to the discussion boards, click on the FAQ link near the top of any page. Other inquiries can be directed to John Humpal, M.A., *Radiology* managing editor, at *jhumpal@rsna.org.*



FLUOROSCOPY

Answer

[Question on page 2.]

A You still need about the same dose rate today. Given the quantum nature of radiation, substantially lower dose rates will result in images that are too noisy to be clinically acceptable.

Q&A courtesy of AAPM.

MAINTENANCE OF CERTIFICATION

MOC News

CME Gateway Registration Surges

More than 9,000 people have now registered for the CME Gateway.

The CME Gateway is an aggregation of CME and other credits issued by RSNA, the American College of Radiology, SNM, American Roentgen Ray Society, Society of Interventional Radiology, American Society of Neuroradiology, Society for Pediatric Radiology and Commission on Accreditation of Medical Physics Educational Programs.

Registrations have increased since the announcement last year that the CME Gateway now enables automatic electronic transmission of *AMA PRA Category 1 Credit*™ and self-assessment modules (SAMs) to users' personal databases (PDBs) with the American Board of Radiology (ABR). Credits reported to ABR through the CME Gateway are automatically authenticated, meaning no further proof is necessary if the credits are audited.

To register for the CME Gateway, go to *www.CMEGateway.org* and click Sign Up Now.

Radiology in Public Focus

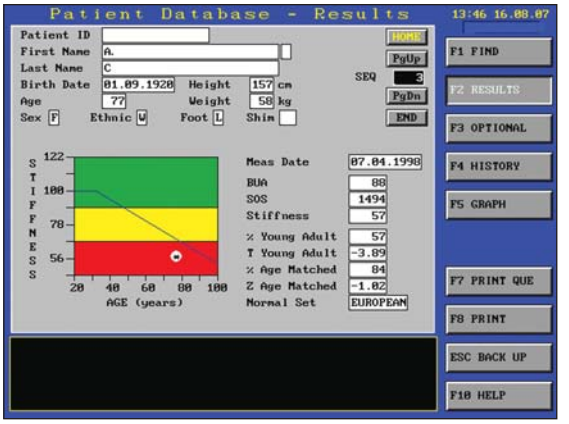
Press releases have been sent to the medical news media for the following articles appearing in the July issue of *Radiology (RSNA.org/radiology):*

Osteoporotic Fracture Risk in Elderly Women: Estimation with Quantitative Heel US and Clinical Risk Factors

A PREDICTION rule using bone ultrasound and four clinical risk factors can identify women at risk for osteoporotic fracture.

Idris Guessous, M.D., of the Lausanne University Hospital in Switzerland, and colleagues assessed multiple risk factors in addition to stiffness index (SI) as determined by quantitative heel ultrasound to calculate the likelihood of fracture in 6,174 women aged 70 to 85 years. When evaluated against subsequent fractures, the resulting scores predicted risk with 90 percent sensitivity.

Significantly predictive factors were age greater than 75 years, low heel SI, history of fracture, recent fall and inability to rise from a chair three times in succession without using arms for support. A low SI indicated a fourfold increase in fracture risk.



Computer screen shows patient database results. BUA = broadband ultrasound attenuation (in decibels per megahertz), SOS = speed of sound.

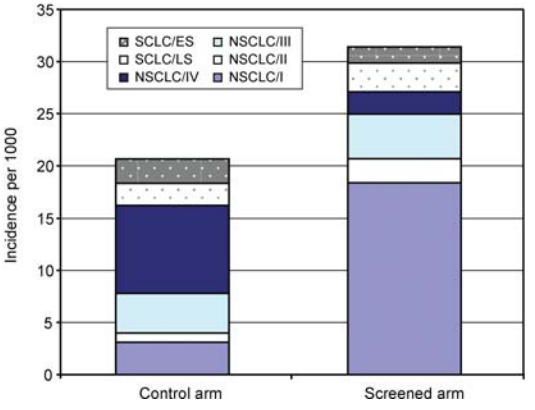
(*Radiology* 2008;248:179–184)

"Integration of heel quantitative ultrasound parameters may be an effective alternative to dual-photon X-ray absorptiometry in responding to the expected growth in demand for osteoporosis management in the next decades," the researchers write.

