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RSNA News

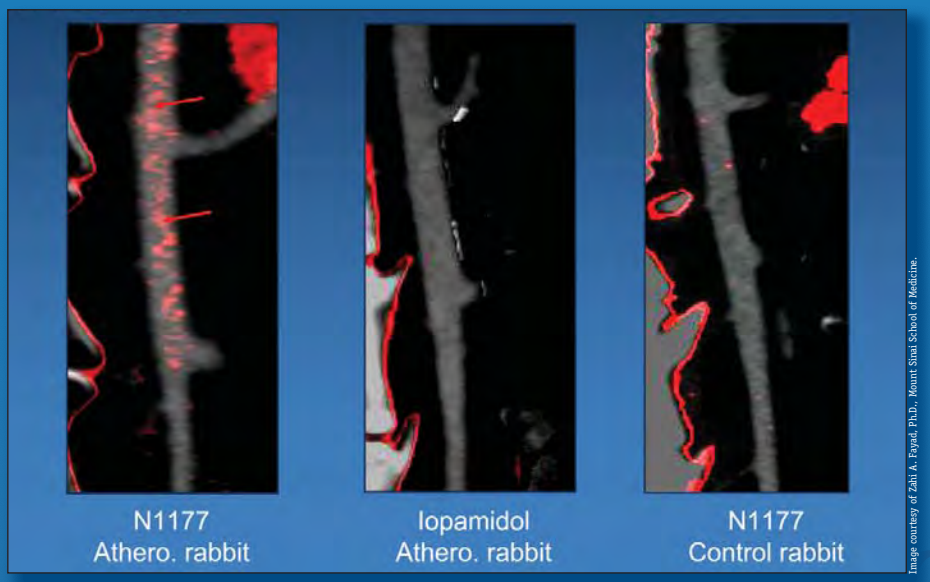

Image courtesy of Zahi A. Fayad, Ph.D., Mount Sinai School of Medicine.

Novel Imaging Technique Reveals Heart Attacks in Waiting

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JULY 2007

RSNA News

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NIBIB Celebrates 5th Anniversary, Presents Inaugural Landmark Award

DURING ITS 5th anniversary celebration last month, the National Institute of Biomedical Imaging and Bioengineering (NIBIB) presented its first Landmark Achievement Award posthumously to Paul C. Lauterbur, Ph.D., who shared the 2003 Nobel Prize in Medicine for early discoveries in MR imaging. Dr. Lauterbur died in March.

Also during the commemorative dinner and symposium May 31–June 1 in Washington, speakers, including former U.S. Surgeon General David Satcher and former U.S. Senator and Apollo astronaut Harrison Schmitt, joined Dr. Pettigrew in reflecting on the early years of bioimaging and bioengineering and the creation of NIBIB. Speakers detailed emerging technologies in medicine and prospects for interdisciplinary science.

1964 Nobel Laureate in Physics Charles Townes, Ph.D., discussing his discovery of the maser and laser, recalled how little support he initially received for his ideas. "Really new ideas are resisted by the experts," he said. "You must convince people that basic research is a good investment."

Since receiving its first Congressional appropriation in February 2002, NIBIB has grown to support approximately 5,000 grantees. NIBIB Pioneer C. Douglas Maynard, M.D., emphasized how innovative NIBIB has been with its policies and programs—the institute receives only 1 percent of the total National Institutes of Health (NIH) budget but funds 2 percent of new NIH investigators.

More information about NIBIB is available at *www.nibib.nih.gov.*

NIBIB Director Roderic I. Pettigrew, Ph.D., M.D. ***(left),*** **presented the award to Dr. Lauterbur's wife M. Joan Dawson, Ph.D.**

ABR Seeking Applications for Executive Director

The American Board of Radiology (ABR) will accept applications for its executive director position through July 15. Executive Director Robert R. Hattery, M.D., has announced he will retire at the end of the year.

The ABR Executive Director reports to the ABR president, supports ABR's Board of Trustees and oversees operations of the ABR staff office in Tucson, Ariz. ABR has issued approximately 45,000 certificates since its inception in 1934.

ABR anticipates appointing a new director in time to work with Dr. Hattery before he retires. Candidates should expect to make a five-year commitment to the position. More information about the position and application process is available by contacting Glenn Forbes, M.D., chair of the search group, at *forbes.glenn@mayo.edu.*

Nagy to be Honored at RSNA 2007

RSNA will present a posthumous Special Presidential Award to Edward C. Nagy, M.A., during RSNA 2007. Nagy was executive director of the Academy of Radiology Research from 1995 until his death in July 2006. Nagy was recognized as "a driving force" in the creation of the National Institute of Biomedical Imaging and Bioengineering (NIBIB) during the NIBIB 5th anniversary celebration last month (see above).

Edward C. Nagy, M.A.

RSNA Media Kit Wins Award

The 2007 RSNA Media Kit has been given an American Inhouse Design Award from Graphic Design USA. The awards aim to assure that the work of inhouse designers and design teams is acknowledged by colleagues, the creative community and corporate and institutional management. The 2007 RSNA Media Kit can be viewed at *RSNA.org/Advertising/upload/RSNA_Media_Kit_2007.pdf.*

MEDICAL IMAGING COMPANY NEWS

Varian Buys BIR

■ Varian Medical Systems, Inc., of Palo Alto, Calif., has acquired Bio-Imaging Research, Inc. (BIR), of Lincolnshire, Ill., for approximately $21 million. Varian, with 4,200 employees around the world, manufactures medical devices and software for use in radiotherapy, radiosurgery, proton therapy and brachytherapy. BIR, a 50-employee supplier of X-ray imaging products for security and inspection, will operate within Varian's Security and Inspection Products unit.

Elekta Acquires 3D Line Medical

■ Elekta, of Stockholm, Sweden, has acquired 3D Line Medical Systems, of Milan, Italy, for approximately $13 million. Elekta provides noninvasive and minimally invasive solutions, including the Leksell Gamma Knife®, for cancer care and management of brain disorders. Among technologies developed by 3D Line are a specialized treatment planning system for stereotactic radiation therapy and dynamic intensity-modulated radiation therapy.

IHE® Hosts Annual Workshop

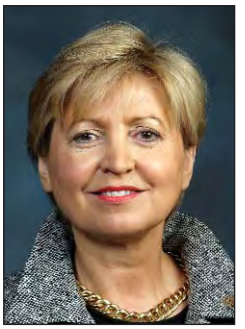
The Integrating the Healthcare Enterprise (IHE®) initiative held its annual educational workshop, Changing the Way Healthcare Connects, June 11–13 in Oak Brook, Ill. The Day 1 session, "Leveraging IHE in the Connected Health System," provided an overview of IHE and featured a roundtable of regional health information organizations using IHE to share health information effectively. On Days 2 and 3, technical workshops detailed the integration capabilities defined by IHE in clinical and operational domains including cardiology, information technology infrastructure, laboratory, mammography, nuclear medicine, patient care coordination, quality, radiation oncology and radiology.

IHE changing the way healthcare connects www.ihe.net

IHE was established in 1998 by RSNA and the Healthcare Information and Management Systems Society.

RSNA Board Members Honored

Sarah S. Donaldson, M.D.



Hedvig Hricak, M.D., Ph.D.

Sarah S. Donaldson, M.D., RSNA Board Liaison for Publications and Communications, has been ranked the #1 radiation oncologist/cancer researcher by readers of *Medical Imaging* magazine for the publication's annual "Cream of the Crop" listing. Dr. Donaldson is associate chair of the Department of Radiation Oncology, deputy clinic chief and residency program director for radiation oncology at Stanford University Medical Center in Stanford, Calif. She is also the Catharine and Howard Avery Professor of Radiation Oncology at the Stanford University School of Medicine. Dr. Donaldson also recently received the 2007 Pediatric Oncology Award from the American Society of Clinical Oncology. Dr. Donaldson was recognized in particular for her role in developing innovative treatment approaches for both Hodgkin disease and rhabdomyosarcoma in children.

Ranked #3 in the *Medical Imaging* listing was **Hedvig Hricak, M.D., Ph.D.,** also RSNA Board Liaison for Publications and Communications. Dr. Hricak is the Carroll and Milton Petrie Chair of the Department of Radiology at the Memorial Sloan-Kettering Cancer Center in New York.

More information on the "Cream of the Crop" listing is available at *www.medicalimagingmag.com.*

Baum is Breast Imaging Director

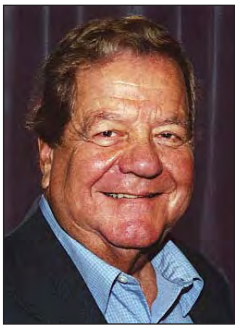
Janet K. Baum, M.D.

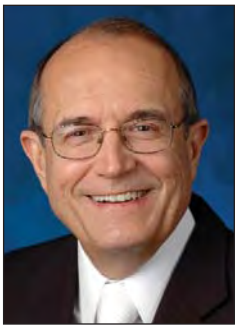
Janet K. Baum, M.D., is the new director of breast imaging for the Cambridge Health Alliance (CHA), a Boston-area healthcare system with three hospitals and more than 20 primary care practices. CHA is also a teaching affiliate of Harvard Medical School in Boston. Dr. Baum was formerly the director of the division of breast imaging at the Henry Ford Health System in Detroit and worked at Beth Israel Deaconess Medical Center in Boston as the director of breast imaging and co-director of its Breast Care Center.

ARRS Announces Gold Medalists, New President


Leonard E. Swischuk, M.D.


James H. Thrall, M.D.


Henry N. Wagner Jr., M.D.


Anton N. Hasso M.D.

THE American Roentgen Ray Society (ARRS) awarded the gold medal, the society's highest honor, to three physicians at its annual meeting in May. Receiving the gold medal were **Leonard E. Swischuk, M.D., James H. Thrall, M.D.,** and **Henry N. Wagner Jr., M.D.**

Dr. Swischuk is a professor and chair of radiology and director of the division of pediatric radiology at The University of Texas Medical Branch in Galveston. Dr. Thrall, who will also receive the RSNA gold medal later this year, is radiologist-in-chief at Massachusetts General Hospital in Boston and serves as the Juan M. Taveras Professor of Radiology at Harvard Medical School, also in Boston. Dr. Thrall also chairs the executive committee of the Harvard Departments of Radiology and is a member of the RSNA Research & Education Foundation Board of Trustees.

Dr. Wagner was formerly the director of the division of radiation health sciences at Johns Hopkins University in Baltimore, where he has worked since 1958. He is a professor emeritus of medicine, as well as radiology and radiological sciences, at the Johns Hopkins School of Medicine and a professor of environmental health sciences at the School of Hygiene and Public Health.

ARRS also named **Anton N. Hasso M.D.,** its 2007-2008 president. Dr. Hasso is a professor of radiologic sciences and director of neuroimaging research at the University of California, Irvine. Dr. Hasso is past-president of the American Society of Neuroradiology, Western Neuroradiological Society and American Society of Head and Neck Radiology and a founding member of the World Federation of Neuroradiological Societies.

Other ARRS officers for 2007-2008 are **John K. Crowe, M.D.,** Scottsdale Medical Imaging, Ltd., Scottsdale, Ariz., president-elect; **Ella Kazerooni, M.D.,** a professor and director of cardiothoracic radiology in the Department of Radiology at the University of Michigan, Ann Arbor, vice-president; **Joseph K.T. Lee, M.D.,** a professor and immediate past-chair of the Department of Radiology at the University of North Carolina, Chapel Hill, secretary; **Howard P. Forman, M.D.,** an associate professor of diagnostic radiology, Yale University School of Medicine, New Haven, Conn., treasurer.

American Society of Breast Disease Elects Feig


Stephen A. Feig, M.D.

Stephen A. Feig, M.D., director of breast imaging at the University of California, Irvine, has been elected secretary-treasurer of the American Society of Breast Disease. **Julio A. Ibarra, M.D.,** is president and **Gail Lebovic, M.D.,** is president-elect. The American Society of Breast Disease brings together physicians and allied professionals in an interdisciplinary team approach to breast disease management, prevention, early detection, treatment and research.

Radiologist is Michigan Medical Society President


AppaRao Mukkamala, M.D.

AppaRao Mukkamala, M.D., chair of the Department of Radiology at Hurley Medical Center in Flint, Mich., is the new president of the Michigan State Medical Society.

Dr. Mukkamala is also a clinical professor of radiology at the Michigan State University College of Human Medicine in East Lansing. During his presidency he will help implement recommendations from the medical society's report, "The Future of Medicine: Leading the Way to a Better Health Care System."


David M. Witten, M.D.

IN MEMORIAM:

David M. Witten, M.D.

David M. Witten, M.D., a professor emeritus of radiology at the University of Missouri-Columbia, died May 12 in Rochester, Minn., at the age of 80.

After serving in the U.S. Navy in World War II, Dr. Witten received his undergraduate and medical degrees from Washington University in St. Louis. He received a master's degree in radiologic science in 1960 from the Mayo Graduate School of Medicine and then practiced at the Mayo Clinic in Rochester for 10 years.

