

RSNA *News*

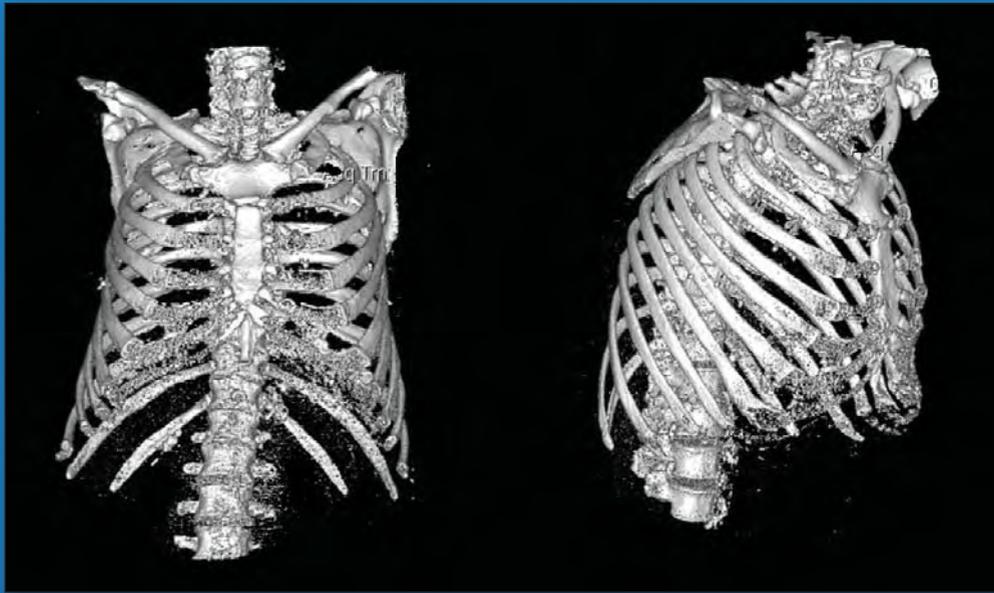


Image courtesy of the Injury Biomechanics Research Laboratory at The Ohio State University.

CT Finds Place in Vehicle Crash Testing

Also Inside:

- Automation Could Save Hours of Radiation Treatment Planning
- RSNA Highlights™ 2008 Promises One-of-a-Kind Content, Destination
- RSNA Research Scholar Establishes MR in Head and Neck Cancer Detection
- IHE® Exhibition Promises Attendees a Technological Edge
- Guidelines Take Guesswork Out of *Radiology* Submission

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RSNA News

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Letters to the Editor

E-mail: rsnanews@rsna.org

Fax: 1-630-571-7837

RSNA News
820 Jorie Blvd.
Oak Brook, IL 60523

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Phone: 1-630-571-7873

E-mail: subscribe@rsna.org

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SNM Defines Molecular Imaging, Names Image of the Year

HOPING to minimize the confusion created by multiple definitions of molecular imaging available on the Web and elsewhere, SNM has issued its official definition:

“Molecular imaging is the visualization, characterization and measurement of biological processes at the molecular and cellular levels in humans and other living systems. Molecular imaging typically includes 2D or 3D imaging, as well as quantification over time. The techniques used include radiotracer imaging/nuclear medicine, MR imaging, MR spectroscopy, optical imaging, ultrasound and others.”

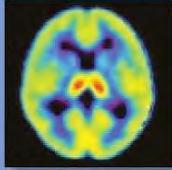
SNM Immediate Past-President Martin P. Sandler, M.D., said the new definition was developed to capture the essence of an evolving, multidisciplinary

Gene - Brain - Behavior Relationships

Evidence that trait aggression is associated with brain MAO A activity



Genes
MAO A, low/high



Brain MAO A
PET, [¹¹C]dorgyline



Behavior
Multi-Dimensional Personality Questionnaire (MPQ)



Image courtesy of Brookhaven National Laboratory.

nary field.

At its annual meeting earlier this year, SNM also named the Image of the Year, which comes from a study corroborating the relevance of the brain enzyme monoamine oxidase (MAO A) in aggressive personality. Scientists from Brookhaven National Laboratory showed a statistical relationship between brain levels of MAO A and quantitative assessment of personality. The Image of the Year is actually a

series of four images, one providing a view of human genes with high and low concentrations of MAO A, another from a positron emission tomography (PET) scan showing brain MAO A activity and two more illustrating human aggression.

More information on the official molecular imaging definition and the Image of the Year is available at interactive.snm.org.

NIH Connects Innovators and Investors

The National Institutes of Health (NIH) has launched a new Web-based resource called NIH Pipeline to Partnerships (P2P), aimed at furthering the development of NIH's licensed technologies and technologies funded through the NIH Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs.

The P2P initiative provides a virtual space where NIH licensees and NIH SBIR/STTR awardees can showcase their technologies and product development for an audience of potential strategic partners, investors and licensees.

More information, including a pipeline of technologies available for partnering, is available at www.ott.nih.gov/P2P. When a technology of interest is identified, the interested party is directed to the licensee/awardee developing the technology. All submissions to the site by the licensees and grantees will be voluntary.



FDA Task Force Outlines Scientific, Regulatory Challenges in Nanotechnology

The U.S. Food and Drug Administration (FDA) Nanotechnology Task Force has released a report recommending that the agency develop guidance and take other steps to address the benefits and risks of drugs and medical devices using nanotechnology.

The Task Force reported that nanoscale materials potentially could be used in most product types regulated by the FDA. Those materials present challenges similar to those posed by products using other emerging technologies, the task force reported; however, the challenges may be complicated by the fact that properties relevant to prod-

uct safety and effectiveness may change as size varies within the nanoscale.

Anticipating rapid development in the field, the report recommends FDA guidance to clarify what type of information must be provided to the FDA about products and when the use of nanoscale materials may change the regulatory status of particular products. The report also recommends that the FDA evaluate the adequacy of current testing approaches to assess safety, effectiveness and quality of nanoscale materials. For more information, go to www.fda.gov/nanotechnology/taskforce/report2007.pdf.



2007 International Young Academics Announced

THE RSNA Board of Directors has named the latest participants in the Introduction to Research for International Young Academics program. Offered through the RSNA Committee on International Relations and Education (CIRE), the program encourages young radiologists from countries outside the U.S. and Canada to pursue careers in academic radiology.

These 2007 participants will attend a special seminar during the RSNA annual meeting:

NAME	COUNTRY
Miraude Adriaensen, M.D.	The Netherlands
J. Matthias Kerl, M.D.	Germany
Liran Domachevsky, M.D.	Israel
Rose Dawn Puthumana, M.D.	India
Guilherme Demarchi, M.D.	Brazil
Satoshi Goshima, M.D., Ph.D.	Japan
Sriharsha Athreya, M.S., F.R.C.S., F.R.C.R.	United Kingdom
Janis Savlovskis, M.D.	Latvia
Seung Hong Choi, M.D.	South Korea
Jin Hur, M.D.	South Korea
Virginia Fattal Jaef, M.D.	Argentina
Celeste Rodriguez Garcia, M.D.	El Salvador
Yun Joo Park, M.D.	South Korea
Heitor Okanobo, M.D.	Brazil
Amol Deshmukh, M.B.B.S., D.M.R.D., D.N.B.	India
Adrian Gonzales, M.D.	SMRI (Mexico) Nominee
Javier Lara Garcia, M.D.	FMRI (Mexico) Nominee

For more information or nomination forms, go to RSNA.org/international/CIRE/iyaseminar.cfm or contact Fiona Miller at 1-630-590-7741 or CIRE@rsna.org. The deadline for nominations each year is April 15.

MEDICAL IMAGING COMPANY NEWS

Nighthawk Acquires St. Paul Radiology Units

■ Nighthawk Radiology Holdings, Inc., of Coeur D'Alene, Idaho, has announced the acquisition of Midwest Physician Services, LLC, the business services division of St. Paul (Minn.) Radiology.

In the \$62.5 million transaction, Nighthawk, a radiology solutions provider, also acquired Emergency Radiology Services, LLC, the off-hours emergency teleradiology division of St. Paul Radiology.

WellPoint Buys American Imaging

■ Health benefits provider WellPoint, Inc., of Indianapolis, has agreed to acquire American Imaging Management (AIM), of Deerfield, Ill., for \$300 million. AIM is a radiology benefit management and technology company with health plan clients representing more than 20 million consumers.

VIEWING TECHNOLOGY

Question of the Month

Q Technologist: I performed a portable CR chest study on a heavy patient. Why is this image so high in contrast?

[Answer on page 19.]

PEOPLE IN THE NEWS

Ferrucci is New Chair at UMass

Joseph T. Ferrucci Jr., M.D., has been appointed chair of radiology at UMass Memorial Medical Center in Worcester. Dr. Ferrucci is chair emeritus of radiology at Boston Medical Center/Boston University School of Medicine and editor-in-chief of the five-volume *Taveras and Ferrucci's Radiology*.

UMass Memorial Health Care is the largest not-for-profit healthcare system in central Massachusetts and clinical partner of the University of Massachusetts Medical School.



Joseph T. Ferrucci Jr., M.D.

Barrio Named UCLA Gerontology Endowed Chair

Jorge R. Barrio, Ph.D., professor of molecular and medical pharmacology at the David Geffen School of Medicine at the University of California, Los Angeles, has been appointed to UCLA's Elizabeth and Thomas Plott Chair in Gerontology.

Dr. Barrio has focused his research on developing molecular imaging probes for positron emission tomography (PET). His work has influenced human disease evaluation and treatment of illnesses including Parkinson and Alzheimer diseases.



Jorge R. Barrio, Ph.D.

SNM Elects Officers, Presents Awards

Alexander J. McEwan, M.D., director of oncologic imaging at the Cross Cancer Institute in Edmonton, Alberta, Canada, was recently elected the new president of SNM. Dr. McEwan is also a professor and chair of the Department of Oncology at the University of Alberta. Also recently elected were **Robert W. Atcher, Ph.D.**, of Los Alamos (N.M.) National Lab, president-elect; **Michael W. Graham, Ph.D., M.D.**, of the University of Iowa in Iowa City, vice-president-elect; **Richard B. Noto, M.D.**, of Rhode Island Hospital in Barrington, secretary/treasurer.

Also at SNM's recent annual meeting, **Tom R. Miller, M.D., Ph.D.**, a professor of radiology in the division of nuclear medicine at the Mallinckrodt Institute of Radiology at the Washington University School of Medicine in St. Louis, received the Presidential Distinguished Service Award. **Eva V. Dubovsky, M.D., Ph.D.**, a professor of nuclear medicine at the University of Alabama at Birmingham, received the Presidential Distinguished Educator Award. The Academic Council's Lifetime Achievement Award went to **Alan H. Maurer, M.D.**, a professor of radiology and medicine and director of nuclear medicine at the Temple University School of Medicine in Philadelphia.



Alexander J. McEwan, M.D.



