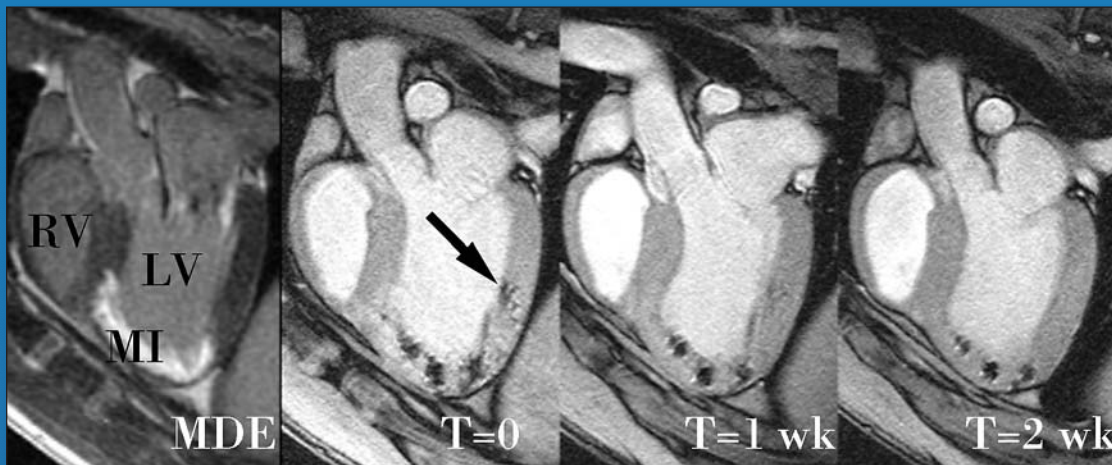


RSNA *News*



MR Imaging Used to Track Accuracy and Effectiveness of Stem Cell Injections

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- RSNA Workshop Addresses Need for Clinical Trials Training
- Adjuvant Radiation for Endometrial Cancer Increases Survival, Study Shows
- Long-Term Survival Possible After Radiosurgery for Brain Cancer
- Leaders Look to Establish Teleradiology Standards

Advance Registration for RSNA 2006
Begins April 24

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New RSNA Educational Conference in 2007

THE RSNA Highlights: Clinical Issues for 2007 conference will be held February 26–28, 2007, at the J.W. Marriott Desert Ridge Resort & Spa in Phoenix, Ariz.

This new RSNA educational conference will include selected refresher courses and electronic education exhibits from RSNA 2006, with special emphasis on:

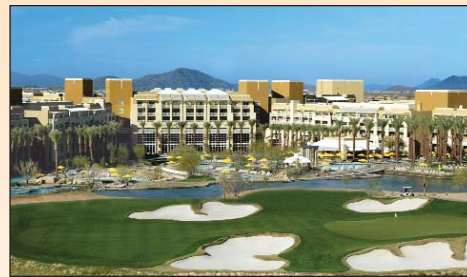
- Cardiac imaging
- PET/CT
- Breast imaging
- Sports injuries

Important Dates for RSNA Highlights

- Sept. 5** Registration opens
Feb. 26–28 RSNA Highlights: Clinical Issues for 2007

RSNA Highlights is intended for anyone who was unable to attend RSNA 2006 or who missed educational sessions in which they were interested. All courses will be taught in an interactive format, using audience response technology.

Registration begins September 5. Up-to-date information is available at RSNA.org/highlightsconference. For more information, contact RSNA Program Services at programs@rsna.org.



Frequently Cited Radiology Articles

A 1982 article offering a representation and interpretation of the area under a receiver operating characteristic (ROC) curve obtained by the “rating” method is the *Radiology* article most frequently cited by the journals hosted at HighWire Press since HighWire started keeping statistics in 1995. A division of the Stanford University Libraries, HighWire hosts more than 900 journals, including *Radiology* and

RadioGraphics.

“The Meaning and Use of the Area Under a Receiver Operating Characteristic (ROC) Curve,” by James A. Hanley, Ph.D., and Barbara J. McNeil, M.D., Ph.D. (*Radiology* 1982;143:29-36) had been cited 645 times as of February 2, 2006.

Another article on the same subject



by Drs. Hanley and McNeil, “A Method of Comparing the Areas under Receiver Operating Characteristic Curves Derived from the Same Cases” (*Radiology* 1983;148: 839-843) is the second most cited

article, with 275 citations.