In 1971, Dr. Witten became a professor and chair of the Department of Radiology at the University of Alabama at Birmingham (UAB). He joined the University of Missouri-Columbia in 1982 as chair of the Department of Radiology and served in the position until his retirement in 1987.

Dr. Witten was a past-president of the Society of Uroradiology and received the society's gold medal in 2003. In 2002, the UAB Department of Radiology renamed its endowed chair the Witten-Stanley Endowed Chair of Radiology, to honor Dr. Witten and Robert J. Stanley, M.D., also a former department chair.

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

Annual Meeting, Close Relationships

A pessimist sees the difficulty in every opportunity, an optimist sees the opportunity in every difficulty.
-WINSTON CHURCHILL

My Turn
ONE RADIOLOGIST'S VIEW

IN MY position as an RSNA Board member, I am responsible for assuring that the annual meeting remains radiology's "place to be." We must offer excellent scientific and educational programming—the heart and soul of the meeting—and also provide the robust, one-of-a-kind equipment showcase that not only enables attendee purchasing decisions but also guarantees the meeting's financial success to support RSNA's other education and research activities.

Just a few hundred individuals attended the RSNA annual meeting at Chicago's Hotel Sherman in February 1917. By 1975, when the meeting moved to McCormick Place from the Palmer House, registration had grown to more than 12,000. Since 2004, attendance has topped 60,000. The Technical Exhibition, an incredible display of the latest in imaging and informatics technology, has grown too—a record breaking RSNA 2006 saw 758 companies displaying in 519,900 square feet.

With this prosperity, the meeting has risked becoming a victim of its own success. An adequate number of hotel rooms, straightforward international travel processes and fair union rules for technical exhibitors are just a few issues that must constantly be addressed to protect the integrity of the RSNA annual meeting.

Thankfully, RSNA members are blessed with an extraordinarily dedicated staff who work year round with the city of Chicago, the city's Convention and Tourism Bureau and many other agencies to manage the size and complexity of our meeting, meet diverse attendee needs and improve the navigability of the Technical Exhibition and all of McCormick Place.

Our greatest challenge is adapting to changes in imaging science and education to keep the RSNA annual meeting relevant. The seminal value of the annual meeting is a common venue in which all involved in radiology can create friendships and transfer information in person. Radiologists cherish the camaraderie we share with physicians worldwide, and the nuances of deep friendship, shared common values and intimate discussion are best achieved one on one. I'm proud to be part of RSNA's commitment to making your week in Chicago a most user-friendly and collegial experience.


Burton P. Drayer, M.D.

Burton P. Drayer, M.D., is the RSNA Board Liaison for Annual Meeting and Technology. Dr. Drayer is president of The Mount Sinai Hospital and executive vice-president for hospital and clinical affairs of Mount Sinai Medical Center in New York. He is also the Dr. Charles M. and Marilyn Newman Professor and chair of the Department of Radiology in the Mount Sinai School of Medicine.

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- Head and neck imaging
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- Breast imaging

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RSNA.org/highlights

RSNA Education

Novel Imaging Technique Reveals Heart Attacks in Waiting

AN EXPERIMENTAL contrast agent that enables noninvasive detection of high-risk plaque associated with heart attack and stroke puts radiology at the center of disease prevention, said researchers.

"The imaging technique we are studying provides unique information about the composition of plaque on the walls of the coronary artery," said Zahi A. Fayad, Ph.D., a professor of radiology and cardiology and director of the Translational and Molecular Imaging Institute at the Mount Sinai School of Medicine in New York. Dr. Fayad is the senior author of an article published in the May 2007 issue of *Nature Medicine*.

Dr. Fayad and colleagues used 64-slice multidetector CT and a modified iodine contrast agent, N1177, to image coronary artery walls. N1177 successfully demonstrated high-risk, or vulnerable, plaque in a small animal model.

The researchers tested macrophage uptake of N1177 in vitro and used CT to study the in vivo kinetics and distribution in blood and macrophage-rich tissue in rabbits. They also tested N1177 in hypercholesterolemic rabbits with aortic balloon injury. Rabbit macrophages are comparable in size and content to coronary plaques found in humans.

Conventional CT contrast agent and N1177 both contain iodine; however, N1177 has been modified into a suspension of nanoparticles that interact with vessel walls, specifically with macrophages that populate high-risk or vulnerable arterial plaque.

"Our findings demonstrated that N1177 was taken up by the macrophages," said Dr. Fayad. "When we injected N1177, we saw enhancement of the vessel wall and plaque on CT." Macrophage enhancement was significantly higher and more specific within the vessel wall when the vessel was injected with N1177 than after injection of the conventional contrast agent, he said.

Zahi A. Fayad, Ph.D.
Mount Sinai School of Medicine

A potential advantage is that this novel contrast agent will more readily identify sites of vulnerable plaque within an individual patient.

Zahi A. Fayad, Ph.D.

Visualizing Vessel Wall is Key

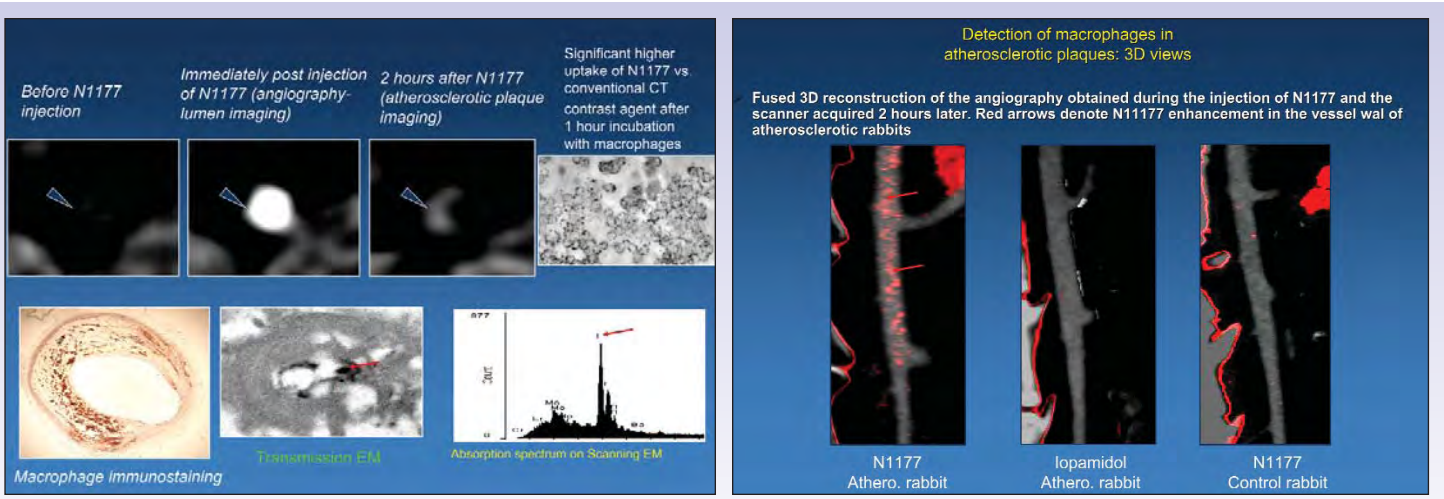
Imaging of atherosclerotic plaque has historically been limited by methodology that could not directly visualize the vessel wall. For example, traditional X-ray angiograms can image the obstruction in the vessel, but not the vessel wall. This limitation led to disappointing predictive results, since two-thirds of heart attacks occur from vessels that look normal on angiograms, said Dr. Fayad.

"Techniques that only image obstruction cannot save the lives of people with vulnerable plaque and no obstruction," he said. "The noninvasive biopsy of the plaque provided by CT with the nanoparticulate contrast agent is exceptionally important."

Although artery obstruction is an important risk, said Dr. Fayad, many events happen before an obstruction occurs—plaque with overexpressed macrophages is unstable and can rupture, leading to heart attack and stroke.

"My colleagues in radiology and cardiology are excited about this, because we are using standard clinical imaging protocols and systems," he said. "This technique uses what we already have—multidetector CT. Plus, N1177 has a dual clinical use. When it is first injected, it provides an angiogram of the vessel, and two hours later it gives a picture of the vessel wall and plaque composition."

One goal in medicine is to prevent heart attacks, strokes and peripheral vas-



Presentation illustrates how a combination of multidetector CT and N1177, a modified iodine contrast agent, can demonstrate high-risk plaque.

Slides courtesy of Zahi A. Fayad, Ph.D., Mount Sinai School of Medicine.

cular disease. This new contrast agent gives radiology and cardiology new roles to play, said Dr. Fayad. As concentration of macrophages in arterial plaque dictates artery vulnerability, knowing the composition of this arterial plaque allows physicians to make more informed treatment decisions, he said.

Dr. Fayad noted that the recent Clinical Outcomes Utilizing Revascularization and Aggressive Drug Evaluation (COURAGE) trial comparing interventional practice to medical therapy and prevention indicated that medical therapy and prevention were superior to intervention techniques such as stenting. "Interventions are helpful for blockage, but what helps most is risk factor reduction and prevention," he said.

Other Techniques Also Being Tested

The N1177 contrast agent should now be compared to conventional techniques for evaluating atherosclerotic disease, said W. Brian Hyslop, M.D., Ph.D., an assistant professor of radiology at the University of North Carolina at Chapel Hill and co-director of the how-to workshop "CT of Coronary Artery Disease" at RSNA 2007.

One conventional technique, calcium scoring, is a noncontrast CT technique that identifies patients at increased risk for coronary heart disease based on the presence of atherosclerotic calcium. However, atherosclerotic calcium within the coronary arteries is not necessarily associated with the high-risk atherosclerotic plaque that is known to rupture, said Dr. Hyslop.

"In contrast, N1177 is taken up by vulnerable plaque that is likely to rupture," he said. "A potential advantage is that this novel contrast agent will more readily identify sites of vulnerable plaque within an individual patient. Those patients might then receive more aggressive therapy, pharmacologic or interventional."

Work to identify high-risk plaque continues on other fronts, with investigation of MR evaluation of the carotid arteries as well as nuclear medicine techniques, said Dr. Hyslop. Both have been proposed to target vulnerable plaque, he said, though MR imaging of the coronary arteries does not currently have the resolution of contrast-enhanced CT angiograms. He said nuclear medicine agents can be used only for certain vessels to identify atherosclerotic disease—because the myocardium is FDG avid, it is difficult to identify vulnerable plaque within the coronary arteries due to inferior resolution and high background rate within the heart.

"This new agent is potentially advantageous within the heart compared with MR and nuclear medicine techniques," Dr. Hyslop said.

Dr. Fayad said the future for N1177 includes a dosing and toxicity study, to ascertain safety, and human patient studies. N1177 may also be used in the imaging of macrophages in autoimmune diseases, cancer and infection, he said.

Dr. Fayad noted that radiation exposure should not be a major concern, even though it may take two CT scans to complete the angiography study and the vessel wall plaque composition study. "In the future, new techniques will lower radiation," he said. "CT is the only technique we have that can noninvasively image the coronary artery. The best MR imaging agent cannot image the coronary artery." □

PlayStation® Offers Radiology Workstation Greater Efficiency

WHILE some physicians remain concerned about the effects of ever more sophisticated video games on young minds, others have seized on an advancement in gaming technology to transform medical imaging.

Doctors at the Mayo Clinic in Rochester, Minn., have collaborated with IBM software engineers to use the same image processor employed in Sony's PlayStation®3 (PS3) to help speed up image registration when aligning multiple scans.

When the PS3 was released last fall, Bradley Erickson, M.D., Ph.D., an associate professor of radiology and informatics at the Mayo Clinic, quickly realized that the powerful technology behind the state-of-the-art videogame console could also be well-suited for dealing with multiple medical images. Specifically he targeted the Cell Processor, designed by Sony, Toshiba and IBM and used in the IBM QS20 Cell Blade System that creates and organizes graphics for the PS3. As an extension of an existing collaboration between Mayo and IBM, the resulting project led to the creation of the new Image Registration Application.

Although computing algorithms have been used for several decades to align and register multiple medical images, they historically have required large amounts of computing power, as well as expensive equipment, said Dr. Erickson. He added that registering a dataset is "fairly compute-intensive, depending on how large the dataset is," and therefore could take a minute or two with existing programs. Working with multiple scan sequences and various combinations of scans not only adds time to the process, but also requires labor-intensive organization and data management to avoid confusion, he said.

Photo courtesy of the Mayo Clinic

Bradley Erickson, M.D., Ph.D.
Mayo Clinic

Shahrokh Daijavad, Ph.D.
IBM

The radiologist can just click on what he or she wants to see, and "bam," the results are right there.

Bradley Erickson, M.D., Ph.D.