Tom R. Miller, M.D., Ph.D.



Eva V. Dubovsky, M.D., Ph.D.



Alan H. Maurer, M.D.



David B. Vickar, M.D.

New Officers for Canadian Society

David B. Vickar, M.D., of Medical Imaging Consultants in Edmonton, Alberta, is the new president of the Canadian Association of Radiologists (CAR). **Edward A. Lyons, M.D., F.R.C.P. (C)**, a professor of radiology and obstetrics and gynecology and anatomy at the Health Sciences Center in Winnipeg, Manitoba, is the new president-elect.

Dr. Lyons also was recently appointed an officer of the Order of Canada. The designation recognizes a lifetime of achievement and merit of a high degree, especially in service to Canada or to humanity at large.



Edward A. Lyons, M.D., F.R.C.P. (C)

SIIM Elects New Officers



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

Bradley J. Erickson, M.D., Ph.D., an associate professor of radiology and informatics at the Mayo Clinic in Rochester, Minn., is chair-elect of the Society for Imaging Informatics in Medicine (SIIM).

Also recently elected were **J. Raymond Geis, M.D.**, Advanced Medical Imaging Consultants, PC, Fort Collins, Colo., secretary and **Keith J. Dreyer, D.O., Ph.D.**, Massachusetts General Hospital, Boston, treasurer. New directors-at large are **David L. Weiss, M.D.**, Geisinger Medical Center, Danville, Pa.; **D. Scott Griffin, B.S.R.T. (R)**, Southeast Alabama Medical Center, Dothan; **Carter Yates**, Barco, Kortrijk, Belgium.

Curtis P. Langlotz, M.D., Ph.D., will serve as SIIM chair for one more year.

ASTRO Names Gold Medalists

THE American Society for Therapeutic Radiology and Oncology (ASTRO) has announced it will present **Jay R. Harris, M.D.**, and **Larry E. Kun, M.D.**, with the ASTRO gold medal at its annual meeting next month in Los Angeles.

Dr. Harris is a professor and chair of the Department of Radiation Oncology at the Dana-Farber Cancer Institute and Brigham and Women's Hospital at Harvard Medical School in Boston. He also serves as residency program director for the Harvard radiation oncology program.

Dr. Kun is chair of the Department of Radiological Sciences at St. Jude Children's Research Hospital in Memphis, Tenn.



Jay R. Harris, M.D.



Larry E. Kun, M.D.



Randal S. Weber, M.D.

ASTRO also announced it will make **Randal S. Weber, M.D.**, an ASTRO honorary member. Dr. Weber is an otolaryngologist and the Hubert L. and Oliver Stringer Distinguished Professor and chair of the Department of Head and Neck Surgery at M.D. Anderson Cancer Center in Houston.



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

The Importance of Vision

IT GOES without saying that no radiologist could practice our wonderful profession without vision. Daily we use that vision to see inside patients, interpret diagnostic imaging studies and guide treatments in order to facilitate care for countless patients. Yet, when it comes to having the "vision" to ensure the future of our profession, private practice radiologists and radiation oncologists have historically been terribly myopic. Do we really believe that our practices and profession will continue to thrive and grow without our collective vision?

The fantastic evolution of radiology and radiation oncology is a direct result of research and education. My own practice has no "R and D" department, nor does it have a residency program to train future partners. Still, that research and education are the lifeblood of our future. The same applies to all of you as well. Supporting "R and D" is not philanthropy. It is the cost of doing business.

My Turn ONE RADIOLOGIST'S VIEW

The RSNA Research & Education (R&E) Foundation is a significant component of radiology's "R and D" and education departments. With its concentration on supporting basic research and education, the RSNA R&E Foundation has funded work by radiologists and radiation oncologists that has resulted in the attraction of further funding—each R&E dollar has attracted at least \$9. Developments directly related to this funded research have provided my practice and yours with new tools (and reimbursable procedures) to allow us to take better care of our patients.

Despite this success, a discouragingly small percentage of individual, private practice radiologists and radiation oncologists have contributed to the R&E Foundation. In an effort to increase awareness and participation by those in private practice, the Visionaries



William T. Thorwarth Jr., M.D.

in Practice (VIP) program was developed, enabling practices to demonstrate their vision by supporting the professions we are so fortunate to shepherd. Various giving levels are available depending on practice size, each with significant tangible recognition benefits. My 15-member practice joined at

the Silver (\$25,000 per year) level and is proud to display the R&E Foundation logo on our practice letterhead.

So how about your practice? Have you got "vision?" Join us in ensuring radiology's future—go to RSNA.org/Foundation/donation/practicegroups.cfm to learn more.

William T. Thorwarth Jr., M.D., is a member of the RSNA Research & Education Board of Trustees. He joined Catawba Radiological Associates in Hickory, N.C., in 1984.



RSNA[®]

Highlights[™] 2008: *Clinical Issues*

February 18–20 ▶ Ritz-Carlton/JW Marriott Orlando, Grande Lakes



Course emphasis will include:

- ▶ Cardiac imaging
- ▶ Head and neck imaging
- ▶ Thoracic imaging
- ▶ Breast imaging

For more information
and to register visit
RSNA.org/Highlights

RSNA[®] Education



Automation Could Save Hours of Radiation Treatment Planning

ELECTRICAL ENGINEERS are working with medical physicists to automate the radiation treatment planning process, cutting planning time for some patients from hours to just minutes without compromising treatment quality.

In an article in the February 7, 2007, issue of *Physics in Medicine and Biology*, Richard Radke, Ph.D., an associate professor of electrical, computer and systems engineering at Rensselaer Polytechnic Institute (RPI) in Troy, N.Y., and colleagues describe the machine learning algorithm they used to automatically determine the settings for 20 parameters involved in intensity-modulated radiation therapy (IMRT). Currently the settings are manually determined, a process taking up to four hours for prostate cancer and an entire day for more complicated cancers of the head and neck.

Delivering high doses of radiation to a targeted organ while sparing the surrounding healthy tissue, IMRT is a state-of-the-art treatment used on brain, breast, head and neck, pancreatic, prostate, uterine and other cancers that

formerly could not be treated because they grew so close to vital organs.

"IMRT is very precise, but very difficult mathematically," said Dr. Radke. "There is a huge optimization problem to solve in order to follow the doctor's treatment plan."

He cited the example of a prostate tumor to be treated with IMRT. "The doctor wants the tumor to receive an amount of radiation greater than 'X,' but the planners have to be very careful about the organs around it," Dr. Radke said. "With IMRT, they have five beams



Richard Radke, Ph.D.
Rensselaer Polytechnic Institute



Jacob Van Dyk, M.Sc., F.C.C.P.M., D.A.B.M.P.
London Health Sciences Center

angled at the prostate, each containing thousands of individual beamlets. There are many different constraints."

Planning is Long, Imperfect Process

Current IMRT protocol calls for a radiation treatment planner to analyze CT images to determine the exact locations of the tumor and healthy tissues and define radiation levels that each area should receive. To comply with various constraints set by the doctor, the radiation planner manually determines the settings of up to 20 different parameters and derives the radiation plan.

When the plan is in place, a linear accelerator, equipped with a multileaf collimator, shapes the radiation beam. "We can deliver a dose that conforms to the organ and drops off quickly to keep nearby tissue healthy," said Jacob Van Dyk, M.Sc., F.C.C.P.M., D.A.B.M.P., manager of physics and engineering at

the London Regional Cancer Program of the London (Ontario) Health Sciences Center and a professor in the Departments of Oncology and Medical Biophysics at the University of Western Ontario. Dr. Van Dyk will co-lead an RSNA 2007 refresher course on quality assurance of computerized radiation treatment planning systems.

Dr. Van Dyk noted, however, that using mathematic calculations to obtain the desired dose for an individual patient may take hours and still not yield a clinically acceptable plan. At that point, he said, radiation treatment planners may have to make adjustments to "importance parameters," asking which tissues are more important than others.

Machine Learning for Treatment Planning

Working with researchers at Memorial Sloan-Kettering Cancer Center in New York, Dr. Radke and colleagues sought to create a "machine learning" algorithm. A subfield of artificial intelligence, machine learning is based on the development of algorithms that allow

Our goal is to [save] the planner's time by removing decisions that don't require expert intuition.

Richard Radke, Ph.D.

computers to learn relationships in large datasets from examples.

“Our goal is to automate the parameter-tweaking process, saving the planner’s time by removing decisions that don’t require expert intuition,” said Dr. Radke.

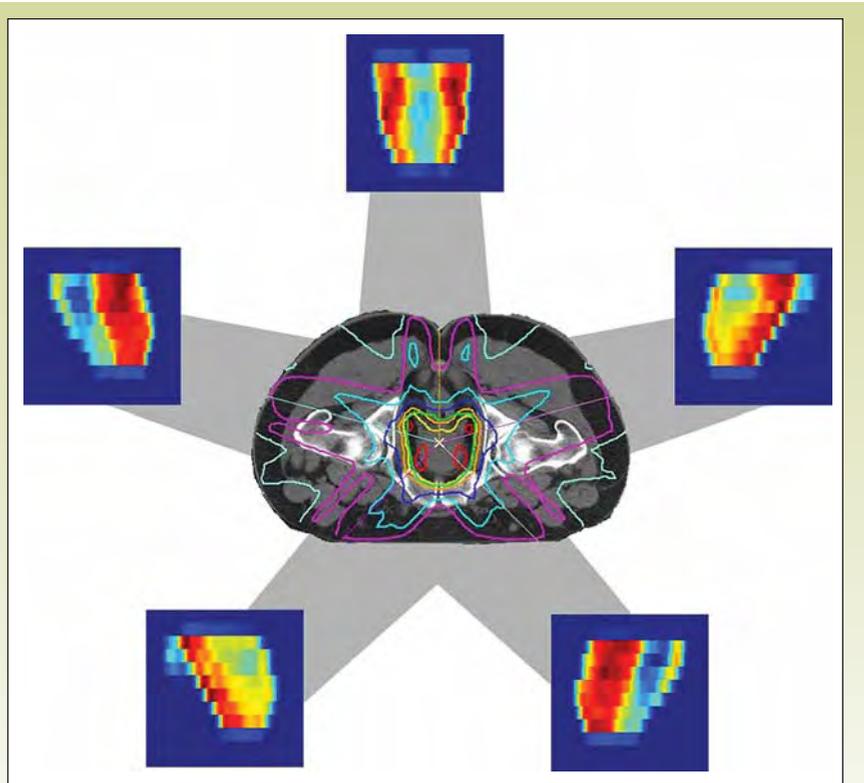
First performing a sensitivity analysis, researchers found 14 of 20 treatment parameters could be eliminated because they had little or no effect on the treatment outcome. They then showed that an automatic search of the smaller set of sensitive parameters could theoretically lead to clinically acceptable plans.