Estimating Long-Term Effectiveness of Lung Cancer Screening in the Mayo CT Screening Study

HELICAL CT screening for lung cancer may offer a moderate reduction in lung cancer mortality in a population of heavy smokers.

Pamela M. McMahon, Ph.D., of the Institute for Technology Assessment at Massachusetts General Hospital in Boston, and colleagues examined helical CT images and outcomes in 1,520 current or former smokers aged 50 to 85 and developed a prediction model for lung cancer and deaths in a population that received five annual screenings versus one that received no screening. "Single-arm studies cannot demonstrate that lung cancer screening with CT will reduce cancer-specific or overall mortality rates," the researchers write. "We simulated outcomes for the screened arm of a recent single-arm study and a hypothetical control (unscreened) arm to estimate screening effectiveness in the study cohort."



Base-case stage shift. Model-predicted lung cancer cases (per 1,000 participants) detected in the first five years after simulated randomization, stratified according to trial arm. Compared with nonscreening cohort, screening yields a higher number of non-small-cell lung cancers (NSCLCs), a greater proportion of which are stage I. Also predicted is a stage shift from stage IV NSCLC to earlier stages. No comparable increase in cases of small-cell lung cancers (SCLCs) was predicted and the distribution of limited stage (LS) versus extensive stage (ES) was not significantly changed with screening.

(*Radiology* 2008;248:278–287)

The screened population demonstrated a 37 percent increase in lung cancer detection at six years follow-up and a 9 percent increase at 15 years. Lung cancer-specific mortality was reduced by 28 percent at six years and 15 percent at 15 years, while the relative reduction in mortality from all causes was 4 percent at six years and 2 percent at 15 years. "Screening may reduce lung cancer-specific mortality but offer a smaller reduction in overall mortality due to increased competing mortality risks associated with smoking," the researchers concluded.

Continued on next page

Radiology in Public Focus

Continued from previous page

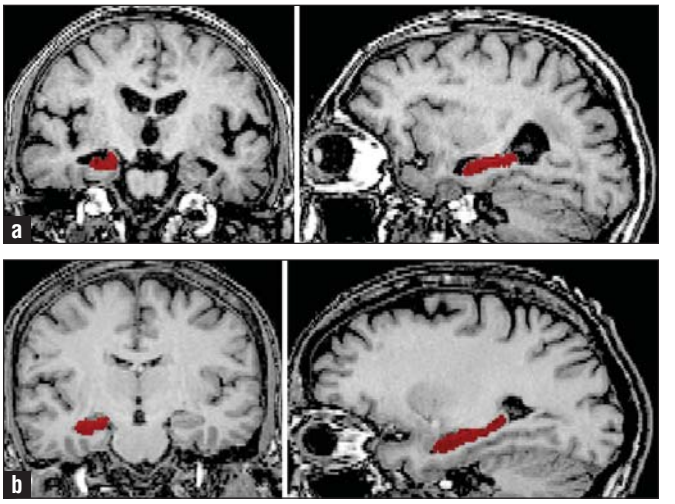
Discrimination between Alzheimer Disease, Mild Cognitive Impairment and Normal Aging by Using Automated Segmentation of the Hippocampus

A METHOD that automatically segments the hippocampus on MR imaging may aid in the diagnosis of Alzheimer disease (AD).

In a study of 74 patients, Olivier Colliot, Ph.D., of the Cognitive Neuroscience and Brain Imaging Laboratory at the Hôpital de La Salpêtrière in Paris, and colleagues found that automated classification based on hippocampal volume distinguished patients with AD or amnestic mild cognitive impairment (MCI) from healthy elderly controls.

The method showed 84 percent accuracy for distinguishing patients with AD from controls and 73 percent accuracy for distinguishing patients with MCI from controls. Significant reduction in hippocampal volume was found both in patients with AD and those with MCI. Accuracy for distinguishing AD from MCI was 69 percent.

"Our automated method can serve as an alternative to manual tracing and may thus prove useful in assisting the diagnosis of AD," the researchers write.