Dr. Erickson and Shahrokh Daijavad, Ph.D., the software lead for Next Generation Computing Systems and Technology at IBM, took an open source 3D linear registration algorithm from the Insight Segmentation and Registration Toolkit and tailored it to suit medical imaging needs. Using the new algorithm with the IBM Cell Blade created an image registration tool that renders a computer-enhanced 3D alignment much more quickly than ever before.

"The IBM program reports to the Cell Processor, which can do graphics-type mathematical operations very fast," said Dr. Erickson. The Cell Processor in the Cell Blade uses eight internal processing units working in parallel, which, Dr. Erickson added, "cuts computation time by a factor of about 60. So the registration takes a second or two, instead of one or two minutes."

The result, he said, is a much more user-friendly, efficient way of aligning two medical images from different exams or from different scanning technologies—an innovation Dr. Erickson said he hopes will allow more radiologists to employ alignment and registration equipment and techniques in a clinical setting.

Few radiologists use alignment today, said Dr. Erickson, due to the time involved, the hassles of organizing and integrating large datasets and the cost and rarity of mainstream computing equipment powerful and fast enough to process millions of image pixels. "If we cut the computational time to one second, radiologists will actually put this into clinical practice," said Dr. Erickson. "That's the challenge in front of us. We need to get radiologists, and then the workstation vendors, convinced that this is a useful tool."

The program's interactivity also makes it easier for radiologists to find and compare the images they need, Dr. Erickson said. Rather than sifting through multiple datasets, he said, "the radiologist can just click on what he or she wants to see, and 'bam,' the results are right there."

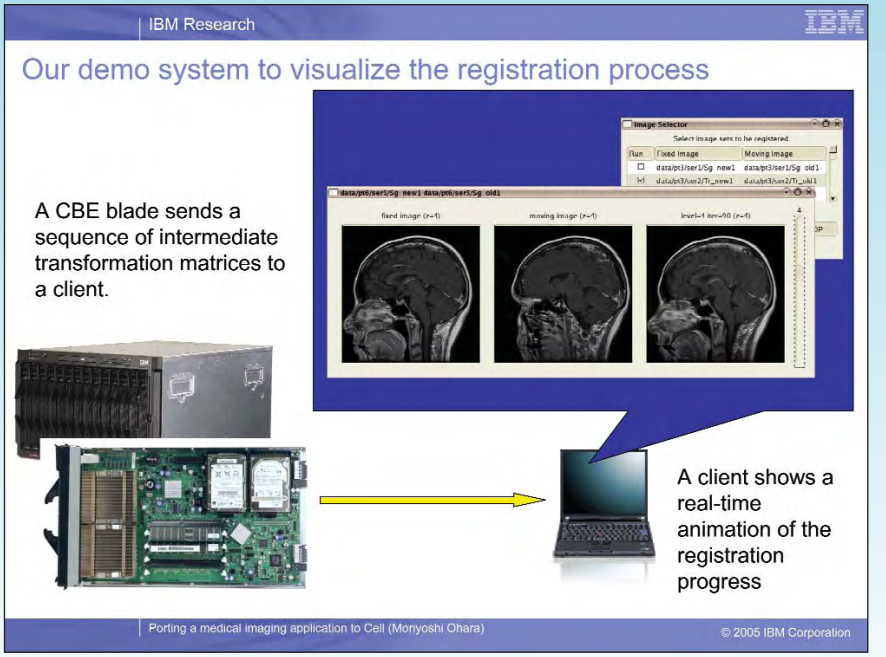
Dr. Erickson added, however, this type of alignment and registration application does more than simply make radiologists' jobs a little easier. The medical imaging landscape is rapidly changing due not only to technological advancements, but also demographic shifts. "The number of patients who have multiple exams is growing as the population ages," Dr. Erickson said. As a result, he said, patients are more and more frequently arriving in clinics toting several years' worth of multiple exams and scans to be compared and examined.

In addition to offering speed, the new application also shows a 15 percent improvement in accuracy when reading certain types of scans, Dr. Erickson added. Using alignment, "we can now perceive changes that wouldn't have been perceptible before," he said.

There are limitations right now to what the Image Registration Application can do. For instance, as of now, it is not designed to deal with the natural changes in chest or abdominal images created by patients' breathing during scans. "This algorithm assumes that the structure being scanned is basically rigid," said Dr. Erickson. "So it doesn't yet work on any image or in every situation."

Moving ahead, Dr. Erickson said he would like to see the registration application approved by the U.S. Food and Drug Administration and then incorporated into radiology workstations in clinics, as well as in large research facilities. "We need to convince radiologists and companies that this is worth putting the effort into and worth integrating into their work," he said.

Dr. Erickson is also at work following the next step in image registration—change detection that would ask the computer to combine multiple sequences with multiple time frames. Then the computer could identify changes in the scans, by "understanding" what is happening in the image, said Dr. Erickson.



An illustration provided by IBM shows how the Image Registration Application, developed from the same technology used in the Sony PlayStation®3, aligns and quickly registers multiple medical images.

Dr. Daijavad worked with Dr. Erickson to create the algorithm and make it function with the Cell Processor in the IBM Cell Blade System. "IBM was already pursuing medical applications for the Cell Blade," said Dr. Daijavad. So when the Mayo Clinic approached IBM with the idea for a registration application, it was a perfect fit. "This is all about taking technology innovation, collaborating with our customers, and applying it to help them directly benefit their patients," said Dr. Daijavad in a statement.

Dr. Daijavad will present "Real-time Image Registration on the Cell Broadband Engine Processor" at the Workshop on Solving Computational Challenges in Medical Imaging, in Seattle on July 24.

Dr. Erickson noted that, as with all things computer-related, advancements in technology continually bring costs down. "That's the neat thing," he said. "This processor we're using is in the PS3. If you can put it into games, then it shouldn't cost too much more to put it into a radiologist's workstation." □

Learn More

■ More information about the QS20 BladeCenter is available at *www-03.ibm.com/technology/splash/qs20.*

Image Processing at RSNA 2007

Bradley Erickson, M.D., Ph.D., will moderate a refresher course, "Image Processing and 3D Imaging (Advanced Imaging Informatics)," at RSNA 2007. It is one of several sessions that will address image processing applications. For more information and to register now for RSNA 2007 courses, go to *RSNA2007.RSNA.org.*

RSNA 2007
CONNECTING RADIOLOGY

RSNA 2007 Quality Course Offers Perspective, Problem Solving

With consumers, regulators and payers demanding proof of quality in healthcare, radiologists cannot ignore the threats to their reimbursement and job security, said organizers of a one-day quality multisession course at RSNA 2007.

"This is a tidal wave coming in healthcare and it's going to have patient care, financial and regulatory implications," said Ramin Khorasani, M.D., a member of the RSNA Continuous Quality Improvement Initiative (CQII) Committee that is overseeing the course. Dr. Khorasani is director of medical imaging information technology, vice-chair of the Department of Radiology and medical director of the Center for Evidence-Based Imaging at Brigham & Women's Hospital in Boston.

Lawrence S. Lau, M.D.
Melbourne, Australia

Richard L. Baron, M.D.
University of Chicago

Ramin Khorasani, M.D.
Brigham & Women's Hospital

"If other providers are focusing on quality and you're not, you're out of step in a very competitive environment," added fellow committee member Lawrence S. Lau, M.D., a consultant radiologist from Melbourne, Australia. Dr. Lau chairs the International Radiology Quality Network (IRQN), of which RSNA is an observer organization.

While such a reality might be anxiety producing—in fact, the course includes a session on managing the fear of change—organizers said radiologists have less to worry about than they think. Attendees will find they've already been doing things that constitute quality initiatives, said organizers, but increased awareness, better documentation and application of quality improvement principles will enhance their outcomes and formalize their activities in meeting regulatory requirements.

For example, said Dr. Lau, authors of scientific papers comparing old and new methods of diagnosis or treatment wouldn't think to categorize their work as quality focused. "They say, 'This is a study on the use of CT for identifying liver tumors,' rather than, 'This is how we have devised a protocol or routine which has resulted in improved diagnostic accuracy or quality outcome for identifying such lesions,'" he said.

> *If other providers are focusing on quality and you're not, you're out of step in a very competitive environment.*
>
> **Lawrence S. Lau, M.D.**

The multisession quality improvement course at RSNA 2007 will be held Tuesday, November 27, from 8:30 a.m. to 5:00 p.m. For information on how to register for RSNA 2007 courses, see Page 24.

Urgency Fueled by Publicity, Regulation

Experts said that while quality has been discussed in radiology for more than 20 years, the issue has been thrust into the limelight in the last decade by publicized reports. The Institute of Medicine's 2001 "Crossing the Quality Chasm" report documented the causes of gaps in quality care, while last year, U.S. Pharmacopeia released a report alleging that medication errors occurring in radiology services resulted in seven times more harm than all other medication errors studied in a yearlong period.

Dr. Lau said such reports have driven consumers and payers to seek better quality, safety and clinical outcomes for their healthcare dollars. Some payers provide payment incentives for quality providers, in what has become known as a pay for performance protocol, he said, and there are malpractice insurers who also offer premium discounts to radiologists actively involved in quality improvement activities. In addition, the American Board of Radiology requires physicians to undertake a quality improvement project as part of the practice performance section of its maintenance of certification program.

Richard L. Baron, M.D., chair of the Department of Radiology at the University of Chicago and a quality session presenter, said radiology has lagged in the quality movement partly

because radiologists frequently don't see their patients. "It's too easy to just look at a monitor, read images and forget there's a patient at the other end," Dr. Baron said.

The multisession course is one of several initiatives undertaken by RSNA to equip its members with quality improvement tools and methodologies. A quality link on *RSNA.org* provides resources to design and implement a quality improvement project and a new Quality Assurance section in *RadioGraphics*, to be edited by Jonathan B. Kruskal, M.D., Ph.D., of Harvard University, will focus on the educational aspects of performance improvement.

Course Features Case Studies, Latest Technology

During his session at RSNA 2007, Dr. Baron will walk attendees through his department's quality improvement projects, highlighting what worked and didn't. Such real world examples are exactly what radiology professionals requested in a survey conducted earlier this year (see sidebar).

Dr. Baron said he began instituting quality improvement tactics borrowed from the auto industry about four years ago, as a result of his business background. In a previous position in Pittsburgh, he managed a $400-million-a-year, 1,400-physician group. "I looked at my department and said, 'I've got to run a business and I want to run it efficiently,'" he explained.

A misperformed CT protocol, he said, is an example of a radiology department problem ripe for a measured approach. While a physician's typical response might be to discipline technologists, Dr. Baron said he asks the physician to seize the quality improvement opportunity. "Measure 30 cases, see how many times the exam didn't follow the right protocol," he said. "When it was wrong, what was the reason? Ask yourself, How can I address the reasons? Focus and then remeasure."

Dr. Lau will moderate a session on performance matrices. He and fellow presenters will give attendees examples of what they can measure, as well as why and how. "We'll demonstrate the quality improvement cycle," he said. "They can take this home right away and apply it to their everyday work."

Dr. Khorasani said attendees will be thrilled to learn that new technology, such as tools to improve the reporting process and enable integration with other hospital systems, is available as they begin quality improvement projects.

"We can't possibly expect people not to make mistakes, so we have to create a systems approach to healthcare that substantially limits the opportunity for people to make errors," said Dr. Khorasani, who will lead the refresher course, "Using Information Technology to Improve Quality and Safety in Radiology Practice," from 10:30 a.m. to 12:30 p.m. on Wednesday, November 28. "Working harder and smarter isn't going to solve the quality problem. We need system changes and many of those will require technology."

Anxiety Must be Overcome

Organizers acknowledged that radiologists will be anxious about quality initiatives because of the unknown. "Radiologists tend to be very individu-

Continued on Page 13

Physicians Seeking Proven Quality Improvement Methods, Survey Says

THOUGH they had differing degrees of experience with quality improvement processes, respondents to a preliminary survey conducted in early 2007 by the RSNA Continuous Quality Improvement Initiative (CQII) Committee agreed on their education needs. Tools and methods were the most popular request, followed by evidence-based practices. "Provide me with proven techniques that other facilities have implemented," said one anonymous respondent. "Teach us how to set up a program," said another. A little more than 100 members of the Society of Chairs in Academic Radiology Departments, American Healthcare Radiology Aministrators and Association of Administrators in Academic Radiology responded to the survey, conducted in part to help chart the course for the new Quality Improvement Roundtable for Radiology. Practitioners working in academic or community hospital settings, regardless of size, reported higher levels of training and experience with quality improvement processes than those from ambulatory care or smaller-sized practices in free-standing settings.

Quality Improvement Multisession Course Schedule

The quality improvement multisession course at RSNA 2007 will be held Tuesday, November 27, from 8:30 a.m. to 5:00 p.m. Registration for all RSNA 2007 courses is under way. More information is available at *RSNA2007.RSNA.org*.