Researchers tested the resulting machine learning algorithm on 10 patients with prostate cancer and found it took five to 10 minutes to create a treatment plan for each patient. Dr. Radke said four of the 10 plans would have been immediately acceptable in the treatment clinic, while three others would require about 10 additional minutes of adjustment. The other three plans needed more adjustment from a radiation planner to be acceptable.

The RPI study addressed a real issue, said Dr. Van Dyk. “This is the kind of thing we need to do. This group did a great job with the evaluation,” he said.

Dr. Radke and his colleagues hope to see a prototype that can be installed on hospital computers and evaluated in a clinical setting within a few years. They also want to expand their study to include head and neck cancers. “Radiation planning for these areas is truly tedious because of the variability of the tumors in that region,” he said. “This study showed we can design automatic algorithms that don’t compromise patient care.”

In a separate study, Dr. Radke and colleagues at both Memorial Sloan-Kettering and Massachusetts General Hospital in Boston are creating vision algorithms to provide accurate estimates of the locations of tumorous and normal organs. This automatic modeling and segmentation process could help radia-



An intensity-modulated radiation therapy (IMRT) planning algorithm operates by using the outlines of the prostate and other radiation-sensitive organs in a CT scan (*center*) to arrive at matrices of beamlet intensities that are delivered from several external angles.

Image courtesy Richard Radke, Ph.D., Rensselaer Polytechnic Institute.

tion planning at an earlier stage by automating another time-consuming manual step, the outlining of organs of interest in each image of a CT scan.

Both projects are part of the Bernard M. Gordon Center for Subsurface Sensing and Imaging Systems (CenSISS), a National Science Foundation-funded, multiuniversity program to develop new technologies for finding hidden objects covered by something opaque. “The philosophy is that the mathematics of finding a buried land mine or underwater

cable may be similar to finding a tumor inside the human body,” Dr. Radke said. “Historically, I did not have much knowledge about radiation therapy, but I learned a lot through my participation in CenSISS.” □

Learn More

■ The full text of “Reduced-order Parameter Optimization for Simplifying Prostate IMRT Planning” is available free online. Go to www.iop.org/EJ/PMB and use the dropdown box to select the February 7, 2007 issue.

Radiation Oncology at RSNA 2007

New for RSNA 2007, the Bolstering Oncoradiologic and Oncoradiotherapeutic Skills for Tomorrow (BOOST) program is designed to encourage radiation oncologists to forge new partnerships

with diagnostic radiologists. Daylong courses are organized so that one type of cancer—head and neck, prostate, lung or gastrointestinal—is addressed each day. Featuring experts in radiation oncology, diagnostic radiology, biology and physics, BOOST courses will encourage specialists to learn from each other via audience participation exercises and question-and-answer periods. For more information and to register now for RSNA 2007 courses, go to RSNA2007.RSNA.org.



CT Finds Place in Vehicle Crash Testing

WHILE emergency physicians have come to rely on CT as essential to imaging trauma patients following automobile accidents, it turns out the modality has a role to play in minimizing the consequences of such crashes too. A recent study showed that CT can quantify internal injuries that traditional crash test dummies have been unable to measure.

Researchers at The Ohio State University used organs and tissue from post-mortem human subjects, donated to the university's Body Donor Program, to find ways to objectively and noninvasively measure the impact of crashes on loss of life and quality of life.

Steffen Sammet, M.D., Ph.D., a research scientist at Ohio State, presented the study results at the annual meeting of the American Roentgen Ray Society earlier this year. The goal, he said, was to create models of oblique and lateral impacts on human thoraxes. The project continued research that has been taking place at Ohio State and other institutions for several years, he said.

Researchers explained that for their study, the cadavers were impacted in a manner representative of the blunt

impact a body experiences when interacting with a car door during a lateral automobile accident.

"We had high resolution, high-speed cameras running during the testing, and used a 16-slice CT scanner before and after to test rib cage impact," said Dr. Sammet.

Ribcage injuries caused by the simulated accident could be identified on CT images, Dr. Sammet said.

The CT results correlated with analyses of the high speed videos and data from sensors attached to more than 30 locations in or on the thorax during impact.

More Sophisticated Crash Test Dummies a Goal

Dr. Sammet said 3D reconstructions of the ribcage created before and after the crash, to visualize injuries from the oblique and lateral impacts, were all confirmed by autopsy.

"We found that with reconstruction we could see the injury and how the impact affected the internal organs," he said.



Steffen Sammet, M.D., Ph.D.
The Ohio State University

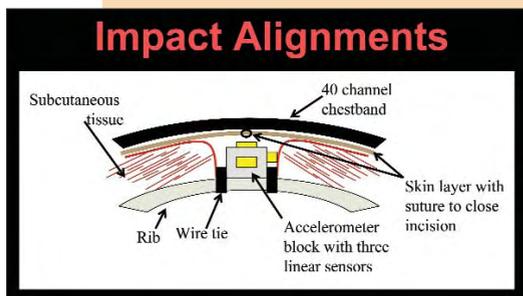
Researchers said the resulting models of oblique and lateral impacts will be used to develop safer vehicles, with the goal of reducing the severity of injuries during accidents.

John Bolte, Ph.D., one of the study's lead researchers and director of the Injury Biomechanics Research Laboratory at Ohio State, said this type of testing

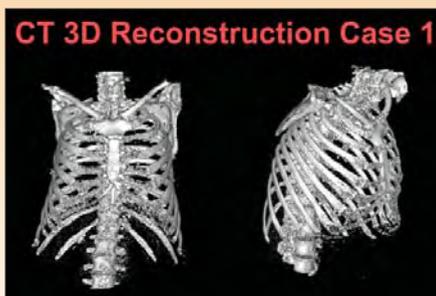
already has aided in the development of seatbelts, airbags and other active and passive safety systems found in vehicles today.

The results of this particular project, he said, will potentially save additional lives by aiding in the design of more biofidelic crash test dummies—realistic, computer-based models of human anatomy and physiology.

"The goal of this project and all others we conduct is to reduce the number of fatalities and injuries sustained on America's roads," Dr. Bolte said. □



(left) Transverse plane through the human thorax illustrating the placement of a 40 channel chestband and an accelerometer block with three linear sensors.



(right, from the cover) Frontal and oblique lateral view of 3D reconstructions of a human ribcage calculated from a high-resolution CT dataset.

Images courtesy of the Injury Biomechanics Research Laboratory at The Ohio State University.

Learn More

■ For more information about the Injury Biomechanics Research Laboratory at The Ohio State University, go to medicine.osu.edu/ibr/.

CT at RSNA 2007

An RSNA 2007 refresher course, "Current CT Techniques for Imaging Medical Emergencies," will look at CT of thoracic and acute abdominal vascular emergencies. For more information and to register now for RSNA 2007 courses, go to RSNA2007.RSNA.org.

RSNA Highlights™ 2008 Promises One-of-a-Kind Content, Destination

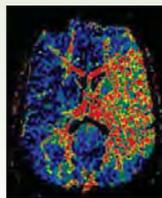
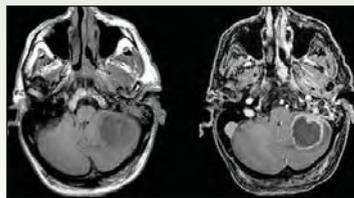
RSNA Highlights™ 2008: Clinical Issues is back by popular demand—but not so popular as to lose the intimate atmosphere that makes it so appealing.

Highlights made its debut last year as a smaller-scale complement to RSNA's annual meeting, offering refresher courses and self-assessment modules (SAMs) for clinicians who didn't attend the meeting or who did attend but weren't able to participate in all the courses they wanted. Three hundred twenty-five attendees gathered for last year's event in Phoenix.

This year's event will take place February 18–20, 2008, in Orlando, Fla., at the Ritz-Carlton/JW Marriott Orlando, Grande Lakes. The program will again include a series of refresher courses, but will also feature courses unique to Highlights 2008, as well as electronic education exhibits and hot topics sessions from RSNA 2007. Last year's participants praised the program as a welcome addendum to the virtually limitless—and sometimes overwhelming—opportunities at the annual meeting.

"Many radiologists who attend the annual meeting are too busy to commit the time and energy for concentrated study, while others are unable to attend the meeting owing to the need to cover their practices," said James A.

Brink, M.D., chair of the RSNA Refresher Course Committee. "The RSNA Highlights course provides a



Registration is open for RSNA Highlights™ 2008: Clinical Issues. Course topics include thoracic radiology, cardiac imaging, head and neck radiology and breast imaging. More information is available at RSNA.org/Highlights.

venue for all such individuals to learn in a relaxing environment."

Relevant, Cutting-Edge Topics

Attendees will be able to focus on the topics they find most relevant to their own practice and choose from courses scheduled with their interests and subspecialties in mind, said Dr. Brink. "RSNA Highlights 2008 provides an opportunity for radiologists to pursue concentrated learning in thoracic radiology, cardiac imaging, head and neck radiology and breast

imaging," he said. "In addition, hot topics sessions will allow registrants to

stay current on the latest developments in PET/CT and body MRI."

Attendees can also take advantage of the event's luxurious venues and the Florida sun. The Ritz-Carlton /JW Marriott offers spa packages, golf and a variety of dining options.

The number of attendees is expected to increase this year. Seating is limited and participants are encouraged to register early. For more information and to register now, go to RSNA.org/Highlights. □

Hot topics sessions will allow registrants to stay current in the latest developments in PET/CT and body MRI.

James A. Brink, M.D.

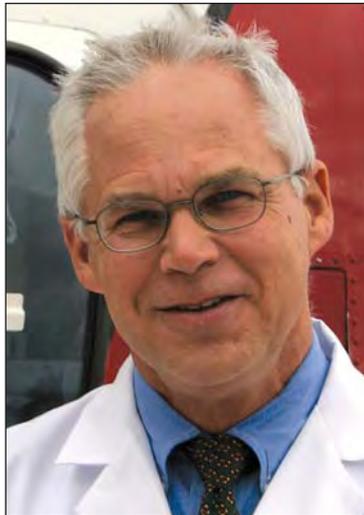
IHE® Exhibition Promises Attendees a Technological Edge

DEMONSTRATIONS by the Integrating the Healthcare Enterprise (IHE®) initiative at RSNA 2007 will empower radiologists in the growing electronic health record (EHR) environment and enable them to create and manage digital teaching files more easily. Vendors will demonstrate products specifically integrated for image sharing and a new RSNA-hosted teaching file service will make its annual meeting debut.

Many RSNA annual meeting attendees are familiar with IHE, established a decade ago by RSNA and the Healthcare Information and Management Systems Society (HIMSS) to improve patient care by standardizing the way health systems exchange information. Systems developed in accordance with IHE communicate with one another better, are easier to implement and enable care providers to use information more effectively, said David E. Avrin, M.D., Ph.D., chair of the RSNA Radiology Informatics Committee.

What may surprise some attendees are not only the great strides IHE has made in integrating systems within radiology, but also IHE's expansion to address exchange of EHRs and integration across the spectrum of care, said Dr. Avrin.