Rounding out the top 10 are:

ARTICLE	LEAD AUTHOR	NUMBER OF CITATIONS
3 “Small Hepatocellular Carcinoma: Treatment with Radio-Frequency Ablation Versus Ethanol Injection” (<i>Radiology</i> 1999;210:655-661)	Tito Livraghi, M.D.	164
4 “Hyperacute Stroke: Evaluation With Combined Multisection Diffusion-Weighted and Hemodynamically Weighted Echo-Planar MR Imaging” (<i>Radiology</i> 1996;199:391-401)	A. Gregory Sorensen, M.D.	157
5 “Diffusion Tensor MR Imaging of the Human Brain” (<i>Radiology</i> 1996;201:637-648)	Carlo Pierpaoli, M.D.	120
6 “Hepatocellular Carcinoma: Radio-Frequency Ablation of Medium and Large Lesions” (<i>Radiology</i> 2000;214: 761-768)	Tito Livraghi, M.D.	116
7 “MR Imaging of Intravoxel Incoherent Motions: Application to Diffusion and Perfusion in Neurologic Disorders” (<i>Radiology</i> 1986;161:401-407)	Denis Le Bihan, M.D.	114
7 “Peripheral Lung Cancer: Screening and Detection with Low-Dose Spiral CT Versus Radiography” (<i>Radiology</i> 1996;201:798-802)	Masahiro Kaneko, M.D.	114
9 “Hepatic Metastases: Percutaneous Radio-Frequency Ablation with Cooled-Tip Electrodes” (<i>Radiology</i> 1997;205:367-373)	Luigi Solbiati, M.D.	111
10 “Breath-Hold Gadolinium-Enhanced MR Angiography of the Abdominal Aorta and Its Major Branches” (<i>Radiology</i> 1995;197:785-792)	Martin R. Prince, M.D.	110

RadiologyInfo™ Receives Health Communication Award

RadiologyInfo.org, the public information Web site developed and funded by RSNA and the American College of Radiology (ACR), received a 2005 Aesculapius Certificate of Merit from the Health Improvement Institute.

Named for the ancient Greek god of healing, the Aesculapius Awards for Excellence in Health Communication recognize organizations that provide health information to the public through Web sites, television or



radio public service announcements. Entries are judged based on their objectives/planning, content, credibility, interactivity, user-friendliness, visual design/innovation and user evaluation.

RadiologyInfo™ provides patients and referring physicians simple yet thorough descriptions of diagnostic imaging, interventional radiology and radiation therapy procedures and treatments.

Travel Awards for Molecular Imaging Abstract Presenters

RSNA will assist with travel expenses for up to 15 young investigators whose molecular imaging abstracts are accepted for presentation at RSNA 2006.

To be eligible, an abstract presenter or poster exhibitor must be a predoctoral student or have been awarded his or her doctoral degree no more than seven years prior to the time of abstract submission. Only young investigators with accepted abstracts in the area of molecular imaging will be considered. To claim the travel award, the recipient

must personally attend RSNA 2006 to present his or her work.

The deadline to submit abstracts for RSNA 2006 is April 15. Notifications of abstract acceptance and travel awards will be made simultaneously.

For more information about the travel award program, go to RSNA.org/Research/upload/MITA_flyer.pdf. For more information on submitting an abstract for RSNA 2006, go to abstract.rsna.org.

Medicare to Work with NOPR to Obtain PET Scan Data

The Centers for Medicare & Medicaid Services (CMS) has announced it will work with the National Oncologic PET Registry (NOPR) to collect data nationwide to help manage patients with various cancers.

“Working closely with NOPR is another example of CMS collaborating with the physician community to enhance the availability of innovative treatments and improve patient care,” said CMS Administrator Mark McClellan, M.D., Ph.D.

The announcement follows a decision by CMS in January to expand coverage of PET scans for brain, cer-

vical, ovarian, pancreatic, small cell lung, testicular and other cancers not covered in prior National Coverage Determinations.

NOPR is a national, Internet-based, audited data repository designed to gather PET data from beneficiaries

and providers and report on the data. It is sponsored by the Academy of Molecular Imaging (AMI) and managed by the American College of Radiology (ACR) through the American College of Radiology Imaging Network (ACRIN).