MR images show automated hippocampal segmentation.
(a) Coronal and sagittal reconstructions of patient with Alzheimer disease. *(b)* Coronal and sagittal reconstructions of healthy elderly control. T1-weighted MR images acquired by using spoiled gradient-echo sequence (128 adjacent transverse sections parallel to anterior commissure-posterior commissure line; section thickness, 1.5 mm; pixel size, 0.9375 x 0.9375 mm; 10.3/2.1; field of view, 24 x 18 cm; and matrix, 256 x 192).
(*Radiology* 2008;248:194–201)

Media Coverage of *Radiology*

In May, media outlets carried 182 news stories generated by articles appearing in *Radiology*. These stories reached an estimated 123 million people.

Print coverage included the *Lexington Herald-Leader* (Lexington, Ky.), *News & Observer* (Raleigh, N.C.), *The Star-Ledger* (Newark, N.J.), *The Day* (New London, Conn.), *Modesto Bee* (Fresno, Calif.), *The Ledger* (Lakeland, Fla.), *Tuscaloosa News* (Tuscaloosa, Ala.) and *Gadsden Times* (Gadsden, Ala.).

Web placements included *AOL.com*, Yahoo! News, *Forbes.com*, *MSN.com*, *iVillage.com* and *Medscape.com.*

July Public Information Activities Highlight Neuroradiology

In July, RSNA's "60-Second Check-up" radio segments focused on neuroradiology, including:

- Early indications of Alzheimer disease
- Detection of attention deficit hyperactivity disorder and Alzheimer disease using MR imaging
- The link between depression and Alzheimer disease
- The radiologist's role in diagnosing and treating dementia

Working For You

This month, *RSNA News* launches a new series highlighting organizations working with RSNA in the Associated Sciences Consortium.

American Society of Radiologic Technologists

An organization of more than 128,000 members, the American Society of Radiologic Technologists (ASRT) has been working to maintain high standards for the profession since 1920. ASRT represents radiologic technologists (RTs) in the governmental, educational and research arenas.

"We work with other radiologic science organizations, including RSNA, to monitor and respond to all state and federal legislation that affects the profession," said Lynn May, C.A.E., ASRT chief executive officer.

Headquartered in Albuquerque, N.M., ASRT is currently seeking enactment of the Consistency, Accuracy, Responsibility and Excellence (CARE) in Medical Imaging and Radiation Therapy bill. CARE aims to establish Medicare education and credentialing standards for RTs.

"RTs engage closely with patients and provide an invaluable service to the field of radiology," May said. "They deserve conscientious educational standards to uphold the integrity of the profession."

The society's peer-reviewed research journals, *Radiologic Technology* and *Radiation Therapist*, offer continuing education credit. ASRT also helped establish the position of radiologist assistant, works with equipment manufacturers to help implement technological change and is a founding organization of the Image Gently campaign to lower radiation dose to children.

ASRT's annual National Radiologic Technology Week® teaches the public about the role of registered RTs. The society also works to recruit students to careers in radiologic technology and conducts salary surveys for the more than 275,000 RTs practicing in the U.S.

For the RSNA annual meeting, ASRT helps organize the Associated Sciences Program as well as the Radiologist Assistants Symposium. A 1½-day educational track for RTs, called ASRT@RSNA, is in the works for RSNA 2009.

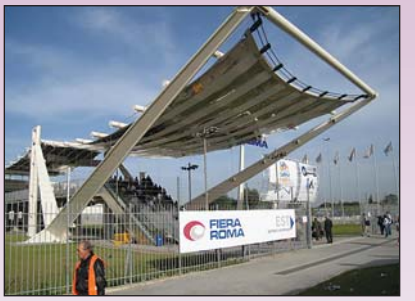
"The RSNA meeting offers an unparalleled venue for technologists to examine new technology, network with colleagues and acquire continuing education tailored to their needs," he said. "ASRT is pleased to add this initiative to others undertaken in collaboration with RSNA."