Such developments come as the federal government presses forward with its plans to develop, test and launch networks for sharing EHRs. Recent recommendations to the U.S. Department of Health and Human Services (HHS) include a call to certify products for interoper-



David E. Avrin, M.D., Ph.D.,
RSNA Radiology Informatics
Committee Chair



David S. Mendelson, M.D.
RSNA Radiology Informatics Committee,
IHE Subcommittee Chair

ability by 2009, as another step toward a universally accessible EHR. IHE has provided many of the technical specifications adopted by the Health Information Technology Standards Panel, the organization tasked by HHS with selecting interoperability standards.

RSNA 2007 will again feature an IHE Image Sharing Demonstration highlighting the methods IHE has put in place to share medical images across a health information exchange network. Vendors and research groups will perform real clinical scenarios that emphasize the development of patient history over a series of encounters at different care sites and the ability to access this full history at each site. The demonstration will be based in the Lakeside Learning Center and will include satellite demonstrations in

many vendor booths on the Technical Exhibits floor.

New IHE-Compliant Product Showcase

Also, for the first time at RSNA 2007, IHE-compliant products will be showcased on the RSNA Technical Exhibits floor. A special demonstration area will feature products compliant with the IHE Teaching File and Clinical Trial Export (TCE) profile. These systems will send images to the latest prototype of RSNA's "My MIRC™ Files," a Web-based file system that enables radiologists both in the academic setting and clinical practice to digitally store teaching files.

"The combination of TCE-compliant workstations and My MIRC Files will enable radiologists to conveniently select, anonymize and export clinical images and create pre-formatted elec-

Attendees [have] the opportunity to be a part of an experience that is revolutionizing healthcare image sharing and communication.

David E. Avrin, M.D., Ph.D.



tronic teaching files,” said Dr. Avrin.

“The ideal time to add a case to a digital teaching file is at the point of care—when we read the exam and have both the images and the clinical history conveniently in front of us,” added David S. Mendelson, M.D., chair of the IHE subcommittee of the RSNA Radiology Informatics Committee. “The addition of My MIRC Files will especially serve the many community radiologists who are not in a position to build and support an electronic teaching file, yet very much desire to have one.”

RSNA’s Medical Imaging Resource Center, or MIRC, is a free software system designed for authoring and archiving radiology teaching files. It has already been used to support numerous independently built teaching file Web sites.

“We believe the strong synergies between the TCE profile and My MIRC Files offer numerous advantages to the radiology community,” said Dr. Mendelson. “Placing them side by side in a showcase demonstration will present radiologists with a compelling story. It will demonstrate how the imaging industry and RSNA together have provided a streamlined, highly functional solution that enables important educational and research missions which ultimately provide improved patient care.”

“This will be a significant event,” added Dr. Avrin. “We are excited to offer these demonstrations. They give attendees the opportunity to be a part of an experience that is revolutionizing healthcare image sharing and communication.” □

Learn More

■ For more information about the MIRC and IHE image-sharing technologies, visit RSNA.org/MIRC/ and www.ihe.net.

New Programming Accents Quality, Radiation Oncology, Molecular Imaging

The IHE® Product Showcase isn’t all that’s new for RSNA 2007.

Molecular Imaging Symposium

This daylong series consists of four sessions on molecular imaging for the practicing radiologist. Included will be an overview of molecular imaging and discussions about applications of molecular imaging in oncology, cardiovascular imaging and neurology.

In addition, all molecular imaging exhibits and posters will be grouped together in an area of the Lakeside Learning Center called the Molecular Imaging Zone. Also displayed will be exhibits from federal agencies and information about funded centers of excellence and molecular imaging societies. Invited booth representatives and poster authors will make formal presentations during “Meet the Expert” sessions. Though not located in the Molecular Imaging Zone, technical exhibitors with molecular imaging products will feature the Molecular Imaging Zone logo in their booths.



Mentored Cardiac CT Case Review

Offered in conjunction with the North American Society for Cardiac Imaging, this course is designed to assist attendees in satisfying one of the recommendations of the American College of Radiology Practice Guidelines for the Performance and Interpretation of Cardiac CT.

Italy Presents

An Integrated Science and Practice (ISP) session, “Multicenter Trials on Screening and Research,” will be offered in conjunction with the Italian Society of Medical Radiology. The session represents the best of radiologic science in Italy.

Quality Improvement Symposium

Attendees of this 1-day course will learn why every radiologist should have a quality improvement project and obtain the tools to get started.

Bolstering Oncoradiologic and Oncoradiotherapeutic Skills for Tomorrow (BOOST) Program

These new daylong courses are organized so that one type of cancer—head and neck, prostate, lung or gastrointestinal—is addressed each day. Featuring experts in radiation oncology, diagnostic radiology, biology and physics, BOOST courses will encourage specialists to learn from each other via audience participation exercises and question-and-answer periods.

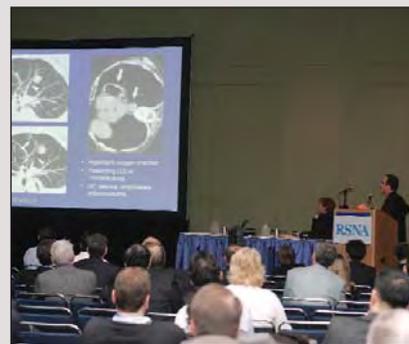
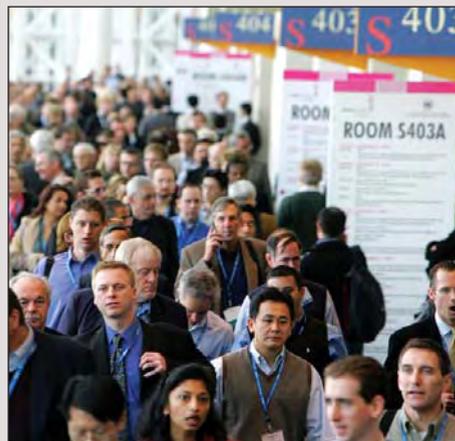
For more information and to register now for RSNA 2007 courses, go to RSNA2007.RSNA.org.



RSNA 2007

CONNECTING RADIOLOGY

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and Annual Meeting
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Chicago**



Guidelines Take Guesswork Out of *Radiology* Submission

FROM THE format of the title page to the type of information that should be included in the appendix, manuscript submission guidelines for RSNA's peer-reviewed science journal, *Radiology*, help authors seeking to share their research with the world.

"We want to publish the best of the submissions we receive regarding original hypothesis-driven research," said *Radiology* Editor Anthony V. Proto, M.D. "Authors should take the time and effort to make sure that the science in their study is not clouded by problems over which the authors have control."

Avoiding those problems is easy if authors follow the *Radiology* guidelines for preparation and submission of manuscripts, said Dr. Proto. The guidelines cover every aspect of the process, including the type of information that should be included in each section of the manuscript, conflicts of interest, redundant publication, manuscript categorization terms, authorship and clinical trial registration. Authors seeking to publish their research in *Radiology* can find detailed guidelines at RSNA.org/publications/rad/pdf/pia.pdf.

"Authors should pay careful attention to our guidelines regarding authorship and meeting the International Committee of Medical Journal Editors (ICMJE) criteria for authorship," Dr. Proto advised. Authorship guidelines clarify contributions that should be made by all authors, so as to decide whether a participant should be listed as an author.

"Also, we urge authors to pay careful attention to required statements in the manuscript regarding institutional review board approval, informed consent and HIPAA compliance for prospective or retrospective studies,



Anthony V. Proto, M.D.
Radiology Editor

and similarly appropriate approval by an animal care and use committee for studies involving animals," Dr. Proto continued. "These are issues of human and animal rights."

Manuscript Central Eases Process

Since 2002, *Radiology* has used Manuscript Central, an online process for manuscript submission and peer review. Authors begin

by submitting their manuscripts at RSNA.org/radiologyjnl/submit.

"The instructions on how to submit through Manuscript Central are fairly specific," said Dr. Proto. "But if authors have difficulty in going through some of the steps, they certainly can feel free to call the *Radiology* editorial office. Our staff is available to speak with them and help them get through the process."

One of the most important parts of the manuscript submission and review



Herbert Y. Kressel, M.D.
Radiology Editor-designate

process is the "blinding" of any information that may reveal the origin of the manuscript, said Dr. Proto, including the institution name, author initials and

We want to publish the best of the submissions we receive regarding original hypothesis-driven research.

Anthony V. Proto, M.D.

author name mentioned in the text. Blinding is essential to the journal's double-blind peer-review system, he explained.

"The reviewers like the double-blind system because they feel they can be as straightforward and open and frank as possi-

ble, because they know that the authors are not going to know who reviewed their manuscripts," said Dr. Proto.

"Similarly, the authors like the system because they know the reviewers do not know who the authors are and the potential for bias is removed."

If essential items are missing after a manuscript is submitted, the corresponding author is asked to send them. Manuscript categorization terms are then used to generate a list of potential reviewers. Reviewers provide a short

summary of what was done and what was found in the study. They also list the study's major strengths and weaknesses, in addition to indicating if information designated for the Advances in Knowledge and Implications for Patient Care sections is appropriate. The reviewers also offer specific comments on each part of the study.

Once all reviews are received, the manuscript is evaluated by the journal editor, who makes a decision of acceptance or rejection. The average time to first decision on a manuscript is 34 days.

Clarifying Purpose is Important

Herbert Y. Kressel, M.D., of the Department of Radiology at Beth Israel Deaconess Medical Center in Boston, will succeed Dr. Proto as editor of *Radiology* in January 2008. As he prepares for his new responsibilities, Dr. Kressel has a few suggestions for new authors planning to submit manuscripts to the journal.

"My experience has been that authors really need to pay a lot of attention to the purpose of their paper, and make sure they're clear in their own mind as to what the purpose is," he said.

Dr. Kressel said authors must not only ensure that the statement of purpose is very clear, but also that the purpose is the basis for the rest of the paper and that the methods relate to the purpose. The methods should be described in sufficient detail, so that an informed reader could replicate the study, he said.

"With regard to the way that data have been collected, authors need to pay attention to any bias in case selection on a clinical paper, or lack of controls on a more basic science paper," Dr. Kressel said. "If there is a bias in the data, does it limit the utility of the observations in providing new knowledge?"

Dr. Kressel said distinctness and clarity are important in the results section and that the results should directly relate to the original purpose of the study. Brevity is important in the discussion section, he said.



Published regularly since 1923, *Radiology* has long been recognized as an authoritative reference for current, clinically relevant and high quality research. Each month the journal publishes approximately 300 pages of peer-reviewed original research, reviews, commentary and opinion. With circulation of more than 35,000, *Radiology* has the largest readership of any journal in the field. *Radiology* has the highest impact factor among general diagnostic imaging journals, according to the 2006 Citations Reports®.

"People tend to want to include a lot of information in the discussion that may not really be pertinent," Dr. Kressel said. "I think it's important to avoid the pitfall of being speculative in the discussion."