VIEWING TECHNOLOGY

Question of the Month

Q A radiology resident asks, “Why can’t I use my laptop to interpret digital chest images?”

[Answer on page 25.]

Residents Helped with “Review for Residents” in Radiology

Residents will find content specially tailored to their needs in the “Review for Residents” section of *Radiology*. Noting that trainees as well as senior professionals are *Radiology* readers, Editor Anthony V. Proto, M.D., and Deputy Editor Douglas S. Katz, M.D., launched the section in January 2005. “Review for Residents” features appeared in July 2005 and November 2005, and another, “The Solitary Pulmonary Nodule,” is slated for this month. Dr. Proto encourages anyone interested in writing such a review to contact him regarding the topic. Potential authors should also include a brief outline of the items to be included in the manuscript. Correspondence should be sent to radiology@rsna.org or the *Radiology* Editorial Office, 1001 East Broad Street, Suite 310, Richmond, VA 23219.

MEDICAL IMAGING COMPANY NEWS:

CytoCorp Becomes CytoCore

■ CytoCorp, Inc., of Chicago, has changed its name to CytoCore, Inc. The new name better represents the company’s expanded products and markets, CEO David Weissberg said. CytoCore develops biomolecular cancer screening systems, used in a laboratory or at a point of care, to assist in the early detection of cervical, uterine, gastrointestinal and other cancers.

National Academy of Engineering Elects Glover

THE National Academy of Engineering has elected RSNA Outstanding Researcher **Gary Glover, Ph.D.**, as a member. A professor of radiology and director of the Radiological Sciences Laboratory at Stanford University, Dr. Glover is internationally recognized as a pioneer in developing systems and establishing standards for MR and CT imaging.

"I am, of course, extremely pleased to have been selected for this prestigious award," Dr. Glover said. "However, I really represent only the visible piece of the iceberg, and the real credit



Gary Glover, Ph.D.

goes to the dozens of colleagues in industry and academia and my incredibly bright students with whom I've had the joy and privilege of working with over the years."

Dr. Glover was named an RSNA

Outstanding Researcher in 2001. Membership in the National Academy of Engineering honors outstanding contributions to engineering research, practice and education, including pioneering of new and developing fields of technology.

Singleton is "Legend in Medicine"

Edward B. Singleton, M.D., professor of radiology at Baylor College of Medicine and the University of Texas Health Science Center in Houston and an RSNA 1995 Gold Medalist, was named an inaugural Legend in Medicine by the University of Texas Medical Branch in Galveston (UTMB). UTMB created the honor to recognize alumni who have influenced healthcare in Texas and across the nation.

Dr. Singleton also is a recipient of gold medals from the Society for Pediatric Radiology (SPR) and the American College of Radiology. He is a past-president of SPR and the Society of Gastrointestinal Radiologists.



Edward B. Singleton, M.D.

GE Diagnostic Imaging has New CEO

Mark Vachon has been promoted to president and CEO of GE Healthcare's Diagnostic Imaging business, based in Waukesha, Wisc. Vachon replaces **Reinaldo Garcia**, who has been named president and CEO of GE Healthcare-International.

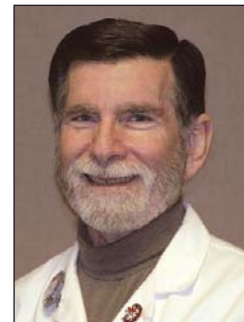
Vachon has worked in several GE divisions and recently received the company's annual Chairman Leadership Award.



Mark Vachon

Talner Receives SUR Gold Medal

Lee B. Talner, M.D., a professor of radiology at the University of Washington Harborview Medical Center in Seattle, received a gold medal from the Society of Uroradiology (SUR) at the SUR annual meeting in Kauai, Hawaii.



Lee B. Talner, M.D.

AIUM Names Basic Science Pioneer

Douglas L. Miller, Ph.D., a research professor of radiology at the University of Michigan Medical School in Ann Arbor, is the recipient of the American Institute for Ultrasound in Medicine (AIUM) Basic Science Pioneer award. The award will be presented this month at the AIUM annual meeting in Washington.



Douglas L. Miller, Ph.D.

MR Imaging Used to Track Accuracy and Effectiveness of Stem Cell Injections

RESearchers at Johns Hopkins University School of Medicine are perfecting a way to use MR imaging to track stem cells as they repair damaged tissue in the body.