RSNA Booth Draws Crowd at Italian Meeting

Residents flocked to the RSNA informational booth at the annual meeting of the Italian Society of Medical Radiology in Rome in May. Residents were eager to join RSNA upon learning that membership is free for members-in-training and includes free admission to the RSNA annual meeting.

RSNA also showcased its journals at the Medical Library Association meeting and in the American Medical Association Medical Specialty Showcase in Chicago.

The next stop for RSNA's informational booth is the annual meeting of the American Association of Physicists in Medicine, July 27–31 in Houston. RSNA also will be on hand for the annual meeting of the American Society for Therapeutic Radiology and Oncology, September 21–25 in Boston and the Asian Oceanian Congress of Radiology, October 24–28 in Seoul, Republic of Korea.



If you have a colleague who would like to become an RSNA member, you can download an application at *RSNA.org/mbrapp* or contact the RSNA Membership and Subscriptions Department at 1-877-RSNA-MEM [776-2636] (U.S. and Canada), 1-630-571-7873 or *membership@rsna.org.*

Program and Grant Announcements

RSNA-sponsored Course at the World Molecular Imaging Congress (WMIC)

September 10–13 • Nice, France

TOPICS AND speakers to be featured during an RSNA-sponsored course at the World Molecular Imaging Congress (WMIC) include:

- **Requirements for Imaging from a Molecular Oncologist's Point of View**—Walter Stadler, M.D., The University of Chicago
- **Imaging of Biomarkers**—Adrian Nunn, Ph.D., Bracco Research USA, Princeton, N.J.
- **PET Imaging in Clinical Trials**—Gustav von Schulthess, M.D., Ph.D., University Hospital, Zurich, Switzerland
- **Optical Imaging in the Clinic**—Michael V. Seiden, M.D., Ph.D., Fox Chase Cancer Center, Philadelphia
- **MRI in Clinical Trials**—Lawrence H. Schwartz, M.D., Memorial Sloan-Kettering Cancer Center, New York

RSNA representatives on the WMIC program committee are Sanjiv Gambhir, M.D., Ph.D., of Stanford University, and Jan Grimm, M.D., Ph.D., of Memorial Sloan-Kettering Cancer Center. Session co-chairs are Dr. Grimm and Gabriel P. Krestin, M.D., Ph.D., of Erasmus Medical College.

More information about WMIC is available at *www.wmicmeeting.org.*

RSNA-sponsored Session at ASTRO Translational Advances in Radiation Oncology and Cancer Imaging

October 17–18 • Arlington, Va.

RSNA will sponsor a session on MR spectroscopy at the American Society for Therapeutic Radiology and Oncology (ASTRO) meeting, Translational Advances in Radiation Oncology and Cancer Imaging. Session presenters are Peter L. Choyke, M.D., of the National Cancer Institute/National Institutes of Health and Cynthia Menard, M.D., of Princess Margaret Hospital in Toronto. For more information, go to *www.astro.org/Meetings/UpcomingMeetings/Translational.*

RSNA/AUR/ARRS Introduction to Academic Radiology Program

Application Deadline—July 15

Time is running out to nominate candidates for this program introducing residents to diagnostic radiology research careers. More information and a nomination form are available at *RSNA.org/research/educational_courses.cfm.*

RSNA Education

Secure Critical Financial Advice at RSNA 2008

RSNA will offer two financial education courses on Saturday, November 29, at McCormick Place just prior to RSNA 2008. These practical and unbiased investment seminars give attendees the tools necessary to achieve estate and investment goals, particularly in challenging financial times. A textbook written specifically for each course is included.

Effective Estate Planning Strategies

Presented by Barry Rubenstein, B.S., J.D., L.L.M. This course presents a comprehensive look at estate planning to minimize death taxes and maximize transfer of wealth to subsequent generations:

- Understanding the Fundamentals of Gift and Estate Taxes
- Creating Tax-Advantaged Funds for Children's College Expenses
- The Uses and Abuses of Life Insurance
- Understanding Probate and How to Avoid It
- Maximizing Benefits of Family Gifts, Trusts and Business Relationships
- Dealing with Assets in a Qualified Retirement Plan
- Protecting Assets from Collectors