Consistency is Key

Dr. Proto urged authors to ensure consistency among the various sections of the manuscript. For example, numbers given in one section should agree with the numbers in another section.

"An author who submits a manuscript that demonstrates internal inconsistencies, lack of clarity and lack of focus can portray to the reviewers that maybe he or she is not that interested in

publishing the manuscript in the journal," Dr. Proto said.

Dr. Proto recommended that authors, particularly inexperienced ones, give a manuscript to a respected colleague who does not know about the study, before submitting the manuscript to the journal.

"Ask the colleague, 'What's not clear? Are you able to reproduce the study from what I say in this manuscript?'" Dr. Proto said. "Sometimes authors don't realize that they haven't explained something well enough, simply because they understand the details that they have not included in the manuscript." □

RSNA Journals at RSNA 2007

Learn more about RSNA's peer-reviewed journals at RSNA 2007. *Radiology* Editor Anthony V. Proto, M.D., and *RadioGraphics* Editor William W. Olmsted, M.D., will lead



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a refresher course, "Reviewing Manuscripts for the RSNA Journals." The course is sponsored by the RSNA Publications Council.

RSNA Board Liaison for Publications and Communications Hedvig Hricak, M.D., Ph.D., will moderate an RSNA 2007 special focus session, "Imaging Journals: Peering

into the Past, Present and Future." Speakers will be Albert L. Baert, M.D., Ph.D., Adrian K. Dixon, M.D., Herbert Y. Kressel, M.D., William W. Olmsted, M.D., Anthony V. Proto, M.D., and Robert J. Stanley, M.D.

Visit the Publications kiosk in the RSNA Services area at RSNA 2007 for a guided tour of *Radiology* and *RadioGraphics* online.

For more information and to register for courses, visit RSNA2007.RSNA.org.

RSNA Research Scholar Establishes MR in Head and Neck Cancer Detection

LOOKING at her career trajectory, Laurie A. Loevner, M.D., said it really all began with her RSNA Research & Education (R&E) Foundation Research Scholar Grant.

Dr. Loevner became a full professor of radiology within a relatively short 10 years at the University of Pennsylvania School of Medicine, where she also maintains a joint appointment in the Departments of Otorhinolaryngology/ENT Surgery and Neurosurgery. "My RSNA experience was very helpful," she said.

Upon arriving at Penn, this self-described "brain researcher" said she was asked by her department to "pick up some of the neck." She expanded her research territory and received a 1997 R&E two-year scholar grant to assess the role and accuracy of MR imaging in the detection of pre-epiglottic and deep space neoplastic spread in patients with squamous cell carcinoma of the head and neck. Little did she know how this new direction would change her life, she said.

According to the American Cancer Society, squamous cell carcinoma of the head and neck affects more than 50,000 new patients annually.

"My research used MR imaging to look at spread of head and neck cancers into the eye, intracranial compartment and, importantly, into the submucosal spaces such as the pre-epiglottic space and the paraglottic space—areas that

surgeons can't see with an endoscope or feel with their fingers, but which affect patient staging and prognosis and ultimately, how they're managed," said Dr. Loevner.

MR Proven to Exceed CT in Some Cases

While many medical institutions and imaging facilities still predominantly use CT to look at head and neck cancer, Dr. Loevner's research demonstrated that the improved soft tissue resolution of good quality MR imaging, in experienced hands, is as good as CT and can be superior for assessing spaces where CT yields overlapping densities between muscles, edema and tumor,

especially in the treated neck. "At Penn, 75 percent of our imaging for head and neck cancer is with MR," she said.

"We are leaders in that area."

Dr. Loevner said she feels her research changed the way surgeons prepare for head and neck cases. "How surgeons obtain consent

from patients and what they plan to do in the operating room are distinctly different when we can give them accurate information," she said. "I get numerous calls every week from surgeons, radiation therapists, and oncologists asking a spectrum of questions such as, 'Where is the tumor?' 'What is the tumors extent?' 'Is the carotid artery encased?'



Laurie A. Loevner, M.D.
University of Pennsylvania

'Is the marrow invaded?' 'Is there involvement of the pre-epiglottic space?' and 'Are we going to be able to take it out, is this not a surgical candidate or do I need to do a mandibulotomy?' MR really answers a lot of questions for the surgeons."

Dr. Loevner's R&E-funded research findings inspired several papers, including a cover article for

the December 2002/January 2003 issue of the *American Journal of Neuroradiology* in which she showed how reinterpretation of cross-sectional MR and CT imaging studies by skilled head and neck radiologists in a multidisciplinary cancer center changed the staging and management in a majority of patients.

After completing the initial scope of her RSNA project, Dr. Loevner went on to look at orbital and dural invasion, face and tongue tumors and other manifestations of head and neck cancer. She generated numerous additional manuscripts looking at the role of MR imaging in assessing carcinomas throughout the head and neck and the impact of MR imaging on treatment.

Influence Beyond Classroom and Lab

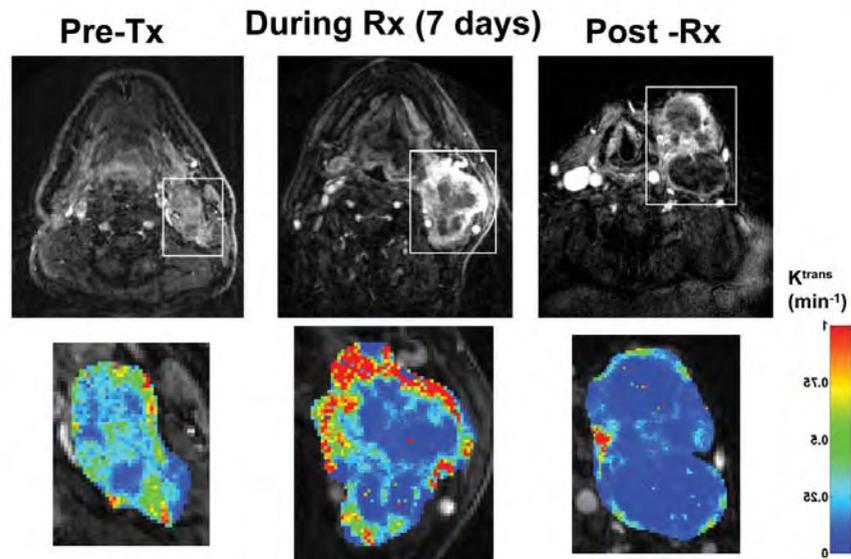
Several of Dr. Loevner's peer-reviewed papers are co-authored by medical students, residents and fellows she has mentored over the years. Among them is Wendy Hsu, M.D., who worked alongside Dr. Loevner as part of the R&E Research Medical Student Grant Program. Dr. Hsu, who received the Saunders Cancer Award at Penn for her

How surgeons obtain consent from patients and what they plan to do in the operating room are distinctly different when we can give them accurate information.

Laurie A. Loevner, M.D.

A project funded by the RSNA Research & Education Foundation in 1997 inspired further head and neck cancer research for Laurie A. Loevner, M.D., including studies involving orbital and dural invasion, face and tongue tumors and other manifestations of head and neck cancer. Other projects have looked at the role of MR imaging in assessing carcinomas throughout the head and neck and the impact of MR imaging on treatment.

DCE MRI for monitoring treatment response



Early treatment response is indicated by increased K^{trans} values

research with Dr. Loevner, and recently finished an abdominal imaging fellowship at the University of Washington, is now a staff radiologist at Virginia Mason Medical Center in Seattle.

“The energy and passion Dr. Loevner devoted to her RSNA projects and to mentoring was an inspiration to me,” said Dr. Hsu. “Not only is she a prolific researcher, she is a dynamic teacher. Her conferences convey her in-depth knowledge of head and neck radiology and thorough understanding of the relevance of imaging findings to patient management. Her accelerated promotion to professor of radiology is testament to her contributions to academic radiology.”

During an average week, Dr. Loevner spends three days doing clinical work and patient care and two teaching and conducting research. She also participates in numerous national and international medical meetings a year—in addition to being heavily involved in multiple professional organizations, she also has received numerous awards and addresses audiences all over the world. “It’s one of my favorite parts of my job,” she said.

“It’s nice to stimulate young people who have not yet decided if they are going into academic careers. The bigger the audience, the better.”

Dr. Loevner continues to focus on MR imaging research. She is pursuing structural and metabolic MR, looking at MR spectroscopy and phosphorous spectroscopy for lymphoma and conventional proton spectroscopy for head and neck cancer in an effort to predict who will respond to therapy. She is also exploring perfusion and diffusion imaging as predictors of treatment response.

Much of her success has come from having established herself in the head and neck community early in her career with her research funded by the RSNA R&E foundation, Dr. Loevner said.

“It’s funny, I remember getting a grant commentary from a reviewer who felt that I was very well qualified to receive the grant, but who didn’t think the science would impact my career,” she said. “Boy was that person wrong. I hope that reviewer has done a Google™ search on me.” □

9 Questions for...

Laurie A. Loevner, M.D.

What’s your fondest childhood memory?

My eight splendid summers at overnight camp in Maine, invaluable in my personal development.

What is the most daring thing you’ve ever done?

Rode a small motorcycle along the cliffs in Santorini, Greece. Was I crazy?

If you weren’t a radiologist, what profession would you be in?

Archeology.

Who are some of your personal heroes?

My children Benjamin and Alex.

At what age did you first become aware of radiology?

24 years old.

What do you do for relaxation?

Take long walks, drink great red wine, watch a good movie.

What do you like best about your job?

My wonderful colleagues and the hallway.

If you had one piece of advice for someone considering your field, what would it be?

If you are passionate, you’ll be happy and successful.

What’s your favorite travel destination?

Hawaii.

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





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 June 16–July 13, 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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Kristen A. Lachance, M.D.
Michael J. Lanoux, M.D.
Jean & Joel E. Lichtenstein, M.D.
William F. Lindsey, M.D.
Peter R. Luijten, Ph.D.
Marcia & Robert R. Lukin, M.D.
Travis B. Lutz, M.D.
Paulette & David E. Magarik, M.D.
Joshua M. McDonald, M.D.
Hilarie B. &
Robert C. McKinstry III, M.D., Ph.D.
Rudolph H. Miller III, M.D.
Donny Milosevski, M.D.
Jaylynn K. & Michael J. Milstein, M.D.
Nusrat & Jamil Mohsin, M.D.
William S. Morrow, M.D.
R. Laurence Moss, M.D.
Martha M. Munden, M.D. &
Reginald F. Munden, M.D., D.M.D.
Grace & James B. Naidich, M.D.
Cheri Lee Canon, M.D. & Malcom R. Nelson
Margaret J. & John D. Noonan, M.D.