RSNA 2007
CONNECTING RADIOLOGY

Tuesday, November 27

QI31 (8:30 a.m. – 10:05 a.m.)
- Is There a Problem? Perspectives in Medicine
- The External Environment

QI32 (10:30 a.m. – 12:30 p.m.)
- Leveraging Quality as a Strategic Advantage: The Business Case for Quality
- What Do We Do About It?

QI33 (1:15 p.m. – 2:35 p.m.)
- Quality Improvement: Metrics Examples

QI34 (3:05 p.m. – 4:55 p.m.)
- Developing the Infrastructure
- Making Improvements
- Putting It All Together

Related Course

Wednesday, November 28

Refresher Course 051
10:30 a.m. – 12:00 p.m.
"Using Information Technology to Improve Quality and Safety in Radiology Practice"

Translaminar Steroid Injections Reduce Neck Pain Safely and Effectively

RADIOLOGISTS who perform spine interventions have a new treatment option for patients with neck pain which avoids the significant risk of paralysis or other major complications associated with other percutaneous procedures or surgery.

Translaminar cervical spine steroid injections are a nonsurgical approach to treating neck pain in patients in whom physical therapy or traditional nonsteroidal anti-inflammatory medications haven't proved helpful, said William M. Strub, M.D., lead researcher of a study involving the largest series of patients to date. "They also provide quick relief—in two days or sooner," he added.

> *It's the perfect procedure for somebody who may not be ready for cervical spine surgery, but is tired of dealing with neck pain.*
>
> William M. Strub, M.D.

Dr. Strub and his colleagues presented their findings at the Society of Interventional Radiology's 32nd Annual Scientific Meeting in Seattle in March. Dr. Strub conducted the research while working as a staff radiologist at the University of Cincinnati, in conjunction with a group of interventional radiologists based at Christ Hospital in Cincinnati.

Translaminar cervical spine steroid injections can be given in an outpatient setting and require the use of local anesthetic only. The patient remains awake and is able to communicate with the physician. Fluoroscopy is used to guide a small needle into the space between the C7 and T1 vertebrae where a small amount of steroid medication is injected. Patients may require up to three injections, which are performed three to four weeks apart.

4 Out of 5 Patients Reported Relief after Injections

Dr. Strub and colleagues studied 69 men and 92 women with an average age of 53 years. Patients had experienced pain for an average of four months before their first injections, with the pain due to degenerative changes such as osteoarthritis of the spine, bone spurs, disc degeneration and narrowing of the spinal canal.

Eighty-two percent of patients reported some degree of pain relief from the first injection, said Dr. Strub, with 35 percent rating it as substantial. Of 32 patients who had three injections, 91 percent reported pain relief and 47 percent called it substantial.

By injecting steroids into the epidural space in the neck, which allows the drug to spread over a large area to reduce inflammation and pain, the translaminal approach avoids the potential for nerve damage and paralysis associated with injections given in closer proximity to the nerve roots.

"All procedures have risks, but with the translaminal approach there is less risk, pain and a shorter recovery time as compared to surgery, and there is a decreased risk of injury to the spinal cord and blood vessels," said Dr. Strub. Among patients treated with the translaminar approach in his study, only 5 percent had complications, which were minor steroid-related side effects such as weight gain and hot flashes.

"This is a very significant study, because it shows that someone who is competent and well-trained can perform translaminar injections safely," said Mary Gaskill-Shipley, M.D., and associate professor of radiology at the Uni-

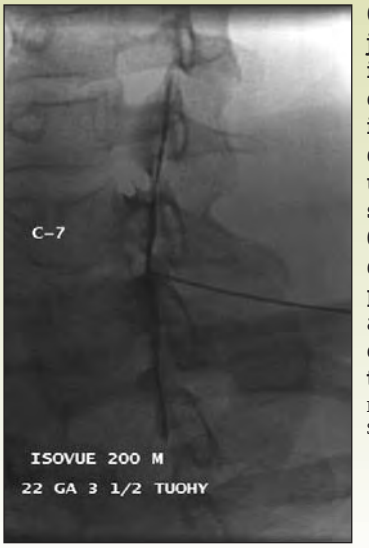
William M. Strub, M.D.
University of Cincinnati

Interventional Radiology at RSNA 2007

Interventional radiology offerings at RSNA 2007 include the daylong "Case-based Review of Interventional Radiology," presented in conjunction with the Society of Interventional Radiology. For more information and to register now for RSNA 2007 courses, go to *RSNA2007.RSNA.org.*

RSNA 2007
CONNECTING RADIOLOGY

The Translaminar Technique.



Once the needle is just deep to the interlaminar space, contrast is gently injected as the needle is advanced until the epidural space is entered. Contrast injection documents epidural placement by visualizing free flow of contrast away from the needle tip.

Images courtesy of William M. Strub, M.D.

versity of Cincinnati. "How long the results last depends on the individual. But most patients, who might otherwise be debilitated, are up and moving."

Steroids Helpful Regardless of Pain Cause

David White, M.D., also an assistant professor of radiology at the University of Cincinnati, said the translaminar approach demonstrates that delivering epidural steroids to the cervical spine can be safe and efficacious. Physicians skilled at image guidance and epidural steroid treatments in general are very well suited to using the translaminar approach, he said.

Although translaminar steroid injections do not treat the underlying causes of pain, such as arthritis or disc herniation, they do treat the immediate pain flare-ups and allow patients to get back to their normal routines, said Dr. White.

"The nice thing about steroids is that it doesn't matter where the pain may be coming from—they tend to be really quite helpful regardless of the cause," he said. "You have irritation of the nerve roots and by being able to alleviate some of that irritation, you can give patients substantial relief."

Dr. Gaskill-Shipley agreed. "Anything you can do to make patients comfortable, moving, and active, without having to do a major surgical procedure is significant," she said.

"It's the perfect procedure for somebody who may not be ready for cervical spine surgery, but is tired of dealing with neck pain," said Dr. Strub. "It's a viable treatment alternative." □

Learn More

■ To view the abstract for "Translaminar Cervical Epidural Steroid Injection: Is the Procedure Right for Your Patient?" go to *www.sirmeeting.org* and click Program in the taskbar across the top of the page. Click Scientific Program in the left-hand sidebar, then click Abstract Presentation and choose Non-Vascular Interventions: Biopsy/Spine.

RSNA 2007 Quality Course Offers Perspective, Problem Solving

Continued from Page 11

alistic, highly accomplished people," said Dr. Baron. "To get them to go to structured order sets or functions can be very difficult."

Managing change requires a skill set that a typical radiologist is not trained in, added Dr. Khorasani. "There are successful change management programs in other industries," he said. "We need to ask, how do we apply them in healthcare?"

Dr. Lau agreed that radiologists should lead the cultural change. Delivering quality services, ensuring patient safety and implementing quality improvement are part of radiologists' professional responsibility, he said, adding that failure to lead by self-regulation might result in inappropriate regulatory demands on the profession from third parties.

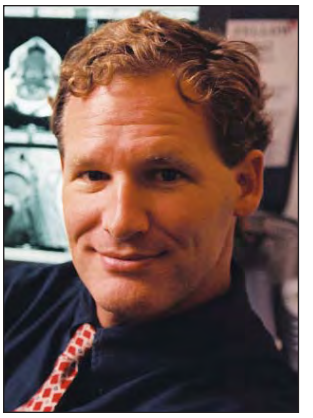
Even the best technologies and processes can fail miserably if people's feelings are ignored, Dr. Khorasani continued. "As opposed to talking about managing change in vague terms, I will be using some examples in radiology of how we can actually do it."

More than anything, said Dr. Khorasani, radiologists should view quality improvement as a way to improve their value to the healthcare system. "We must be seen as colleagues and collaborators with specialists in other areas," he said. "This quality movement is real and the sooner we are participating, the more benefit we can bring to our patients as well as our own practices." □

Radiologists Have Vital Role in Addressing Pediatric Obesity

Janet L. Strife, M.D.
Cincinnati Children's Hospital Medical Center

Charles F. Hildebolt, D.D.S., Ph.D.
Washington University



Lane F. Donnelly, M.D.
Cincinnati Children's Hospital Medical Center

MORE THAN three years after a study on the effects of adult obesity on the quality of medical imaging was unveiled at RSNA 2004, the issue remains a hot topic as the focus shifts to pediatric obesity.

According to the 2003-2004 National Health and Nutrition Examination Survey, an estimated 17 percent of children between the ages of two and 19 are overweight. Many of these children will become obese adults, and some new studies suggest there are opportunities for radiologists to help stop what has been termed a medical crisis.

Janet L. Strife, M.D., a professor of radiology and pediatrics at Cincinnati Children's Hospital Medical Center, advocates including pediatric obesity as part of the medical opinion or diagnostic impression. "Many radiologists are very uncomfortable with dictating obesity in their reports or prefer to ignore the findings," she said.

Dr. Strife and colleagues reviewed nine years worth of dictated reports for a study published in the March 2006 issue of the *American Journal of Roentgenology (AJR)*. During that time the national prevalence of childhood obesity ranged from 6 percent to 16 percent; however, radiologists mentioned obesity in less than 0.4 percent of all reports. Most of the time, the notation of obesity was hidden in the description (for example, "difficult study due to body habitus") rather than stated in the diagnostic impression.

"It was shocking that we didn't dictate it when we saw it," said Dr. Strife, adding she encountered significant negative reaction from other radiologists to her report. "I was told that saying a child is obese is pejorative and will label the child," she said. Other radiologists told her that it is the clinician's obligation to notice when a child is obese, rather than a radiologist's. Dr. Strife countered that in about a third of all doctor visits including emergency room visits, a child's weight is not obtained. For example, the physician may not weigh a child being checked for a sore throat or injuries relating to a fall.

> *Many radiologists are very uncomfortable with dictating obesity in their reports or prefer to ignore the findings.*
>
> **Janet L. Strife, M.D.**

Another physician suggested to Dr. Strife that radiologists could be sued for mentioning obesity in radiology reports, while other critics warned that documentation of obesity could raise a patient's health insurance rates. "I think radiologists could be sued for not mentioning this," said Dr. Strife. "And I think obesity should raise insurance rates, as is the case for people who smoke or have frequent auto accidents. It is predicted that obese children who become obese adults will have a decreased life span of approximately 10 years due to healthcare issues."

Treating Obesity Crucial Yet Challenging

Dr. Strife acknowledged that there are no easy solutions to treat obesity. "It's like global warming," she said. "Where do you start? But I think that radiologists may play an advocacy role to increase awareness of diseases related to obesity." In a study published in the April 2007 issue of *AJR*, Dr. Strife and colleagues looked at obesity as a disease that can lead to metabolic syndromes and cardiac, respiratory, gynecologic, neurologic and vascular disorders, as well as pose a risk for growth issues and a much greater potential in the future for arthritis.

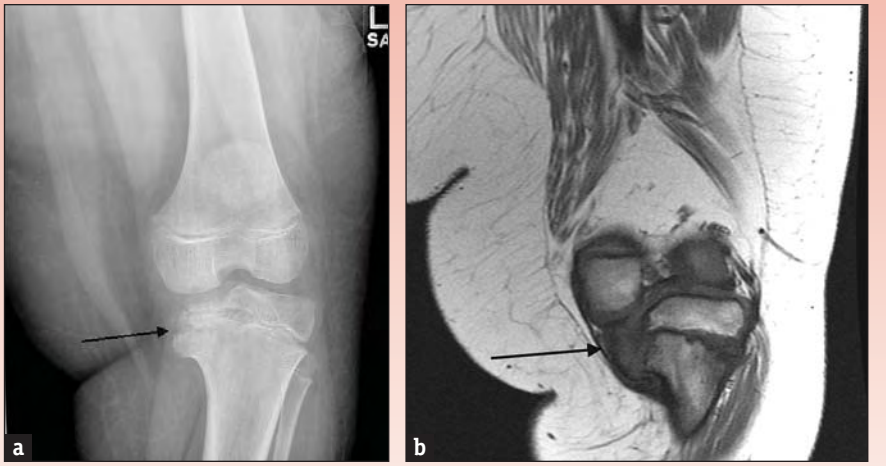
"Finding effective strategies to treat obesity, through the timely identification of its presence by healthcare providers, is a crucial step in recognizing the disease of obesity and its potential management," Dr. Strife wrote in

the 2007 study. "Despite the fact that radiologists are aware of the clinically associated diseases, they rarely mention these associations in their reports. In doing so, radiologists miss their opportunity to be advocates and to identify children at risk of serious health consequences."

Dr. Strife said that while other sectors should also be held accountable for addressing the pediatric obesity crisis, radiologists must assume responsibility for raising referring physicians' awareness. She cited the example that when imaging an obese adolescent for knee pain or skeletal injury, the report should not say "normal knee" if there is excessive soft tissues related to obesity. If the radiologist is unsure whether the child is obese, the report could say, "patient appears obese, suggest correlation with body mass index (BMI)."

Dr. Strife said the impetus for the 2006 study was a 15-year-old, 380-pound adolescent male admitted for bariatric surgery. "The radiology report on the child's chest X-ray said, 'Normal,' and that got us thinking because 380 pounds is never normal, and especially for a 15-year-old," she said.