Effective Investment Strategies

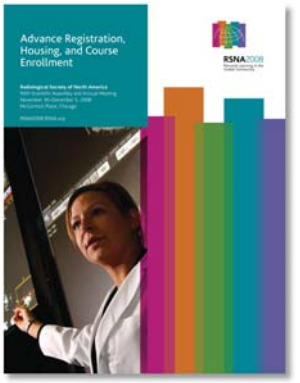
Presented by J. Michael Moody, M.B.A. This course offers a strong foundation and working knowledge of investing and profiles the risks, benefits and nuances of dozens of investments and strategies:

- Once-Sleepy Muni Bonds Offer Some Terrific Bargains
- What Money Managers Don't Tell You About Exchange Traded Funds
- Investments for Current Income, Growth or Tax Advantages
- Why Mutual Funds Have Failed to Provide Reasonable Returns
- 5 Investments that Calm Anxieties When a Recession Looms
- Investing in Real Estate Without Needing a Million Dollars
- Sell Strategy that Provides Infinite Upside and Protected Downside

Register for these seminars online at *RSNA.org/register* or use Registration and Housing Form 1 included in the Advance Registration, Housing and Course Enrollment brochure. You must be registered for the annual meeting to enroll in these seminars. An additional fee applies. These seminars do not qualify for *AMA PRA Category 1 Credit™*. For more information, contact the RSNA Education Center at 1-800-381-6660 x7772 or email *ed-ctr@rsna.org.*

News about RSNA 2008

Enroll Now for Courses



COURSE enrollment for RSNA 2008 is under way. Online enrollment occurs instantly, while faxed or mailed registration forms are processed in the order they are received. The RSNA 2008 Advance Registration, Housing and Course Enrollment brochure is available at *RSNA.org/register.* You must be registered for RSNA 2008 in order to enroll for courses.

CME Update: Earn up to 87.5 *AMA PRA Category 1 Credits*™ at RSNA 2008

Updated Information for International Visitors

Personalized invitation letters are available for request at *RSNA2008.RSNA.org.* Click International Visitors. This section of the annual meeting Web site also includes essential information for planning a trip to the U.S.

Exclusive Airfare Discounts

Domestic

RSNA has secured a special discount agreement with United Airlines that is not available to the general public. *United.com* offers a 5 percent discount on select domestic United Airlines, United Express and TED qualifying flights.

Use promotional code 553SB to make your discounted airline reservation online at *United.com.* You can also call United (1-800-521-4041) or your personal travel agent and mention the United promotional code to be eligible for discounted fares.

International

Star Alliance is a network of 16 participating member airlines. For more information about Star Alliance Conventions Plus airfare discounts and participating airlines, visit *staralliance.com* or call any one of the 16 member airlines and use event code UA06S08.

RSNA2008
Personal Learning in the Global Community

Registering for RSNA 2008

There are four ways to register for RSNA 2008:

❶ Internet — Fastest way to register!

Go to *RSNA.org/register*

Use your member ID number from the *RSNA News* label or meeting flyer sent to you. If you have questions, send an e-mail to *rsna@experient-inc.com*

❷ Fax (24 hours)
1-800-521-6017
1-847-940-2386

❸ Telephone
(Monday–Friday, 8:00 a.m.–5:00 p.m. CT)
1-800-650-7018
1-847-940-2155

❹ Mail
Experient/RSNA 2008
108 Wilmot Rd.,
Suite 400
Deerfield, IL 60015-5124
USA

Registration Fees

BY 11/7	ONSITE	
$0	$100	RSNA Member, AAPM Member
$0	$0	Member Presenter
$0	$0	RSNA Member-in-Training, RSNA Student Member and Non-Member Student
$0	$0	Non-Member Presenter
$130	$230	Non-Member Resident/Trainee
$130	$230	Radiology Support Personnel
$620	$720	Non-Member Radiologist, Physicist or Physician
$620	$720	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 2008, visit *RSNA2008.RSNA.org*, e-mail *reginfo@rsna.org* or call 1-800-381-6660 x7862.