Tamar K. & Alan E. Oestreich, M.D.
Maimu L. Ohanian, M.D. & Mark Ohanian
Allison Lee Oldfield, M.D.
Bernardo M. Olhagaray-Rivera, M.D.
Hayler H. Osborn, M.D.
Carol & Mitchell T. Pace, D.O.
Joe A. Pastrano, M.D.
Deborah B. & Barry R. Paull, M.D.
Mauricio P.R. Panzzi, M.D.
Rita J. Pink, M.D.
Lydi & William R. Poller, M.D.
Marilyn & Louis G. Putz, D.O.
Betty & Lee R. Radford, M.D.
Connie S. Crawford-Rahn &
Norman H. Rahn III, M.D.
Mary & Rakhi Ram, M.D.
Yagnesh R. Raval, M.D.
Stanley B. Reich, M.D.
James T. Rhea, M.D.
Jacqueline H. & Leroy Roberts Jr., M.D.
Lawrence M. Rosen, M.D.
Miguel J. Rovira, M.D.
Carl L. Schultz, M.D.
Louis N. Scotti, M.D.
Ali Shariati, M.D.
Ann E. & Lester D. Shook, M.D.
William Silverstein, M.D.
Bruce D. Simonds, M.D.
Uwa O. Aideyan, M.D. & Gary Slater, M.D.
Eleanor M. Smergel, M.D.
Harry L. Stein, M.D.
Ralph L. Stevens, M.D.
C. Frederick Strife, M.D.
Charles S. Sutton, M.D.
Bing Tai, M.D.
Craig P. Tillman, M.D.
Eva Tlusty, M.D.
Ina L. Tonkin, M.D. & Allen K. Tonkin, M.D.
Stanford B. Trachtenberg, M.D.
Ronni C. & Eric J. Udoff, M.D.
University of Miami Department of Radiology
Carolyn W. Van Dyke, M.D.
Manuel Viamonte Jr., M.D.
Josephine & John W. Vosskuhler, M.D.
Lloyd D. Wagner, M.D.
Anthony D. Warden, M.D.
Eldora & John H. Warkentin, M.D.
William G. Way Jr., M.D.
Faith A. Weidner, M.D.
Douglas J. Wester Jr., M.D.
Karen G. Ordovas, M.D. & Antonio C.
Westphalen, M.D.
Terry D. Wilkin, M.D.
Ellen L. Wolf, M.D.
Caryn C. Wunderlich, M.D.
Jerahmie L. Zelovitzky, M.D.

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.

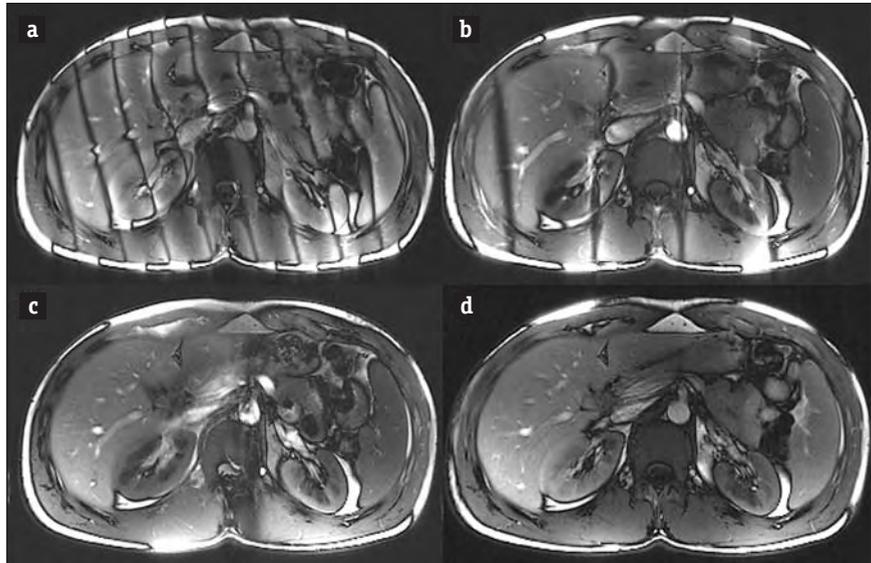
Body and Cardiovascular MR Imaging at 3.0 T

WHILE MR imaging at 3 T can yield higher signal-to-noise ratios, better image contrast and better spectral separation for spectroscopic applications, achieving this superior imaging and spectroscopic quality can be challenging. Increased susceptibility, B_1 field inhomogeneity and increased specific absorption rate are among the problems encountered in body and cardiovascular MR imaging at 3 T.

Radiology

In a Special Review article in the September issue of *Radiology* (RSNA.org/radiologyjnl), Vivian S. Lee, M.D., Ph.D., M.B.A., of New York University Medical Center, and colleagues discuss these problems and potential solutions such as parallel imaging, variable-rate selective excitation and variable flip angle sequences. Specifically they address:

Continued on next page



Transverse MR images obtained through the abdomen demonstrate banding artifacts associated with steady-state free precession (SSFP imaging (3.0/1.5; 50° flip angle)).

(a) By deliberately introducing a magnetic field gradient across the image plane, severe banding artifacts can be observed on images acquired with SSFP sequences. These artifacts can be greatly reduced by improving magnetic field homogeneity, as shown in b and c. (d) With a perfectly shimmed imaging volume, banding artifacts can be entirely eliminated.

(*Radiology* 2007;244:692-705) © RSNA, 2007. All rights reserved. Printed with permission.

US-MR Imaging Correlation in Pathologic Conditions of the Scrotum

WHILE ultrasonography is typically the initial imaging modality for evaluating pathologic conditions of the scrotum, MR imaging can be useful when sonographic findings are equivocal, the location of a scrotal mass is uncertain or when ultra-

RadioGraphics

sonography does not allow differentiation between a solid mass and an inflammatory or vascular abnormality.

In a pictorial review in the September-October issue of *RadioGraphics*

Continued on next page



Seminoma in a 31-year-old man with the chief symptom of right testicular swelling.

Patient reported sudden onset of testicular pain with scrotal swelling and erythema 3 months earlier, for which he was treated with 5 weeks of antibiotic therapy. (a) Sagittal sonogram of the right testicle shows a hypoechoic and relatively homogeneous, multinodular, solid intratesticular mass. No calcifications or cystic areas are noted. (b) Axial T2-weighted image shows that the tumor has homogeneous low signal intensity. (c) Gadolinium-enhanced MR image shows heterogeneous enhancement of the tumor with areas of necrosis.

(*RadioGraphics* 2007;27:1239-1253) © RSNA, 2007. All rights reserved. Printed with permission.

Body and Cardiovascular MR Imaging at 3.0 T

Continued from previous page

- Safety
- General principles of MR physics at 3 T, including B_0 and susceptibility, the Larmor frequency and T1 and T2 relaxation times
- Implications for commonly used MR pulse sequences, including T1-weighted gradient-echo imaging, balanced steady-state free precession and

gadolinium-enhanced T1-weighted gradient-echo imaging

- Future directions for 3 T body and cardiovascular imaging
- “3-T MR imaging cannot be performed by simple adaptation from 1.5 T imaging,” Dr. Lee and colleagues conclude. “In the long term, the intense research focus on MR imaging at high field strength will yield many creative

solutions that will benefit MR imaging at all field strengths. Without a doubt, we will see in the next decade tremendous strides in clinical MR imaging and spectroscopy that will benefit patients in ways that we can only begin to imagine.”

US-MR Imaging Correlation in Pathologic Conditions of the Scrotum

Continued from previous page

(RSNA.org/radiographics), Woojin Kim, M.D., of the University of Pennsylvania, and colleagues present sonographic findings of a variety of scrotal lesions and correlate them with their MR imaging appearances, emphasizing the imaging features that can help establish a specific diagnosis and recommending when MR imaging can or

should be used as an adjunctive imaging modality.

Addressed by Dr. Kim and colleagues are:

- Technique for ultrasonography and MR of the scrotum
- Normal appearances of the epididymis and testis
- Imaging evaluation of scrotal mass or enlargement

- Malignant testicular tumors
- Benign testicular lesions
- Extratesticular tumors
- Inflammatory or ischemic conditions

• Miscellaneous lesions

“When used properly, MR imaging can decrease the overall number of unnecessary surgical procedures and reduce cost,” Dr. Kim and colleagues write.

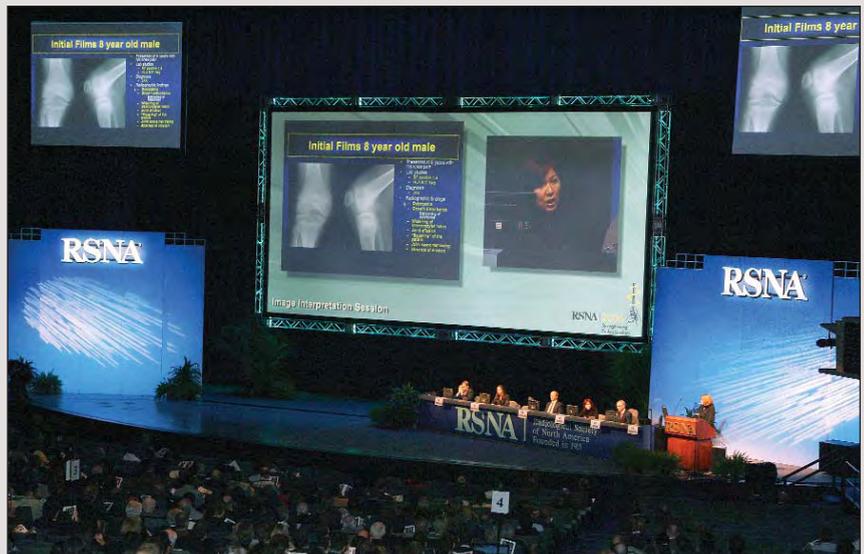
This article meets the criteria for 1.0 AMA PRA Category 1 Credit.

Cases for RSNA 2007 Image Interpretation Session Available October 1

UNKNOWN cases to be presented during the Image Interpretation Session at the annual meeting, historically published in the September-October issue of *RadioGraphics*, will be published only online this year. The RSNA 2007 unknown cases will be available starting October 1 at RSNA2007.RSNA.org.

**ONLY ONLINE
THIS YEAR**

Held during the RSNA annual meeting since 1939, the Image Interpretation Session brings together five experts from various radiology subspecialties, each of whom are shown two unknown cases. Assembled from contributions by radiologists throughout the world, cases are chosen to provide a challenge to the panelists and a learning experience for the audience. The session is designed as an opportunity to observe expert radiologists as they analyze images, develop differential diagnoses and use the differential diagnoses to guide patient care.



The moderator for this year's session is C. Daniel Johnson, M.D. Panelists are Lane F. Donnelly, M.D., Jud W. Gurney, M.D., Patricia A. Hudgins, M.D., Rodney Harris Reznick, M.B.Ch.B., and Mark E. Schweitzer, M.D.

Information on registering to view the

Image Interpretation Session remotely as a Webcast is also available at RSNA2007.RSNA.org. The live Webcast offers 1.75 AMA PRA Category 1 Credits™. Although the Webcast will be archived for later viewing, CME will not be offered.