Study co-author Lane F. Donnelly, M.D., radiologist-in-chief at Cincinnati Children's Hospital Medical Center and a professor of radiology and pediatrics at the University of Cincinnati, said his hospital is an imaging core for pediatric obesity research. A new study uses techniques from aerospace researchers, comparing the way fuel is delivered to rocket boosters to how air travels though the airways of obese children. "Three percent of children in general have obstructive sleep apnea—that's millions of children," Dr. Donnelly said. In obese children with a body mass index greater than 60, about 80 percent have severe obstructive sleep apnea, he said. Scientists are trying to figure out if this is a direct result of fat in the neck of obese children or if the excessive fat is somehow related to the central control of breathing, said Dr. Donnelly.



Blount disease (tibia vara) in two girls.

(A) **In an 11-year-old obese girl, a radiograph with the patient standing shows loss of height of the medial tibial epiphysis and slanting (tibia vara)** *(arrow). (B)* **In a 4-year-old obese girl, a coronal T1-weighted MR image shows irregular, widening depression of medial growth plate, unossified medial epiphysis** *(arrow)* **and hypertrophy of the medial meniscus.**

AJR 2007; 188:1118–1130. Reprinted with permission from the *American Journal of Roentgenology.*

Study Uses MR to Measures Fat Types

While Drs. Strife and Donnelly maintain there is much to be done, radiologists have not ignored the pediatric obesity issue. Authors of a study published in the March 2007 issue of *Radiology* used MR imaging to assess abdominal fat composition in adolescents and found MR imaging offered more precision than traditional clinical methods, without the radiation exposure risks of CT.

In a study of 30 adolescents, Marilyn J. Siegel, M.D., a professor of radiology and pediatrics at Washington University School of Medicine in St. Louis, and colleagues found that abdominal adipose tissue volumes determined by single and multislice MR imaging correlated closely with measurements obtained by anthropometry and dual-energy X-ray absorptiometry (DEXA).

Study co-author Charles F. Hildebolt, D.D.S., Ph.D., an associate professor of radiology at Washington University, said MR measured both subcutaneous and visceral fat. "Visceral fat is the more dangerous type of fat," he said. "Using MR allowed us to see the different types of fat, meaning we can intervene at an early age."

Dr. Hildebolt said that DEXA, in addition to superimposing the two types of fat so it is more difficult for doctors to distinguish them, cannot be used often and safely due to ionizing radiation. CT also exposes patients to the ionizing radiation risk, he said.

The sample size for this research was small, said Dr. Hildebolt, with nine non-diabetic overweight adolescents, 10 Type 2 diabetic overweight adolescents and 11 children in the control group. He and his colleagues concluded that further investigation with larger populations will be required to determine the relationship between diabetes and obesity on intraabdominal fat accumulation in adolescent patients. □

Pediatric Radiology at RSNA 2007

Pediatric radiology is again a topic of a series course, a multisession offering which combines related refresher course material and scientific paper presentations in the same sessions. Other series course topics at RSNA 2007 are gastrointestinal, musculoskeletal, neuroradiology and interventional oncology. For more information and to register now for RSNA 2007 courses, go to *RSNA2007.RSNA.org.*

RSNA Research Resident Takes Engineering Approach to Medical Imaging

Some might find it difficult to envision how building mathematical models for power plants could lead to valuable medical research, but to 1996 RSNA Research & Education (R&E) Foundation Research Resident Kyongtae Ty Bae, M.D., Ph.D., it's crystal clear.

As a graduate student in chemical engineering, Dr. Bae, now a professor of radiology and bioengineering at the University of Pittsburgh, developed mathematical designs to assess how oil is refined into gas. He later applied these engineering techniques to his Research Resident Grant project, "Optimization of Contrast Enhancement During Spiral CT: Effect of Alterations in Cardiovascular Physiology."

As a radiology resident, Dr. Bae was interested in how contrast agents were injected and optimized, but was unsatisfied with what he found in the literature about the topic. "It was a big black box," he said. "So I built a mathematical model of the human circulatory system, which I see as functioning much like a power plant. When you inject contrast medium, it goes through the circulation system and various organs and eventually it filters out and gives an organ-specific contrast enhancement that is diagnostically valuable."

I built a mathematical model of the human circulatory system for contrast enhancement, which I see as functioning much like a power plant.

Kyongtae Ty Bae, M.D., Ph.D.

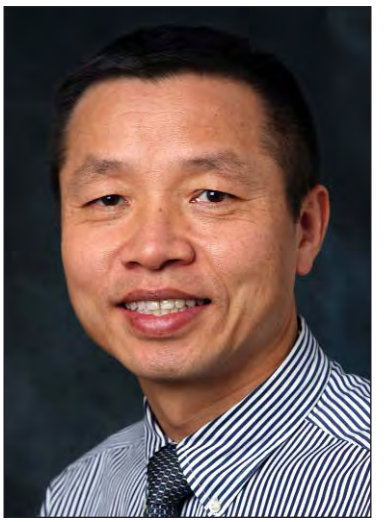
To improve radiologic diagnostic capabilities by maximizing the effects of contrast agents, Dr. Bae aimed to define parameters that would clarify the optimal timeframe for scanning and the degree of contrast enhancement after the introduction of contrast material into the vascular system.

"My model of the human body had mathematical compartments and once I knew how these compartments interacted with each other based on circulation and pharmacokinetics, I was able to come up with a solution to maximize contrast enhancement," he said.

The area of study has evolved dramatically in the past decade; however, Dr. Bae said he is far from finished.

"I haven't reached my goal yet," he said. "Currently I'm doing industry-sponsored research to achieve automated optimization of contrast timing. Ten years ago, CT and MR scanners were slower. Today, the field has become more technically demanding with the introduction of faster scanners and complex scanning protocols. We have found this to be a problem for complex optimization of contrast enhancement.

"We hope to use a host of technological advances in computers, injectors and scanners to help erase those complexities in optimization of contrast enhancement," Dr. Bae continued. "Eventually, we want to practice personalized contrast enhancement and radiology optimal for individual patients."



Kyongtae Ty Bae, M.D., Ph.D.
University of Pittsburgh

Research Led to Patents, Other Studies

Dr. Bae's successful research has led to several patents for computer-aided diagnosis and smart contrast medium injectors currently being marketed and used in the clinical setting. In addition, he has published numerous scientific articles and papers. He said his RSNA Research Resident experience provided the ideal platform for him to be able to climb to the next level in his career. As a young faculty member in 1999, Dr. Bae received a second R&E Foundation grant, a Research Seed Grant.

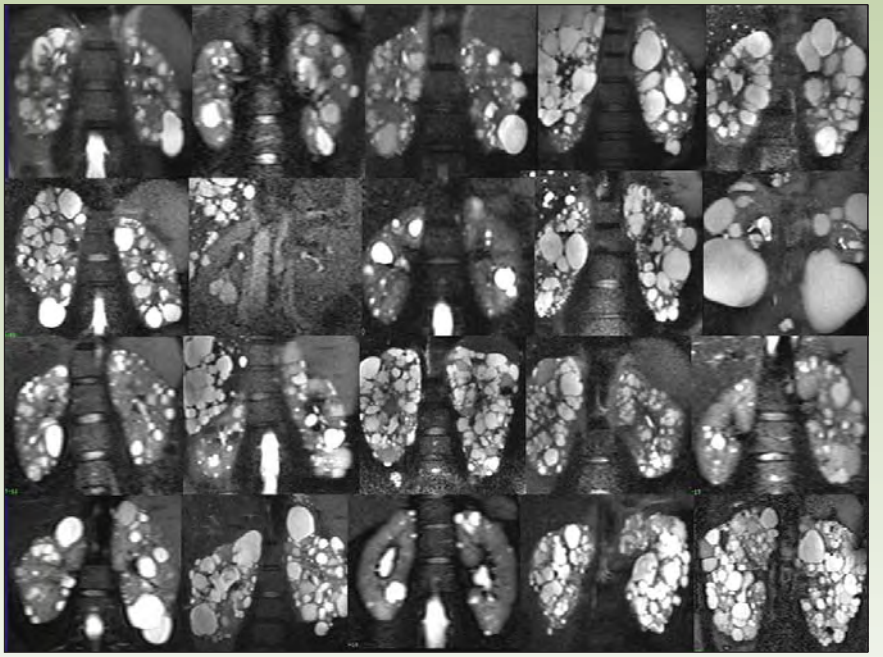
Today, Dr. Bae spends 30 percent of his time in the clinical setting and the other 70 percent on imaging research. He is currently working with six full-time research staff in his lab on three National Institutes of Health (NIH) grants, one of which evolved from his Research Seed Grant project. For that project, "Chest Wall and Diaphragm Movements: Correlation

with Pulmonary Function in Adolescents having Scoliosis Fusion Surgery," Dr. Bae used MR imaging to measure physiological change in the lungs and diaphragms of adolescent patients with scoliosis before and after treatment.

"We use imaging as a biomarker—a tool to measure and monitor the disease progression and treatment response," said Dr. Bae. "As an engineer and physician, I want to come up with rigorous quality control and outcome measurements to assure that we have numbers and measurements that are both reliable and clinically meaningful."

The RSNA Research Seed Grant project helped Dr. Bae secure an NIH grant, recently renewed, for a project on kidney disease. "We are looking at a disease where cysts grow uncontrollably in the kidneys, causing patients to experience renal failure," he said. "We have found that imaging is a good way to measure subtle changes and the progression of the disease as opposed to functional measurement or pain, which is hard to quantify. We have been very successful."

This success spurred an additional NIH grant on related kidney disease research. Dr. Bae has also combined a computer-aided diagnosis system he invented during medical school with the results from his RSNA Research Seed Grant project for a third NIH research project looking at lung nodule detection and quantification.



Work that Kyongtae Ty Bae, M.D., Ph.D., performed with Research Resident and Research Seed Grants from the RSNA Research & Education Foundation led to two National Institutes of Health grants to study kidney disease. These composite MR images illustrate heterogeneous distribution and severity of renal cysts in 20 patients with polycystic kidney disease.

Image courtesy of Kyongtae Ty Bae, M.D., Ph.D.

Bae an Inspiration to Others

Dr. Bae said he has dedicated himself to research that allows him to apply engineering concepts to improve technology, enhance imaging and ultimately improve the quality of patient care. Despite his busy schedule, Dr. Bae also gives back to the R&E Foundation by serving as a grant reviewer on the research study section, and his colleagues and former mentors said the value of his work extends well beyond the lab.

"Dr. Bae is a unique and creative force in academic radiology today," said Jeffrey J. Brown, M.D., a professor of radiology in the Mallinckrodt Institute of Radiology at the Washington University School of Medicine in St. Louis. "One of Ty's strengths is that he is equally at home in front of a clinical workstation or in a basic research lab. Ty has an uncanny ability to develop practical solutions to everyday radiologic challenges, such as characterizing adrenal masses or quantifying coronary artery calcification.

"He has not only been very effective at promoting international collaboration in radiologic research, but he has also been a generous and nurturing mentor to numerous trainees and younger colleagues," Dr. Brown said. □

■ Additional information about RSNA Research & Education Foundation grant programs and other past recipients is available at *RSNA.org/foundation.*

RSNA Outstanding Researcher, Educator Awards

Nomination Deadline Extended to August 1

Nominations for the 2007 RSNA Outstanding Researcher and Outstanding Educator Awards will be accepted through August 1. The program recognizes one senior physician or scientist in each award category who has made a career of significant contributions to the field of radiology or radiologic sciences through research or teaching/education.

To nominate a deserving mentor or colleague, simply send a letter of nomination and at least one corroborating letter of support, along with the nominee's complete curriculum vitae, to Scott Walter, M.S., Senior Manager: Grant Administration, at *swalter@rsna.org.* More details and a list of former recipients are available at:

- *RSNA.org/Foundation/OutstandingResearcherAward.cfm*
- *RSNA.org/Foundation/OutstandingEducatorAward.cfm.*

Research & Education Foundation Donors

THE Board of Trustees of the RSNA Research & Education Foundation and its recipients of research and education grants gratefully acknowledge the contributions made to the Foundation April 14–May 18, 2007.

Donors who achieve milestones with their cumulative giving are recognized through the Foundation's Visionary Donor Program.

For more information on Foundation activities, go to *RSNA.org/foundation.*

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Dr. & Mrs. John A. Patti
John H. Rees, M.D.
Nancy & William T. Thorwarth Jr., M.D.
Jack Wittenberg, M.D.

$501 – $1,499

Diane & Joseph M. Bailey, M.D.
Patricia A. Randall, M.D.
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In memory of Jeffrey P. Weiss, M.D.

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Ritsuko Komaki, M.D. & James D. Cox, M.D.
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Satish D. Patel, M.D.
Louise A. & Perry G. Pernicano, M.D.
Jean M. Weigert, M.D.