Important Dates for RSNA 2008

Oct. 24	International deadline to have full-conference materials mailed in advance
Nov. 7	Final advance registration, housing and course enrollment deadline
Nov. 30–Dec. 5	RSNA 94th Scientific Assembly and Annual Meeting

Product News

NEW PRODUCT

Chest X-Ray CAD

OnGuard™ chest X-ray computer-aided detection (CAD) by Riverain Medical *(riverainmedical.com)* is the only FDA-PMA approved chest X-ray CAD system available. Used in conjunction with the reading of standard digital chest X-rays, OnGuard provides practical early detection by quickly and comprehensively identifying solitary pulmonary nodules that may be early-stage lung cancer. This early detection tool can be applied to existing chest X-rays, eliminating the need for patients to undergo a separate procedure.

NEW PRODUCT

Film Conversion and Query Software

Merge Healthcare *(www.merge.com)* announces eFilm Scan™ 2.0, designed to scan conventional medical films using third-party digitizers. eFilm Scan supports all major digitizers and provides TWAIN support for compliant flatbed scanners. Films may be scanned as 8-, 12-, or 16-bit grayscale images, which can be windowed/leveled, flipped, rotated, duplicated or segmented. Users can send these images as DICOM 3.0 studies directly to a PACS or CD.

The MWL Query feature allows users to obtain patient/study information using pre-populated fields, while Remote Device Query enables the user to query a DICOM device for a patient, select a specific study and use that information to create and add a new series directly to the study.

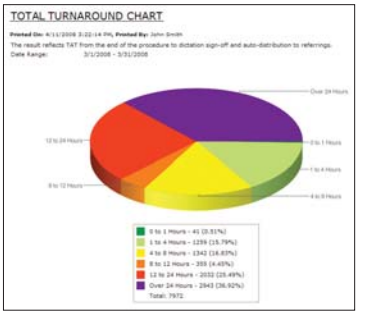
NEW PRODUCT

Combination Imaging Table

Biodex Medical Systems *(www.biodex.com)* introduces the Sound Pro combination table, ideal for OB/GYN, general ultrasound and echocardiography. The table combines the imaging features of the new Ultra Pro and Echo Pro and has an extra-wide top with a 500 lb. patient capacity. Motor controlled settings include height and auto level adjustments and Fowler and Trendelenburg positions. A cardiac scanning cutout features a swing-out cushion that doubles as an armrest, while an adjustable sonographer cutout allows comfortable positioning. The vascular scanning arm board can be mounted on either side of the table and side rails fold out of the way to allow unobstructed patient access. The system includes hand and foot controllers, retractable stirrups and an IV pole.

NEW PRODUCT

Report and Referral Tracking System



Integrated Document Solutions *(www.idssite.com)* announces the launch of Referral Marketing Manager, designed to help radiology practices better track report turnaround times and referral sources.

Real-time graphs and reports generated by Referral Marketing Manager help practices troubleshoot problems and validate performance with staff and clients. Practices can analyze report approval times and breakdown data by referring physician, location, date and modality, as well as generate trend reports.

The software also includes a customer relationship management component to help marketers manage their interactions with current and prospective referring physicians. A contact manager and call scheduling module allows management of daily call volumes and confirmation of follow-up efforts.

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 2008 Course Enrollment

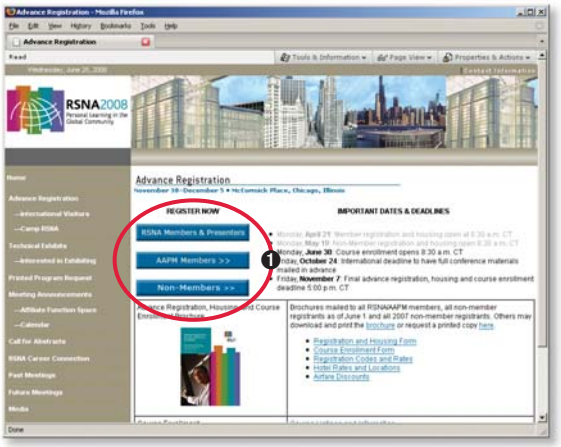
Online enrollment for RSNA 2008 courses is under way. You must be registered for RSNA 2008 to enroll for courses. Go to *RSNA.org/register* to get started.