Radiology in Public Focus

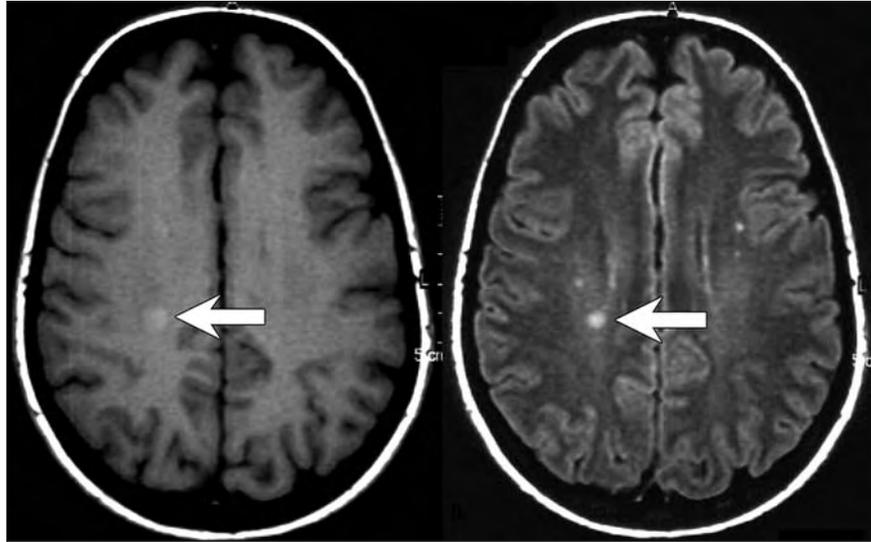
Press releases have been sent to the medical news media for the following articles appearing in the September issue of *Radiology* (RSNA.org/radiologyjnl):

Hyperintense Lesions in the Brain on Non-contrast T1-weighted MR Images (T1 Shortening) in Multiple Sclerosis

HYPERINTENSE brain lesions on non-contrast T1-weighted MR images in patients with multiple sclerosis (MS) are related to brain atrophy, extent of disability and advancing MS and may be a clinically relevant marker of the disease process, researchers have concluded.

Vallabh Janardhan, M.D., of the Department of Neurology at Massachusetts General Hospital, and colleagues found in a study of 145 patients with relapsing-remitting MS, secondary progressive MS and MS of undetermined disease course that lesions defined as hyperintense compared to normal white matter on non-contrast T1-weighted images were common. One hundred thirteen patients had at least one lesion and 340 total lesions were detected. Hyperintense lesions were significantly correlated with disease course, scores on the expanded disability status scale (EDSS) and degree of brain atrophy, the researchers found.

The lesions were most common and more likely to be multiple in patients with the secondary progressive course of the disease. The number of hyperintense lesions per patient was not significantly associated with age, gender or



Transverse MR images in a 50-year-old woman with relapsing-remitting (RR) multiple sclerosis (MS).

Left: Lesion (*arrow*) of right centrum semiovale shows uniform hyperintensity on the nonenhanced T1-weighted image (400/10) (protocol 4). *Right:* Lesion (*arrow*) also is seen on fluid-attenuated inversion-recovery (FLAIR) image (repetition time msec/echo time msec/inversion time msec, 8000/150/2200).

(*Radiology* 2007;244:823-831) © RSNA, 2007. All rights reserved. Printed with permission.

disease duration, but after adjustment for disease course remained correlated with MR measures of brain atrophy. Greater numbers of hyperintense lesions were associated with greater extent of disability as evidenced by higher EDSS scores.

“Non-contrast T1-weighted images of patients with MS should be examined for the presence of hyperintense

lesions, as these may provide useful diagnostic information,” Dr. Janardhan and colleagues conclude.

Continued on next page

VIEWING TECHNOLOGY

Answer

[Question on page 2.]

A Abdomen CR processing may have been selected because the patient was “heavy.” Typical abdomen processing uses a high-contrast display function.

Q&A courtesy of AAPM.

Continued from previous page

Media Coverage of Radiology

IN JULY, media outlets carried 155 news stories generated by articles appearing in *Radiology*. These stories reached an estimated 80 million people.

A news release promoted findings from a study on ultrasound follow-up of “probably benign” breast lesions (*Radiology* 2007;244:87-93).

Coverage included print placements in the *Chicago Tribune*, *San Diego Union-Tribune*, *Orlando Sentinel* and *Diagnostic Imaging*.

Prominent Web placements included Medscape, *washingtonpost.com*, *forbes.com*, *chicagotribune.com*, *docguide.com* and *healthcentral.com*.



Ovarian and Prostate Cancers the Focus of September Public Information Activities

In recognition of Ovarian Cancer Awareness Month and Prostate Cancer Awareness Month, public service announcements (PSAs) distributed by the RSNA Public Information and Media Relations Department in September focus on symptoms of ovarian and prostate cancers, risk factors, screening methods and treatment options.

The “60-Second Checkup” radio program will also focus on ovarian and prostate cancers, including such themes as advances and research in prostate imaging, testing to detect ovarian cancer and the use of ultrasound in highlighting ovarian tumors.

Link Between CME Gateway, ABR Improves MOC Tracking

CME Gateway now enables automatic electronic transmission of *AMA PRA Category 1 Credit™* and self-assessment modules (SAMs) to users’ personal databases (PDBs) with

the American Board of Radiology (ABR). The CME Gateway is an aggregation of continuing medical education and other credits issued by RSNA, the

American College of Radiology, SNM, American Roentgen Ray Society, Society of Interventional Radiology, American Society of Neuroradiology, Society for Pediatric Radiology and Commission on Accreditation of Medical

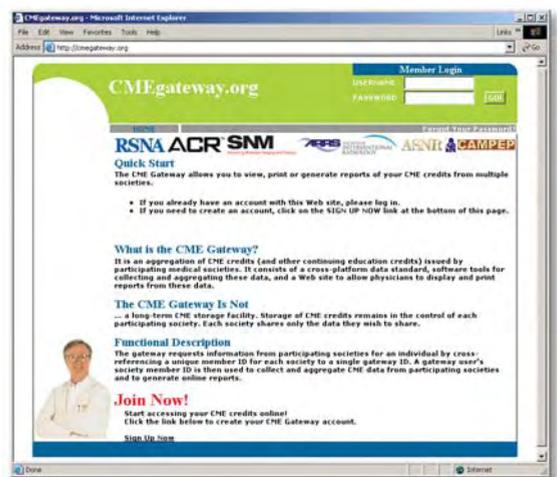
Physics Educational Programs.

Credits reported to ABR through the CME Gateway are automatically authenticated, meaning no further proof is necessary if the credits are audited.

To sign up, go to www.CMEGateway.org and enter your username and password for each society to which you belong. You must then “opt in” in order for your CME and SAM data to be transmitted to ABR.

For more information, contact ABR at 1-520-519-2152 or abrmoc@theabr.org.

Credits reported to ABR through the CME Gateway are automatically authenticated.



Working For You

RSNA Committees

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

Local Services Committee

RSNA annual meeting attendees who require medical assistance, including prescriptions, referrals and emergency services, can turn to the Local Services Committee.

The committee's seven members are clinicians who live in the Chicago metropolitan area and are licensed to practice in Illinois. Each volunteers one day during the annual meeting.

"A lot of days it's pretty quiet," said Committee Chair Bruce Silver, M.D., "but other days we'll get three or four calls." Most frequently the calls are from members who have forgotten a prescription and need a pharmacist, he said. Attendees with acute problems can be sent to nearby Mercy Hospital, he added, and committee members can also refer attendees to internists or other specialists.

Dr. Silver said one of his more personally rewarding experiences came from assisting an annual meeting presenter who lost a cap from his front tooth at breakfast and was con-

cerned about the loss impeding his speech. The committee helped the presenter get in touch with a dentist at Northwestern Memorial Hospital, who repaired the tooth in time for the presenter's course that afternoon, said Dr. Silver.

Even for those attendees who don't need services, the committee strives to provide peace of mind by simply being available, said Dr. Silver. "It's a pleasure to be able to help a fellow member from out of town," he said.

For information about volunteering for the Local Services Committee or other RSNA committees, go to RSNA.org/About/whoswho/committees.



Bruce Silver, M.D.

Working for you COMMITTEE PROFILE

Education Center Store Has New Toll-Free Number for Canadian Orders

Residents of Canada can now contact the RSNA Education Center Store toll-free at 1-800-272-2920. Education Center Store representatives are available 8:30 a.m. – 4:30 p.m. CT to assist with orders of syllabi or other educational products and to answer questions. A complete listing of Education Center Store products is available at RSNA.org/Education/index.cfm.

U.S. residents can also use the toll-free number listed above. To reach the RSNA Education Center Store from outside the U.S. or Canada, call 1-630-990-9941.



More MOC Brochures Released

RSNA has released two more titles in its series of brochures regarding the American Board of Radiology (ABR) maintenance of certification (MOC) process. All eight brochures in the series are available online at RSNA.org/Education/pdf.cfm.

The new brochures are "Online Searching: What Can It Do? How Can You Do It?" and "Practice Quality Improvement: How Do You Assess How You're Doing?"

Links to the brochures will be e-mailed to people participating in the MOC registry, an online feature designed to assist members in participating in the MOC process who have completed a practice profile. Radiologists who received time-limited certification are now required to complete the MOC process in 10-year cycles. To participate in the MOC registry, go to RSNA.org/Education/moc.cfm.

All brochures will also be available at RSNA 2007.



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

NIH Grantsmanship Workshop

November 24 • McCormick Place, Chicago

RSNA will hold a National Institutes of Health (NIH) Grantsmanship Workshop on Saturday November 24, from 1 to 5 p.m. at the McCormick Place Convention Center in Chicago prior to RSNA 2007. The workshop covers grantsmanship techniques from concept development to submission, as well as the NIH review process. There is also an opportunity to experience a mock study section. Speakers will address the entire NIH grant application experience, including basic applications as well as K grants. Register online at RSNA2007.RSNA.org. There is a \$35 registration fee.



Facilitated by: **Lee Rosen, Ph.D.**,
NIH Center for Scientific Review

Speakers: **John Haller, Ph.D.**,
NIH, National Institute of Biomedical
Imaging and Bioengineering

Reed A. Omary, M.D.,
Northwestern University, Chicago

Warren Grundfest, M.D.,
University of California, Los Angeles

Xiang-Ning Lee, M.D. Ph.D.,
NIH Center for Scientific Review

Financial Education Seminars

November 24 • McCormick Place, Chicago

Two comprehensive financial seminars—“Effective Retirement Plans and Distribution Strategies” and “Effective Real Estate Investment Strategies”—will be held Saturday, November 24, at the McCormick Place Convention Center in Chicago just prior to RSNA 2007.