In a series of animal experiments, scientists incorporated miniscule iron oxide particles into mesenchymal stem cells deployed to repair damaged heart muscle. The team then used MR imaging and a technique called Inversion Recovery with ON-resonant water suppression, or IRON, to monitor the iron-labeled cells. The signal created by utilizing IRON MR imaging can be seen as a bright spot, making it easier for clinicians to see cells or metal devices in the body. In a related experiment, the team also used MR imaging and IRON to guide stent deployment.

These findings, presented last November at the American Heart Association meeting and published in a supplement to the journal *Circulation*, are believed to be the first demonstrations of how MR imaging and IRON MR imaging can be used to assess the clinical benefit of cell-based therapies.

Techniques Provide Needed Feedback

Mesenchymal stem cells are found in bone marrow and have the potential to develop into mature cells that produce fat, cartilage, bone, tendons and muscle. Because they are in an early stage of development, they don't trigger an immune response when placed in someone else's body, the researchers said.

Senior investigator and veterinary radiologist Dara L. Kraitchman, V.M.D., Ph.D., an associate professor at Johns Hopkins, said she believes the techniques may provide the accuracy and immediate feedback clinicians need when using stem cells.

"Previously, we were delivering stem cells, even in pre-clinical models, and we didn't know if we got our stem cells there," she said. "If we did get them there, what percentage did we get there? Furthermore, do they need to stay in order to do any work?"

For two months after stem cell injection into infarcted canine heart tissue, researchers used cardiac MR imag-

Previously, we were delivering stem cells, even in pre-clinical models, and we didn't know if we got our stem cells there. If we did get them there, what percentage did we get there? Furthermore, do they need to stay in order to do any work?

Dara Kraitchman, V.M.D., Ph.D.

ing to monitor the dogs at weekly intervals. The damaged heart area decreased significantly—by 120 percent—in animals treated with stem cells as well as those receiving no stem cell injections. However, the dogs receiving the stem cell injections maintained muscle



Jeff Bulte, Ph.D.

strength while the control hearts showed steady signs of failure and reduced function.

Co-investigator Jeff Bulte, Ph.D., an associate professor of radiology at Johns Hopkins, developed the magnetic labeling method. "Ideally, you want to inject the cells as close as you can to



Dara Kraitchman, V.M.D., Ph.D.

the tissue they have to repair," he said. "With MRI you can do this in real time—the patient is there and you can re-inject if necessary. The verification of accurate injection will be the #1 clinical application for this, I'm sure."

The research team made stem cells visibly distinct from all others by labeling them with a metallic compound made up of iron oxide nanoparticles less than one thousandth of a millimeter in diameter. The microscopic particles can be absorbed into the cells and

are seen as bright spots rather than dark signal voids when using IRON MR imaging. “When you have something that’s a loss of signal, you’re never sure if it is from your agent, if it is something else in the image, or if it is something you’re not expecting that is causing the signal loss,” Dr. Kraitchman explained. “When you see something that you’re expecting to become bright, you have a high level of confidence that it is our original group of cells or that it is the stent or other metal device we’re putting in the body.”

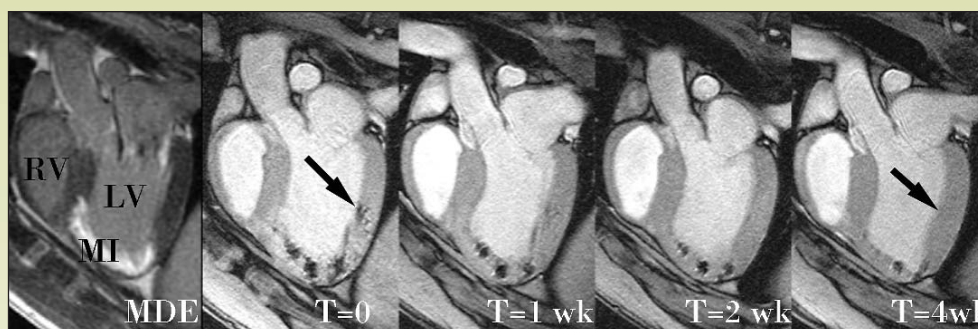
Dr. Kraitchman, with co-inventors Matthias Stuber, Ph.D., and Wesley D. Gilson, Ph.D., visualized metal objects by suppressing the vast majority of the conventional MR image produced from water molecules (the so-called on-resonant signal). By eliminating the signals based on water—the most common substance in the body—the team saw only signals produced from iron-labeled cells or metal objects (the so-called off-resonant signals). The bright signals from the iron-labeled cells allowed the team to differentiate between various concentrations of stem cells injected into infarcted canine heart tissue and the ischemic limb of rabbits. They also tracked the deployment of conventional stainless steel stents into the carotid and iliac arteries using IRON imaging.