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Andrew S. Blum, M.D.
Earl R. Brown Jr., M.D.
Laurette M. & Donald M. Bryan, M.D.
John T. Burke, M.D.
Dan P. Butcher, M.D.
Dayla & Chad L. Calendine, M.D.
Monica & Nils-Olov Carlsson, M.D.
Alan Dong Shing Chan, M.D.
Yeun-Chung Chang, M.D.
Tilden L. Childs III, M.D.
Elsie Cintron, M.D.
Sandra W. Cohen, M.D. & Harris L. Cohen, M.D.
In memory of Prof. Liviu Librescu
Christopher E. Comstock, M.D.
Leonard P. Connolly, M.D.
Julia & Jonathan P. Coyle, M.D.
Carlos F. De Pierris, M.D.
Wilma C. Diner, M.D.
Tova & James P. Eisenberg, M.D., Ph.D.
Carol J. & Thomas M. Fabian, M.D.
Lorenzo M. Farolan, M.D.
Ethan B. Foxman, M.D., Ph.D.
Ingrid Franze, M.D.
Teri J. Franks, M.D. & Jeffrey R. Galvin, M.D.
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Donors who give $1,500 or more in the giving year qualify for membership in the Presidents Circle. Their names are shown in bold face.

Journal Highlights

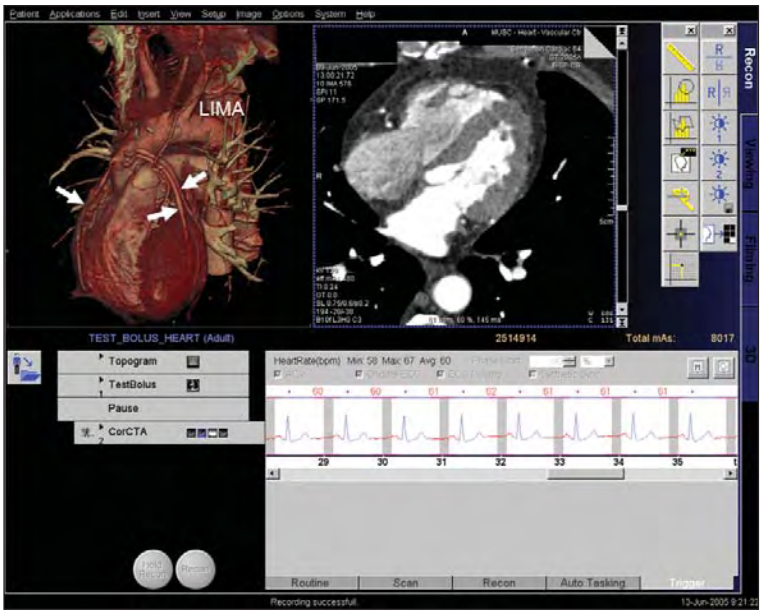
The following are highlights from the current issues of RSNA's two peer-reviewed journals.

Coronary CT Angiography

WITH ONGOING technical refinements and scientific evaluations, CT angiography of the heart has evolved into a broadly applicable clinical examination that can replace invasive cardiac catheterization in selected patient populations. The procedure is inherently challenging, however, as its target is the continuously moving heart. Rapid developments require constant adaptation of acquisition protocols.

In a How I Do It article in the July issue of *Radiology (RSNA.org/radiologyjnl)*, U. Joseph Schoepf, M.D., of the Department of Radiology at the Medical University of South Carolina, and colleagues relate their experiences with coronary CT angiography. Offering what they term a "step-by-step manual," Dr. Schoepf and colleagues specifically address:

Continued on Page 21



Contrast-enhanced retrospectively ECG-gated 64-section coronary CT angiogram *(top right panel)* **and anterior volume-rendered image** *(top left panel)* **from a 60-year-old man referred for patency evaluation of the left internal mammary arterial bypass graft to the left anterior descending three saphenous vein grafts** *(arrows)* **to the three major coronary territories. A slow and steady heart rate of about 60 beats per minute enables successful use of ECG pulsing for reducing radiation exposure. Full nominal tube current was applied only during diastole; the cardiac phase subsequently used for image reconstruction is at 60% R-R, which results in full image quality with a high signal-to-noise ratio** *(top right panel)*. **During the other cardiac phases, which are not used for image reconstruction, the tube current is lowered to 20 percent of the nominal output.**

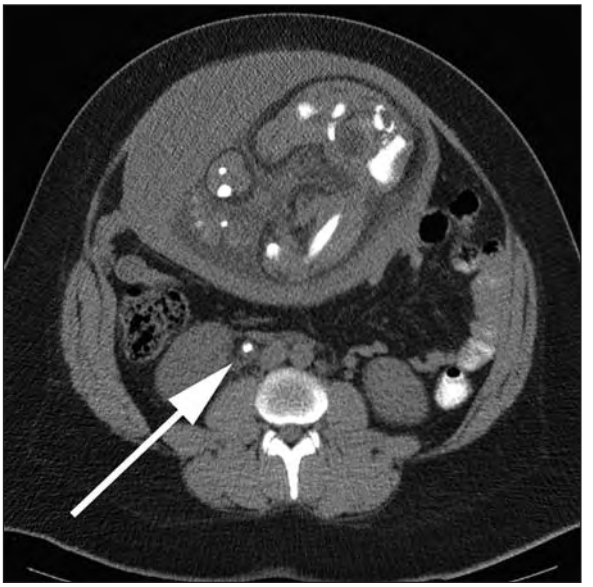
(*Radiology* 2007;244:48–63)

Radiation Exposure and Pregnancy: When Should We Be Concerned?

IMAGING pregnant women is uniquely challenging for radiologists due to concern about the radiation risk to the embryo or fetus. Though the risks are small, it is important to ensure that radiation doses are kept as low as reasonably achievable.

In an article in the July-August issue of *RadioGraphics (RSNA.org/radiographics)*, Cynthia H. McCollough, Ph.D., of the Mayo Clinic College of Medicine in Rochester, Minn.,

Continued on Page 21



Axial CT image from a renal stone study in a pregnant woman shows a stone in a middle segment of the right ureter *(arrow)*.

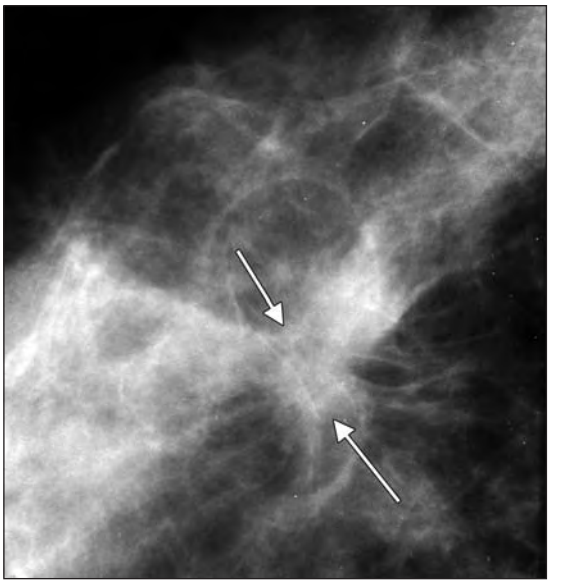
(*RadioGraphics* 2007;27:909–918)

Radiology in Public Focus

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

Probably Benign Breast Masses at US: Is Follow-up an Acceptable Alternative to Biopsy?

In craniocaudal screening mammographic view, a circumscribed lesion *(arrows)* **is visible, with more than 25 percent of the circumference obscured by dense breast tissue.**



Spot-compression magnification screening mammographic views show an ill-defined mass with an associated architectural distortion *(arrows)* **in the right breast.**

FOLLOW-UP sonography is a viable alternative to biopsy for solid breast masses characterized as probably benign at ultrasound, Austrian researchers have found.

While ultrasound has been proven to detect some breast cancers obscured by dense breast tissue at mammography, studies have also noted ultrasound's incidental detection of many lesions that are not malignant. Proper management of these probably benign findings has remained controversial, with some researchers arguing that biopsy is necessary because there is no proof that ultrasound can differentiate between benign and malignant lesions.

Oswald Graf, M.D., of the Department of Radiology in the Ambulatory Care Center in Steyr, and colleagues retrospectively reviewed the cases of 409 women with 448 nonpalpable solid masses classified as probably benign at ultrasound.

Three of the 448 masses were biopsied after initial imaging and found to be fibroadenomas. Of the other 445 masses, 442 remained stable at an average follow-up of 3.3 years, two increased and one became palpable with cancer diagnosed at biopsy.

Given ultrasound's false-negative rate of 0.2 percent, Dr. Graf and colleagues conclude, "Solid breast masses with morphologic features specified as … probably benign can be followed without substantially increasing the negative biopsy rate."

July Public Information Activities Highlight Neuroradiology

In July, RSNA's "60-Second Check-up" radio segments focus on neuroradiology, including imaging of sports-related head injuries and teen brains during violent video game play. Also featured is the use of functional MR imaging in pre-surgical planning and in determining lateralization of language function.

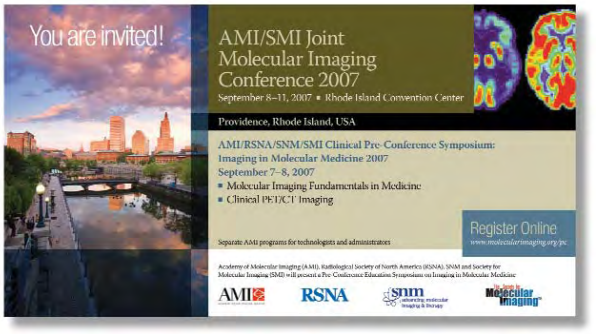
60-Second Check-up segments each feature a single topic in radiology, with an introduction by a reporter and interview with an expert on the topic. Segments are broadcast on nearly 100 radio stations across the U.S., including:

KQV-AM, Pittsburgh
CKWW-AM, Detroit-Windsor, Ontario
KQNT-AM, Spokane, Wash.
KHNR-FM, Honolulu
KGOE-AM, Eureka, Calif.
WEBC-AM, Duluth, Minn.
WNRR-AM, Augusta, Ga.
KMRY-AM, Cedar Rapids, Iowa
WKCT-AM, Bowling Green, Ky.
KOWL-AM, South Lake Tahoe, Calif.

Program and Grant Announcements

Academy of Molecular Imaging (AMI)/RSNA/SNM/Society for Molecular Imaging (SMI) Pre-Conference Symposium: Imaging in Molecular Medicine 2007

September 7–8 • Providence, R.I.



Registration is now open for this symposium immediately preceding the AMI/SMI Joint Molecular Imaging Conference. The symposium comprises two clinical tracks:

- Molecular Imaging Fundamentals in Medicine—introduction and overview of molecular imaging
- Clinical PET/CT Imaging—essentials of clinical PET/CT

More information is available at *www.molecularimaging.org* or by contacting Fiona Miller at *fmiller@rsna.org* or 1-630-590-7741.

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Coronary CT Angiography

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- Patient selection
- Patient medication
- Radiation protection
- Contrast enhancement
- Acquisition and reconstruction parameters
- Image display and analysis techniques
- The radiology report

"It is anticipated that future refinements in CT angiography will further increase the scan acquisition speed and temporal resolution and decrease the radiation exposure," Dr. Schoepf and colleagues conclude. "It is more important, however, that these refinements will further narrow the gap between CT and invasive catheter angiography for accurate interrogation of the coronary arteries."

Read the Blueprint for Imaging in Biomedical Research in July *Radiology*

The Blueprint for Imaging in Biomedical Research, a vision of how imaging can accelerate and enhance biomedical research, appears in the July 2007 issue of *Radiology.* Chronicling how leading scientists from different fields have contributed to realizing the potential of biomedical imaging, the Blueprint also presents a framework to help all scientists envision their roles and understand what must happen next. The authors of the Blueprint are Richard L. Ehman, M.D., William R. Hendee, Ph.D., Michael J. Welch, M.D., N. Reed Dunnick, M.D., Linda B. Bresolin, Ph.D., Ronald L. Arenson, M.D., Stanley Baum, M.D., Hedvig Hricak, M.D., Ph.D., and James H. Thrall, M.D.

Radiation Exposure and Pregnancy: When Should We Be Concerned?

Continued from Page 19

and colleagues review conceptus effects from in utero exposure to radiation. Specifically they address:

- Modality-specific dose considerations—radiography, fluoroscopy, CT and nuclear medicine
- Policy statements from international, national and professional organizations regarding the risk from diagnostic radiologic examinations
- Development of practice policies and guidelines
- General clinical guidelines

"After comparing the doses from radiologic and nuclear medicine examinations with risk data from human in utero exposures, we have concluded that the absolute risks of fetal effects, including childhood cancer induction, are small at conceptus doses of 100 mGy and negligible at doses of less than 50 mGy," Dr. McCullough and colleagues conclude. "While this information may reassure pregnant women and their physicians about the risks from necessary or unintended radiation exposures, conservative clinical management is the best way of minimizing radiation risk in utero."