Attendees receive textbooks written specifically for each course. The cost is \$129 for the first course and \$159 for the second, or \$269 for both. Register by going to RSNA2007.RSNA.org and clicking Registration, Housing & Courses. These seminars do not qualify for *AMA PRA Category 1 Credit™*. For more information, contact the RSNA Education Center at 1-800-381-6660 x7772 or ed-ctr@rsna.org.

IHE® Connectathon 2008

January 28–February 1, 2008 • Hyatt Regency Chicago—Wacker Drive

THE Integrating the Healthcare Enterprise (IHE®) Connectathon offers participating companies a unique opportunity to test the interoperability of their health information systems by exchanging information with complementary systems from multiple vendors.

Since the first Connectathon was held in 1998, thousands of vendor-to-vendor connections have been tested, with tens of thousands of transactions passed among the systems. Participating companies report that the Connectathon helps them address important issues in their product development plans.

The 2008 Connectathon will include a one-day conference on Wednesday, Jan. 30, featuring presentations from leaders of national healthcare information technology organizations as well as an introduction to IHE and the Connectathon process and a tour of the event. More than 120 healthcare leaders and industry representatives attended the 2007 conference.

For more information, go to www.ihe.net/events/Connectathon/index.cfm.



Since the first Connectathon was held in 1998, thousands of vendor-to-vendor connections have been tested, with tens of thousands of transactions passed among the systems.

News about RSNA 2007

Registration Materials

North Americans who register for RSNA 2007 by **November 5** will have their registration materials mailed to them in advance of the annual meeting. International registrants will have their materials mailed to them if their registration forms are received by **October 26**. For those who register after October 26, registration materials will be available for pick-up onsite at Desk A, located in the Lakeside Center Ballroom near Professional Registration.

Materials enclosed in the registration wallet include:

- Name badge and holder
- Attendance vouchers
- Course and tour tickets (if requested)
- ExpoCard™
- *Pocket Guide*
- Airport shuttle discount coupon
- Free train pass for the Chicago Metra Electric Line



Name Badge

A name badge is required to attend RSNA courses or events or to enter the exhibit halls. At RSNA 2007, RSNA will use radiofrequency identification (RFID) badge scanning technology at the entrances to the Technical Exhibit Halls and Lakeside Learning Center. RFID badge scanning is relatively nonintrusive and an efficient means of tracking attendance and exhibit booth participation. No personal information is stored in the RFID



badge, only an ID number. Badges will be monitored to obtain total attendance counts, exhibit booth participation and exhibit floor traffic flow through the entrances.

A complimentary copy of the *RSNA Meeting Program*, an official meeting bag and a name badge lanyard can be obtained by presenting a voucher at the distribution counters located in the Grand Concourse or Lakeside Center, Level 3.

Course Enrollment

Seats are still available in many RSNA 2007 courses. Online registration occurs instantly, while faxed or mailed registration forms are processed in the order of receipt. The Advance Registration, Housing and Course Enrollment brochure and online registration are available at RSNA.org/register. You must be registered for RSNA 2007 in order to enroll in courses.

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

Registering for RSNA 2007

There are four ways to register for RSNA 2007:

1 Internet

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.

Fastest way to register!

2 Fax (24 hours)

1-800-521-6017
1-847-940-2386

4 Mail

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

3 Telephone

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

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.

Product News

NEW PRODUCT

Extravasation Detector

MEDRAD, INC. (www.medrad.com) has introduced the MEDRAD XDS™ Extravasation Detector for its Stellant® CT Injection System, to sense extravasation pooling under the skin during a CT procedure.

Using radiofrequency wave technology and permittivity, XDS detects the start of an extravasation under the patient's skin and signals the Stellant to stop injecting—typically after 5 mL to 11 mL—until a clinician can examine the patient. The radiofrequency wave technology and permittivity also minimize false-positive detections, which have kept extravasation detectors that rely on impedance and resistivity from being readily adopted, the company said.



PRODUCT UPGRADE

CAD with Film-to-Digital Conversion Support

iCAD (www.icadmed.com) has updated its flagship SecondLook® computer-aided diagnosis (CAD) system. SecondLook 300 Version 8.1 now provides full support for film-to-digital conversion of prior X-ray films, applying comprehensive CAD technology to the digitized images. The latest upgrade enables mammography centers to fully digitize current and prior mammography films and apply CAD either at the time of film digitization or later in the workflow process. Users can also compare new mammograms with prior images, including those taken with film, on a single digital review workstation.

PRODUCT UPGRADE

Enhanced PACS Software for Mammography

FUJIFILM Medical Systems USA, Inc. (www.fujimed.com) has released version 3.2 of its Synapse® PACS software. Version 3.2 further optimizes presentation of mammo-

graphic images by integrating computer-aided diagnosis (CAD) into technologist and radiologist workflow, enabling the display of CAD markers and providing support for Mammography

Quality Standards Act (MQSA) compliant overlays. Enhancements to Fujifilm's patent-pending reading protocol technology also improve the mammography capabilities of Synapse—for

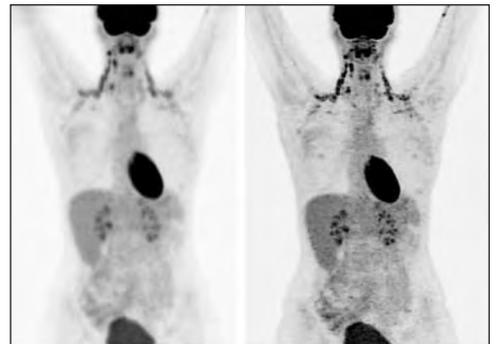
instance, reader-specific preferences can be set and will apply even when full-field digital mammography data are integrated into ultrasound, MR and other breast imaging exams.

NEW PRODUCT

High Definition PET

Siemens Medical Solutions (www.usa.siemens.com/medical) has introduced HD•PET, high definition PET technology designed to offer consistently sharper and clearly defined images across the entire field of view. Utilizing proprietary technology that optimizes the elements of image uniformity, resolution and contrast, HD•PET provides greater specificity and accuracy and enables physi-

cians to more confidently delineate small lesions, according to the company. With 2 mm resolution and a doubled signal-to-noise ratio, HD•PET is based on Siemens' TruePoint technologies. High definition capability will be an option on all new Biograph TruePoint systems as well as an upgrade option for current users.



RSNA.org

RSNA 2007 Technical Exhibitor List

MANY companies listed in the searchable online database of RSNA 2007 exhibitors have enhanced their listings with more information, including images, about the products they plan to demonstrate at RSNA 2007.

To access the database, go to RSNA.org/showcase. If you already know the name of the company you wish to see, select the first letter of the company name under "Search by Alphabet" ❶ and click the company name ❷. Product information and images appear for companies who have chosen to upload them ❸.

To see companies grouped by type of product, click "Search by Category" ❹ and select from the list.

To view maps of the technical exhibit floors, including booth numbers, click "Search by Floor plan" ❺.



connections

Your online links to RSNA

RSNA.org

Radiology Online
RSNA.org/radiologyjnl

Radiology Manuscript Central
RSNA.org/radiologyjnl/submit

RadioGraphics Online
RSNA.org/radiographics

RSNA News
rsnanews.org

Education Portal
RSNA.org/education

RSNA CME Credit Repository
RSNA.org/cme

CME Gateway
CMEgateway.org

InterOrganizational Research Council
radresearch.org

RSNA Medical Imaging Resource Center
RSNA.org/mirc

RSNA Career Connection
RSNA.org/career

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

RSNA Press Releases
RSNA.org/media

My RSNA Profile & Benefits
RSNA.org/memberservices

RSNA Research & Education Foundation
Make a Donation
RSNA.org/donate

NEW
R&E Foundation Silver Anniversary Campaign
RSNA.org/campaign

Community of Science
RSNA.org/cos

CQI Initiative
RSNA.org/quality

Membership Applications
RSNA.org/mbrapp

RSNA Membership Directory
RSNA.org/directory

Register for RSNA 2007
RSNA.org/register

RSNA 2007
RSNA2007.RSNA.org

RSNA Highlights™ 2008
RSNA.org/Highlights

Medical Meetings

October – November 2007

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 4-6

Society of Chairmen of Academic Radiology Departments (SCARD), Fall Meeting, Fairmont Banff Springs, Alberta, Canada • www.scardweb.org

OCTOBER 4-6

European Society of Gastrointestinal and Abdominal Radiology (ESGAR), 1st Liver Imaging Workshop, Academic Medical Centre, Amsterdam, The Netherlands • www.esgar.org

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 7-11

17th World Congress on Ultrasound in Obstetrics and Gynecology, Palazzo dei Congressi/Palazzo degli Affari, Florence, Italy • www.isuog2007.com

OCTOBER 10-11

American Healthcare Radiology Administrators (AHRA), Imaging Center Administrators Conference, Westin Savannah Harbor Golf Resort and Spa, Georgia • www.ahraonline.org

OCTOBER 10-13

International Skeletal Society, 34th Radiology and Pathology Refresher Courses, InterContinental Hotel Budapest, Hungary • www.internationalskeletalsociety.com

OCTOBER 11-13

Brazilian College of Radiology, 36th Congress, Bahia Convention Center, Salvador, Brazil • www.radiologia2007.com.br

OCTOBER 11-14

Colombian Association of Radiology, 32nd Congress, Hotel Hilton, Cartagena de Indias, Colombia • www.acronline.org

OCTOBER 12-14

Uruguayan Society of Radiology and Imaging, 6th Congress, Radisson Victoria Plaza, Montevideo, Uruguay • www.sriu.org.uy

OCTOBER 16-19

Spanish Association of Radiotherapy and Oncology, 14th National Congress, Málaga, Spain • www.aero.es

OCTOBER 19-21

Chinese Medical Association, 14th Annual Chinese Congress of Radiology, Nanjing, China • www.chinaradiology.org

OCTOBER 20-24

French Society of Radiology, Annual Meeting, CNIT-Paris La Défense • www.sfrnet.org

OCTOBER 26-28

Society of Radiologists in Ultrasound (SRU), 17th Annual Meeting and Postgraduate Course, Fairmont Hotel, Chicago • www.sru.org

OCTOBER 27-28

Royal College of Radiologists and Hong Kong College of Radiologists, 2nd Joint Scientific Meeting, Hong Kong Academy of Medicine Jockey Club Building • www.hkcr.org

OCTOBER 28 – NOVEMBER 1

American Society for Therapeutic Radiology and Oncology (ASTRO), 49th Annual Meeting, Los Angeles Convention Center • www.astro.org

NOVEMBER 1-4

Chilean Congress of Radiology and 11th Congress of the Latin American Society of Pediatric Radiology, Hotel del Mar, Viña del Mar, Chile • www.sochradi.cl

NOVEMBER 25-30

RSNA 2007, 93rd Scientific Assembly and Annual Meeting, McCormick Place, Chicago • RSNA2007.RSNA.org

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RSNA News
820 Jorie Blvd.
Oak Brook, IL 60523
1-630-571-2670
1-630-571-7837 Fax
rsnanews@rsna.org

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