IRON Offers Benefits Over Biopsy

Members of the research team working to develop magnetically labeled stem cells believe the method can be replicated. “The technique can be easily implemented and anybody should be able to do it,” said Dr. Bulte. “These are clinical scans using clinical instruments.”

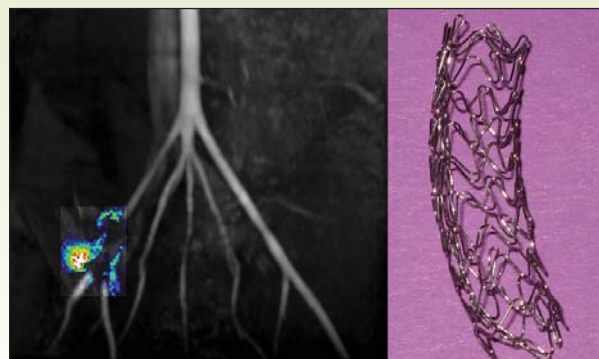
He also pointed out the advantage and real-time benefits of using MR imaging and IRON imaging, as opposed to biopsy, to track stem cells’ work.

“The IRON tracking technique or any MRI tracking technique is non-invasive,” Dr. Bulte said. “For biopsy, a needle has to be inserted and tissue



Long axis cardiac MR image (left) shows hypointense spots from transmural injections of mesenchymal stem cells into the heart. The same imaging slice was captured at 1, 2 and 4 weeks after injection. In one area where cells were injected in non-infarcted myocardium, the hypointense signal disappears, indicating that the stem cells had left the location.

Maximum intensity projection (MIP) from a 3D MR angiogram (MRA) of the distal aorta and iliac vessels. The colored region is the bright signal from IRON imaging of a stainless steel stent superimposed on the MRA. Normally on MRA a metal object, such as a stainless steel stent, will appear as a signal void. IRON imaging allows real-time placement of these devices, as well as imaging after conventional x-ray deployment.



Images courtesy of Dara L. Kraitchman, V.M.D., Ph.D.

needs to be removed, which is often not without risk. MRI can also be done repeatedly to follow changes in abnormal or injured tissue.”

Although MR imaging can be used in cellular labeling and tracking without IRON, Dr. Kraitchman said she believes clinicians are taking a serious look at the Hopkins results. “IRON imaging has the potential for imaging labeled stem cells with a higher degree of confidence or, perhaps, detecting smaller numbers of cells due to enhanced contrast-to-noise ratios and the ability to distinguish labeled cells from other hypointense artifacts,” she said.

Kevin Johnson, M.D., assistant professor of diagnostic radiology at Yale University School of Medicine and medical director of Long Wharf Radiology, said he looks forward to hearing

more about the IRON method, particularly when results from human trials are available. “If you could show the stem cells lighting up as bright areas in myocardium, liver, kidney or other places where you want to use stem cells, I think that would be very helpful,” he said. “You prepare these stem cells and you put them in and you want to know, did they go where they’re supposed to go? Are they staying where they’re supposed to be? It opens up all kinds of interesting possibilities.”

Studies are now under way at Johns Hopkins and elsewhere to test whether MR imaging can assess stem cell locations and effects in humans. □

■ To read the abstract for “Mesenchymal Stem Cells for Cardiac Regeneration,” from the American Heart Association annual meeting go to www.abstractsonline.com/arch/RecordView.aspx?LookupKey=12345&recordID=20933.

RSNA Workshop Addresses Need for Clinical Trials Training

ORGANIZERS of an RSNA-sponsored workshop designed to train more clinical investigators in the field of radiology have deemed the inaugural outing a huge success and are optimistic about how it can evolve over the next several years.

"I'm bullish on this," said Constantine A. Gatsonis, Ph.D., co-director of the Clinical Trials Methodology Workshop, held January 7-13 in Phoenix. "It has the potential of becoming a distinct part of what radiologists want to do as they develop careers in research."