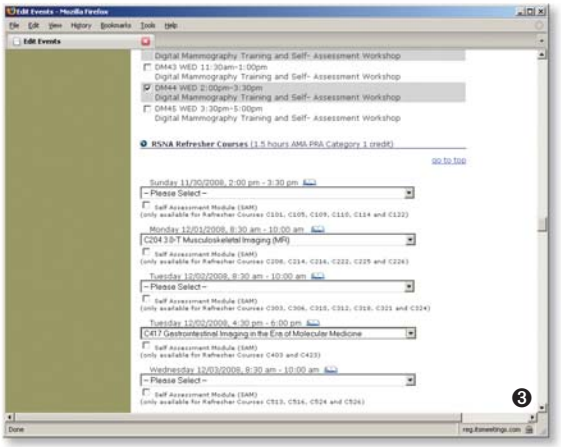
❶ On the 2008 Registration, Housing & Courses page, click the box for your membership category. (If you are an RSNA member or presenter, you will be asked to provide your username and password to log in to RSNA.) From this page you can also download the Advance Registration, Housing and Course Enrollment brochure.

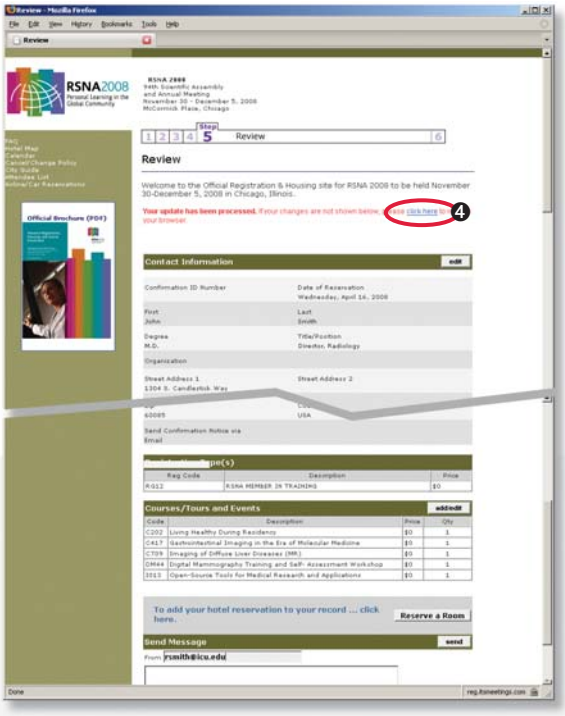
❷ RSNA members will automatically be taken to the review page after logging in to RSNA. Scroll toward the bottom of the page and select "add/edit" under Courses/Tours and Events.

❸ On the Edit Events page, select the courses in which you want to enroll, then scroll to the bottom of the page and click Continue.

❹ It is important that you click the Click Here link on the Review page to ensure that all your selected courses appear in your record. An e-mail confirmation will arrive within 24–48 hours. For assistance, click Send Message.







Connections

Your online links to RSNA

RSNA.org

My RSNA™
RSNA.org – click My RSNA

***Radiology* Online**
RSNA.org/radiology

***RadioGraphics* Online**
RSNA.org/radiographics

RSNA News
rsnanews.org

Membership Applications
RSNA.org/mbrapp

RSNA Membership Directory
RSNA.org/directory

Education Portal
RSNA.org/education

RSNA CME Credit Repository
RSNA.org/cme

CME Gateway
CMEgateway.org

International Radiology Outreach Resources
RSNA.org/International/IROR.cfm

InterOrganizational Research Council
radresearch.org

RSNA Medical Imaging Resource Center
RSNA.org/mirc

RSNA Career Connection
RSNA.org/career

***RadiologyInfo*™**
RSNA-ACR patient information Web site *radiologyinfo.org*

RSNA Press Releases
RSNA.org/media

RSNA Research & Education (R&E) Foundation
Make a Donation
RSNA.org/donate

Silver Anniversary Campaign
RSNA.org/campaign

Community of Science
RSNA.org/cos

CQI Initiative
RSNA.org/quality

My Portfolio
RSNA.org/myportfolio

RSNA 2008
RSNA2008.RSNA.org

CALENDAR

Medical Meetings
August – November 2008

AUGUST 15–17
Royal Australian and New Zealand College of Radiologists (RANZCR), New Zealand Branch Annual Scientific Meeting, SKYCITY Auckland Convention Centre, New Zealand • *www.ranzcr2008.co.nz*