Working For You

RSNA Committees

RSNA News continues its series highlighting the work of RSNA's volunteer committees with a look at the Education Exhibits Committee.

Education Exhibits Committee

Working for you
COMMITTEE PROFILE

THE Education Exhibits Committee ensures the quality and relevance of the education exhibits offered at the RSNA annual meeting. Each year committee members review thousands of applications from potential exhibitors around the world and select about half of those submissions for presentation. The committee divides into organ-centered subcommittees, each with its own chair, to maximize the number of reviewers judging a single abstract and allow in-depth examination and discussion within distinct specialties. For RSNA 2006, each committee member reviewed an average of more than 200 submissions.

The committee also ensures that the education exhibits qualify for *AMA PRA Category 1 Credit*™ and is responsible for the content of the popular Case of the Day exhibits and the Sunday Image Interpretation Session at the annual meeting.

As attendance at the RSNA annual meeting has grown, so has the task of keeping attendees current, engaged and inspired with cutting-edge information, said Richard L. Baron, M.D., committee chair. "Radiology undergoes revolutionary changes, increasing diagnostic and therapeutic capabilities on an ever shortening time cycle, and with dramatic changes in substance more than any other medical specialty," he said. "This requires that the education exhibits committee seek out the best tools to help our members receive the necessary education and training to remain active in the field of radiology."


Richard L. Baron, M.D.

For more information about the Education Exhibits Committee and to view the 2006 committee chair report, go to *RSNA.org/About/whoswho/committees/index.cfm?c=C0002088.* Information about volunteering for this and all RSNA committees is available at *RSNA.org/About/volunteer.cfm.*

NEW!

SAMs Available for Radiation Oncologists, Radiologic Physicists

For the first time, RSNA has made available self-assessment modules (SAMs) specifically approved for radiation oncologists and radiologic physicists participating in the American Board of Radiology maintenance of certification process. Many of these modules will also qualify as general content SAMs for diagnostic and interventional radiologists. To see the newest SAMs, available online at no cost to members, go to *RSNA.org/Education/moc.cfm* and click SAMs.

RSNA Education

For additional information, call 1-800-381-6660 x3733.

Join RSNA by September 1 to Attend Annual Meeting as Member

Those considering joining RSNA should remember that September 1 is the deadline for receipt of membership application in order to attend the RSNA annual meeting as a member. RSNA members attend the annual meeting free of charge if they register by November 5.

More information about RSNA membership benefits and how to join is available at *RSNA.org/membership*, by calling 1-877-RSNA-MEM (1-630-571-7873 outside the U.S. and Canada) or by sending an e-mail to *membership@rsna.org.*

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

Continued from Page 21

Gain Sound Financial Advice at RSNA 2007

RSNA is offering two informative and comprehensive financial education seminars at McCormick Place on Saturday, November 24, just prior to RSNA 2007. These practical and unbiased courses offer the tools necessary to achieve retirement and investment goals. A textbook written specifically for each course is included.

Effective Retirement Plans and Distribution Strategies

Presented by Barry Rubenstein, B.S., J.D., L.L.M.

Effective use and management of qualified retirement plans is critical to retirement planning. In simple and direct language, this course will demonstrate how to evaluate and manage an existing plan, including whether to terminate, and how to identify the advantages and disadvantages of different plan maintenance, withdrawal and termination strategies, including the impact of recent tax legislation.

Topics include:

- Permissive and Required Distribution from Plans
- Taxation of Distribution from Plans
- New IRS Regulations on Plan Withdrawals
- Protecting the Plan Assets from Creditors
- How Life Insurance Can Play a Part in the Retirement Plan
- New Roth IRA
- Advantages and Disadvantages of Terminating Existing Plans
- Basic Estate Tax Rules and Strategies

Effective Real Estate Investment Strategies

Presented by J. Michael Moody, M.B.A.

This fast-paced course will provide attendees with a strong foundation and working knowledge of investment real estate by focusing on finding, evaluating, financing, acquiring and selling. Topics include:

- How to Put $500,000 Tax-Free Into Your Pocket
- Profitable Office and Investing Strategies: Lease To Yourself
- From Duplex to Skyscraper and No Capital Gains Tax
- REITs: Passive Ownership of Shopping Centers and Office Towers
- Benefits vs. Risks of Investing in Real Estate With Others
- Second Homes: Vacation, Investments or Both?

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. These seminars do not qualify for *AMA PRA Category 1 Credit*™. For more information about the seminars, contact the RSNA Education Center at 1-800-381-6660 x7772 or e-mail *ed-ctr@rsna.org*.

RSNA Out and About Town, Country

RSNA spread the word about its research and education mission at several professional meetings in May and June. RSNA promoted the benefits of membership during the German Congress of Radiology in Berlin and American Society of Clinical Oncology in Chicago *(right)*. RSNA was also on hand at the Medical Library Association annual meeting in Philadelphia *(left)* to discuss *Radiology* and *RadioGraphics* and convene the first meeting of the new Radiology Library Advisory Board.

RSNA will promote the annual meeting and the Career Connection Web site at the American Healthcare Radiology Administrators meeting in Orlando this month.

News about RSNA 2007

Enroll Now for Courses

COURSE enrollment for RSNA 2007 is under way. Online enrollment occurs instantly, while faxed or mailed registration forms are processed in the order they are received. The RSNA 2007 Advance Registration, Housing and Course Enrollment brochure was mailed in mid-June. It is also available at *RSNA.org/register.*

You must be registered for RSNA 2007 in order to enroll for courses.

CME Update: Each physician can earn up to 85.75 *AMA PRA Category 1 Credits*™ at RSNA 2007

Among new course offerings at RSNA 2007 are the Mentored Cardiac CT Case Review, one-day quality improvement and molecular imaging courses and the four-day Bolstering Oncoradiologic and Oncoradiotherapeutic Skills for Tomorrow (BOOST) program for radiation oncologists.

Registering for RSNA 2007

There are four ways to register for RSNA 2007:

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

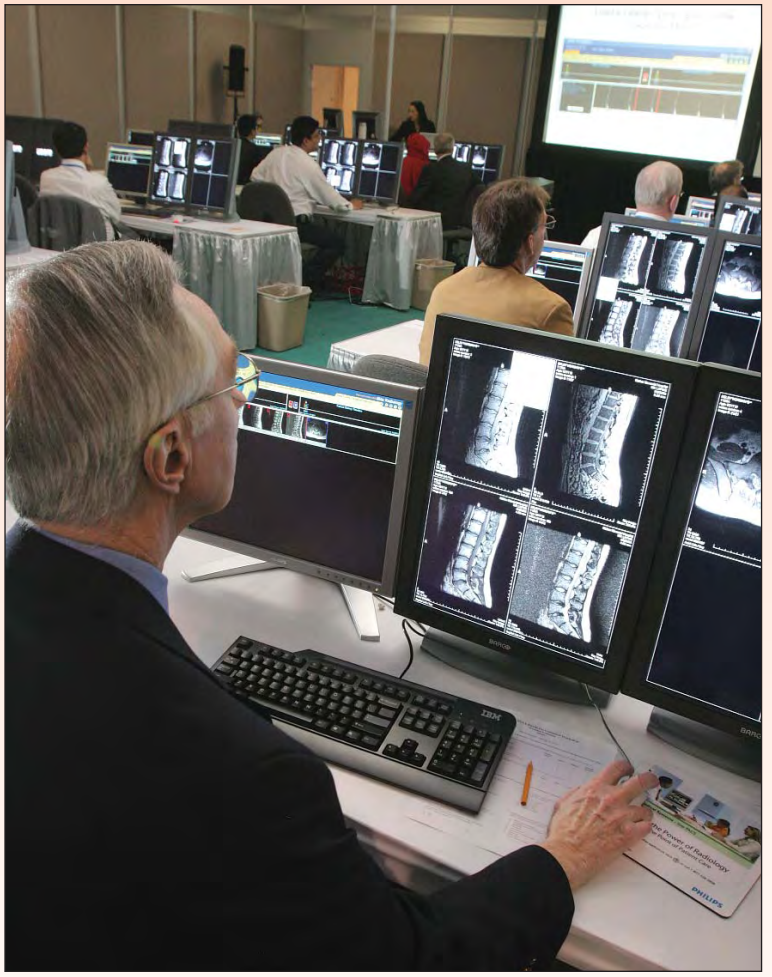
❹ Mail
Experient/RSNA 2007
108 Wilmot Rd.,
Suite 400
Deerfield, IL 60015-5124
USA

Registration Fees

BY 11/5	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, Industry Personnel
$300	$300	One-day registration to view only the Technical Exhibits area

■ For more information about registering for RSNA 2007, visit *RSNA2007.RSNA.org,* e-mail *reginfo@rsna.org* or call 1-800-381-6660 x7862.

RSNA 2007
CONNECTING RADIOLOGY
93rd Scientific Assembly and Annual Meeting
November 25–30, 2007
Chicago



Commercial vendors conduct hands-on workshops with their respective proprietary computer systems at the annual meeting. Attendees can gain practical, first-hand knowledge with state-of-the-art equipment, including radiology information systems (RIS) and picture archiving and communication systems (PACS). Advance online registration is required for these workshops. For the latest schedule and registration information, go to *RSNA2007.RSNA.org*.

Important Dates for RSNA 2007

Oct. 26	International deadline to have full-conference badge and tickets mailed in advance
Nov. 5	Final advance registration, housing and course enrollment deadline
Nov. 25–30	RSNA 93rd Scientific Assembly and Annual Meeting

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 10 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 UA019S7.

International Visitors

Personalized invitation letters are available at *RSNA2007.RSNA.org*—click on International Visitors. This section of the annual meeting Web site also includes important information about visa applications.

RSNA

Residents and Fellows– Take Advantage of this Special Offer for Graduated Dues

RSNA will ease your transition from training into full membership. This is a very special offer—all the benefits of RSNA membership at a fraction of the cost.

- Print subscriptions to *Radiology, RadioGraphics* and *RSNA News*
- Free admission to the annual meeting, the world's premier radiologic assembly
- Free copy of *RSNA Meeting Program* (by request)
- Free access to CME credit on InteractED®
- Free tools to help with the MOC process including self-assessment modules, discounts on RSNA educational materials, Publisher Partners medical book discounts, free access to the Community of Science Web site and the CME Gateway
- Access to the online Membership Directory and Career Connections Web site

Year 1: $100
Year 2: $200
Year 3: full dues

For more information please call 1-877-RSNA-MEM (1-877-776-2636) or e-mail *membership@rsna.org.*

RSNA.org

Exhibitor News

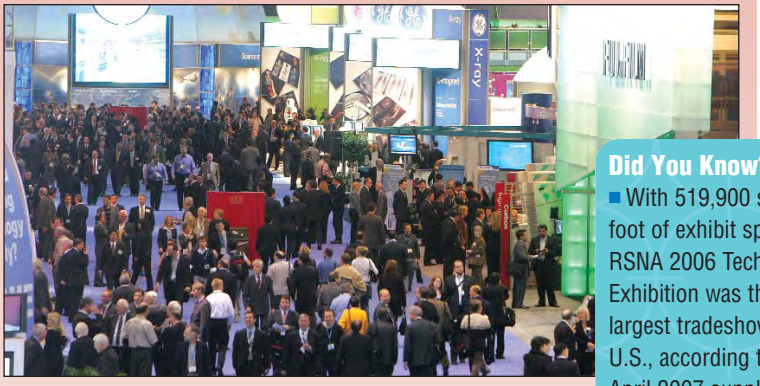
2007 Exhibitor List Now Available

THE Technical Exhibition at the RSNA annual meeting is the world's largest. Slightly over 500,000 square feet of exhibit space has been confirmed so far for RSNA 2007. To see a list of participating companies, along with an interactive floor plan, visit *RSNA.org/showcase*.

RSNA 2007 Technical Exhibits will be located in Halls A & B, spanning Level 3 of the North and South Buildings of McCormick Place. A balanced mix of companies will be featured in each location.

New Companies Participating in RSNA 2007

Each year more than 100 companies participate in the RSNA annual meeting for the first time, showcasing new technologies and ideas for the healthcare industry. By visiting first-time exhibitor booths at RSNA 2007, you can stay up to date on the latest innovations that may soon enhance your work experience. A complete list of first-time exhibitors can be found at *RSNA2007.RSNA.org* under Technical Exhibition.



Did You Know?

■ With 519,900 square foot of exhibit space, the RSNA 2006 Technical Exhibition was the 38th largest tradeshow in the U.S., according to an April 2007 supplement to *Tradeshow Week*.

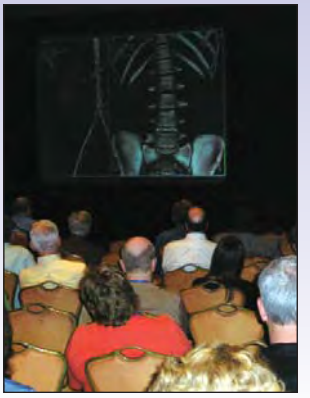
News about RSNA Highlights™ 2008

Advance registration for RSNA Highlights™ 2008 opens September 4 at *RSNA.org/Highlights*.