SEPTEMBER 7–11
Sociedad Ibero Latino Americana de Neuroradiologia, 20th Annual Scientific Meeting, Fiesta Americana Royal Beach Hotel, Cancun, Mexico • *www.silan2008.com*

SEPTEMBER 10–13
World Molecular Imaging Conference (WMIC) 2008, Acropolis Convention Center, Nice, France • *www.wmicmeeting.org*

SEPTEMBER 10–14
American Society of Head and Neck Radiology (ASHNR), 42nd Annual Meeting, Hilton Toronto Hotel • *www.ashnr.org*

SEPTEMBER 13–14
Society for the Advancement of Women's Imaging (SAWI), 2008 Symposium, Westin Chicago River North • *www.sawi.org*

SEPTEMBER 13-17
Cardiovascular and Interventional Radiology Society of Europe (CIRSE), Annual Meeting, Bella Center, Copenhagen, Denmark • *www.cirse.org*

SEPTEMBER 21–25 VISIT THE RSNA BOOTH
American Society for Therapeutic Radiology and Oncology (ASTRO), 50th Annual Meeting, Boston • *www.astro.org*

OCTOBER 1–4
American Society of Emergency Radiology (ASER), Annual Meeting, InterContinental Houston • *www.erad.org*

OCTOBER 6–8
International Cancer Imaging Society (ICIS), Society Meeting and 8th Annual Teaching Course, The Assembly Rooms, Bath, United Kingdom • *www.icimagingsociety.org.uk*

OCTOBER 9–12
InterAmerican College of Radiology (CIR), 24th InterAmerican Congress of Radiology, Expo Minas, Belo Horizonte, Brazil • *www.cir-radiologia.org*

OCTOBER 11–14
North American Society for Cardiac Imaging (NASCI), Annual Meeting, Camelback Inn, Scottsdale, Ariz. • *www.nasci.org*

OCTOBER 13–17
American Osteopathic College of Radiology, Annual Convention, The Westin Resort, Hilton Head, S.C. • *www.aocr.org*

OCTOBER 16–19
RANZCR, 59th Annual Scientific Meeting, Adelaide, South Australia • *www.ranzcr.edu.au*

OCTOBER 16–18
Society of Chairs of Academic Radiology Departments (SCARD), 2008 Fall Meeting, JW Marriott Starr Pass Resort & Spa, Tucson, Ariz. • *www.scardweb.org*

OCTOBER 17–18
ASTRO, Translational Advances in Radiation Oncology and Cancer Imaging, Westin Arlington Gateway, Arlington, Va. • *www.astro.org*

OCTOBER 24–28 VISIT THE RSNA BOOTH
12th Asian Oceanian Congress of Radiology (AOCR), COEX Convention Center, Seoul, Republic of Korea • *www.aocr2008.org*

OCTOBER 24–26
Society of Radiologists in Ultrasound (SRU), 18th Annual Meeting, The Loews Hotel, Philadelphia • *www.sru.org*

OCTOBER 29–NOVEMBER 1
International Skeletal Society, Annual Meeting and Refresher Courses, Taj Palace Hotel, New Delhi, India • *www.internationalskeletalsociety.com*

NOVEMBER 13–15
ASTRO, American Society of Clinical Oncology (ASCO), International Society for the Study of Lung Cancer, Multidisciplinary Symposium in Thoracic Oncology, Chicago Marriott Downtown Magnificent Mile • *www.oncologymeetings.org/lung.htm*

NOVEMBER 30–DECEMBER 5
RSNA 2008, 94th Scientific Assembly and Annual Meeting, McCormick Place, Chicago • *RSNA2008.RSNA.org*

RSNA News

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