RSNA Highlights 2008 will be held Feb. 18–20 at the Ritz-Carlton/JW Marriott Orlando, Grande Lakes in Florida. Course topics include cardiac imaging, head and neck imaging, thoracic imaging and breast imaging.

Featuring select refresher courses and electronic education exhibits from RSNA 2007, RSNA Highlights is designed for people who can't attend the annual meeting or those who attend but aren't able to get to every session they want.

More information will be announced in future issues of *RSNA News* and at *RSNA.org/Highlights*.



Product News

NEW PRODUCT

Environmentally Friendly Ultrasound System

ZONARE Medical Systems *(www.zonare.com)*, has introduced the z.one ultra system, the latest in its line of Convertible Ultrasound™ platforms. Using the company's Zone Sonography™ technology, ZONARE engineers estimate z.one ultra produces about 90 percent less greenhouse gas than conventional, cart-based ultrasound systems and saves hundreds of dollars in energy costs each year.

The cost savings come from z.one ultra's reduced need for power, leading to dramatically reduced heat generation and substantially lower air conditioning use, according to the company. Typical annual energy costs for running the z.one ultra system are approximately $50, the company reported, while costs for a conventional cart-based system are around $620. The company estimated that energy consumed by z.one ultra translates to 185 pounds of greenhouse gas emitted per year, versus more than 2,200 pounds annually for conventional systems.

PRODUCT UPGRADE

Motion Compensating Technique

HITACHI Medical Systems America *(www.hitachimed.com)* has added the RADAR™ feature to its Echelon™ 1.5 T MR imaging system. RADAR is Hitachi's new motion compensating image collection technique.

RADAR is based on a radial k-space data collection approach delivering reduced vulnerability to both bulk and physiological motion. Images collected with RADAR are typically free from artifacts caused by breathing, gross motion and flow, resulting in high image quality and potentially reduced patient study times, according to the company. RADAR can be used in a variety of imaging scenarios, including neuro, orthopedic and body imaging, with complete flexibility of the imaging plane, according to the company.

NEW PRODUCT

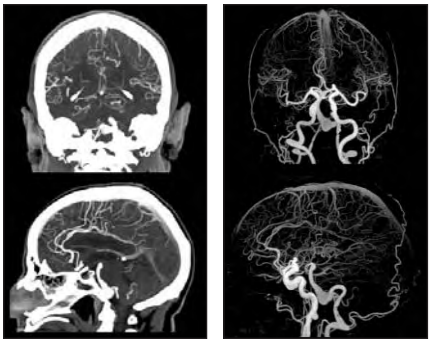
Workstation Expanding Software

Cedara Software *(www.cedara.com)* has released its C4™ (Cedara Clinical Control Center) platform enabling easy integration of numerous clinical applications into a picture archiving and communication system (PACS) or other workstation. The platform supports integration into many companies' PACS, radiology information systems (RIS) and electronic medical record (EMR) systems. C4's standard interface for all bidirectional information between the host and clinical applications—such a 3D angiography visualization tool or a planning package for orthopedic procedures—maximizes productivity, according to the company. Cedara is developing its own C4-enabled clinical applications and also offers its common interface to other software vendors looking for a way to plug in their clinical applications.

NEW PRODUCT

Subtraction Software for Neurological CT Angiography

Toshiba America Medical Systems, Inc. *(www.medical.toshiba.com)* has introduced SURESubtraction, a software package for its Aquilion™ CT line designed to reduce examination time for patients exhibiting symptoms of neurological disorders by automating and streamlining bone subtraction. Currently physicians must scan the brain with and without contrast and then manually subtract bone structures from the image to better visualize the vessels and tissue. By completely automating the bone subtraction process, SURESubtraction can reduce exam time by as much as 90 percent. SURESubtraction can be used with Toshiba's 8-, 16-, 32- and 64-slice CT systems and its clinical applications include examinations associated with cerebral aneurysms and ischemic disease.

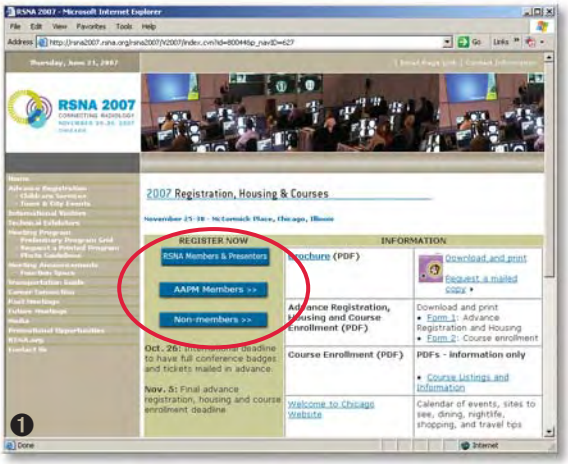


RSNA News Information for *Product News* came from the manufacturers. Inclusion in this publication should not be construed as a product endorsement by RSNA. To submit product news, send your information and a non-returnable color photo to *RSNA News*, 820 Jorie Blvd., Oak Brook, IL 60523 or by e-mail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

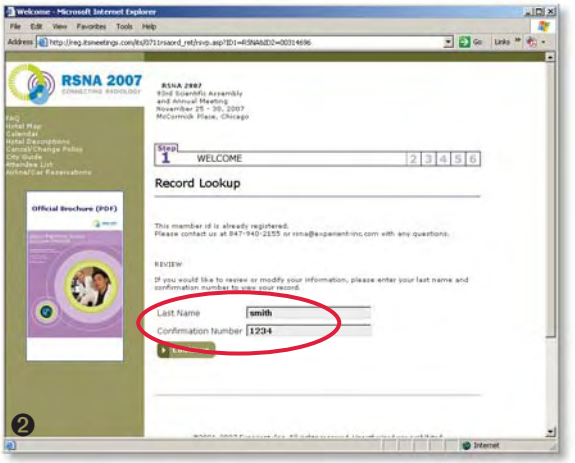
RSNA.org

RSNA 2007 Course Enrollment

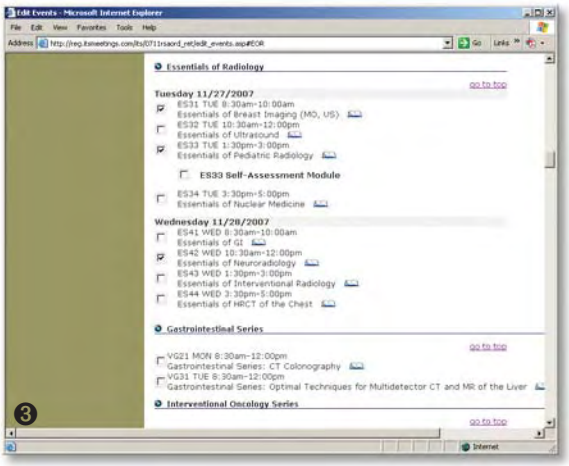
Online enrollment for RSNA 2007 courses is under way. To get started, click Advance Registration, Housing, and Course Enrollment beneath the meeting logo on the *RSNA.org* home page.



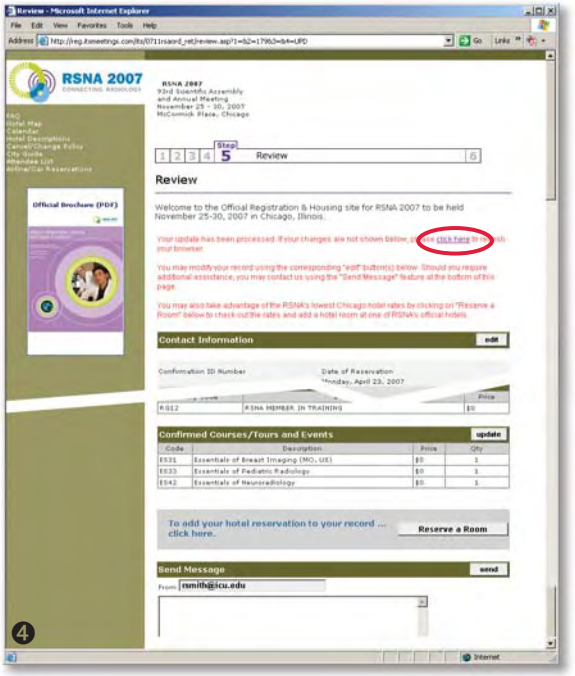
❶ On the 2007 Registration, Housing & Courses page, click the box for your membership category. From this page you can also download the Advance Registration, Housing and Course Enrollment brochure, which offers course titles, formats and other information.



❷ You must be registered for RSNA 2007 in order to enroll for courses. When you register, you are given a Confirmation Number to use on the Record Lookup page.



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. Clicking Edit will allow you to modify your record. For assistance, click Send Message.

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Your online links to RSNA

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CALENDAR

Medical Meetings
August – October 2007

AUGUST 5–9
Society of Computed Body Tomography and Magnetic Resonance (SCBT-MR), Summer Practicum, Banff, Alberta, Canada • *www.scbtmr.org*

SEPTEMBER 2–6
International Association for the Study of Lung Cancer (IASLC), 12th World Conference on Lung Cancer, COEX Convention Center, Seoul, Republic of Korea • *www.2007worldlungcancer.org*

SEPTEMBER 7–8
American Society of Clinical Oncology (ASCO), American Society for Therapeutic Radiology and Oncology (ASTRO), American Society of Breast Disease, American Society of Breast Surgeons and Society of Surgical Oncology, 2007 Breast Cancer Symposium, San Francisco Marriott • *www.asco.org*

SEPTEMBER 7–8
ASTRO/SNM/Radiation Therapy Oncology Group (RTOG), Translational Research in Radiation Oncology and Radiology, San Francisco • *www.astro.org*

SEPTEMBER 7–8
Academy of Molecular Imaging (AMI)/RSNA/SNM/Society for Molecular Imaging (SMI) Pre-Conference Symposium: Imaging in Molecular Medicine 2007, Rhode Island Convention Center, Providence
• *www.molecularimaging.org/2007jointconf/PreConference.php*

SEPTEMBER 8–11
AMI/SMI, Joint Molecular Imaging Conference, Rhode Island Convention Center, Providence
• *www.molecularimaging.org/2007jointconf/*

SEPTEMBER 8–12
Cardiovascular and Interventional Radiological Society of Europe (CIRSE), Annual Meeting and Postgraduate Course, Megaron Centre, Athens, Greece • *www.cirse.org*

SEPTEMBER 12–16
Society for Pediatric Radiology (SPR), 5th Symposium on Pediatric Cardiovascular MR, Cincinnati Children's Hospital Medical Center • *www.pedrad.org*

SEPTEMBER 13–16
Australasian Society for Ultrasound in Medicine (ASUM), 37th Annual Scientific Meeting, Cairns Convention Centre, Australia • *www.asum.com.au*

SEPTEMBER 15–16
SCBT-MR, 4th Annual MDCT National Symposium, Westin Boston Waterfront Hotel • *www.scbtmr.org*

SEPTEMBER 19–21
Argentine Society of Radiology, 53rd Argentine Congress of Diagnostic Imaging and Radiation Therapy, Sheraton Hotel and Convention Center, Buenos Aires, Argentina • *www.sar.org.ar*

SEPTEMBER 23–27
Imaging in 2020, Jackson Lake Lodge, Jackson Hole, Wyo.
• *www.imagingin2020.com*

SEPTEMBER 26–30
American Society of Head and Neck Radiology (ASHNR), 41st Annual Meeting, The Fairmont Olympic Hotel, Seattle
• *www.ashnr.org*

OCTOBER 3–6
American Society of Emergency Radiology (ASER), Annual Scientific Meeting and Postgraduate Course, Hyatt Regency La Jolla, San Diego • *www.erad.org*

OCTOBER 3–6
Society of Chairmen of Academic Radiology Departments (SCARD), Fall Meeting, Fairmont Banff Springs, Alberta, Canada

OCTOBER 4–7
Royal Australian and New Zealand College of Radiologists (RANZCR), 58th Annual Scientific Meeting, Melbourne Exhibition and Convention Centre, Australia • *www.ranzcrasm.com/*

OCTOBER 4–9
North American Society for Cardiac Imaging (NASCI), 35th Annual Meeting, JW Marriott Hotel, Washington
• *www.nasci.org*

OCTOBER 19–21
Chinese Medical Association, 14th National Radiology Academic Activities, Nanjing, China • *www.chinaradiology.org*

NOVEMBER 25–30
RSNA 2007, 93rd Scientific Assembly and Annual Meeting, McCormick Place, Chicago • *RSNA2007.RSNA.org*

FEBRUARY 18–20, 2008
RSNA Highlights™, Ritz-Carlton/JW Marriott Orlando, Grande Lakes, Florida • *RSNA.org/Highlights*

RSNA News

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