Co-director Daniel C. Sullivan, M.D., of Rockville, Md., agreed there is a need to train radiologists to conduct clinical trials. Imaging is a critical part of many drug trials, he said, and now third-party payers and others also are beginning to demand much more rigorous data to justify clinical decisions.

"If we just provide a lot of tests and diagnostic procedures to people where we don't have good data, we're wasting money and resources we don't have in our healthcare system," said Dr. Sullivan, chief of the Cancer Imaging Program (CIP) at the National Cancer Institute (NCI).

Twenty-five people attended this year's workshop. Another is planned for January 6-12, 2007, in Phoenix. Participants learn study design, statistical methods for imaging studies and regulatory processes, as well as how to design and execute multi-institutional



Constantine A. Gatsonis, Ph.D.



Daniel C. Sullivan, M.D.



Gary J. Becker, M.D.

studies. The information was presented via lectures, small group discussions and one-on-one mentoring, with many more hours set aside for students to create their own study protocols.

Developing a Research Cadre

RSNA Board Liaison for Science Gary J. Becker, M.D., of Tucson, Ariz., said the RSNA Research Development Committee (RDC) began considering the idea two years ago. In particular the committee looked to the success of a long-running annual clinical trials workshop hosted by the American Association for Cancer Research (AACR) and American Society of Clinical Oncology (ASCO).

"The product of the AACR-ASCO workshop is an army of new clinical researchers," Dr. Becker said, noting that Dr. Sullivan had worked with the AACR-ASCO workshop and as a new member of the RDC had encouraged

RSNA to consider a similar offering. "We thought it would be good if radiologists could figure out a similar way to train clinical investigators because we just don't have that many of them."

Dr. Gatsonis, a professor of biostatistics and director of the Center for Statistical Sciences at Brown University, has vast experience in imaging-based research and has served on the faculty of the AACR-ASCO workshop. He said there's a lot of room for growth in clinical trial research in radiology, both in scope and in overall quality.

"There's not enough personnel in radiology who can really do this," he said. "There's a real need to develop a research cadre. This is the kind of thing radiology should be doing as a field to increase the number of clinical researchers and also their level of ability and skill."

Workshop Goals Met

Dr. Becker said the team did its best to parallel the format and objectives of the AACR-ASCO meeting. Dr. Gatsonis said most students, with the help of about 25 faculty, met the goal of producing a viable protocol by the end of

There's a real need to develop a research cadre. This is the kind of thing radiology should be doing as a field to increase the number of clinical researchers and also their level of ability and skill.

Constantine A. Gatsonis, Ph.D.

the week and learned just how much hard work and focus goes into designing a clinical study.

“It’s one thing to have a general idea about the protocol, but quite another to make it into a real study,” he said.

Participant Fred M. Moselein, M.D., Ph.D., is in his final year of residency in diagnostic radiology at the Cleveland Clinic and will continue his training as one of the clinic’s vascular and interventional radiology fellows next year. He said that before the workshop, he found the process of protocol development very daunting.

“Now that I have completed the course, I feel that the task is realizable, although still daunting,” said Dr. Moselein, whose study involves novel adjuvant therapy coupled with chemoembolization to treat hepatocellular carcinoma. “More importantly, I feel that my research ideas are truly worth pursuing.”

“Total Immersion Experience”

A majority of students are considering studies in oncology, though others are focused on image-guided intervention and vascular and musculoskeletal radiology. Students were grouped by topic, giving them not only an opportunity to share issues and challenges, but also to develop a network on which to rely when they return to their jobs.

During the workshop, students also capitalized on time devoted solely to writing their protocols, Dr. Becker said. Mapping out the background science, specific aims, hypotheses, informed consent, methodological detail, statistical design and myriad other elements of a study can be next to impossible in today’s work environment, he said.

The workshop was a “total immersion experience,” said participant Joseph Roebuck, Ph.D., M.D., of the Division of Abdominal Imaging and Intervention in the Department of Radiology at Brigham and Women’s Hospital in Boston.

“I left feeling energized and more confident that my clinical trial could stand the ultimate test of peer review



Participants in the first RSNA Clinical Trials Methodology Workshop learned study design, statistical methods, regulatory processes and other information necessary to develop a clinical protocol. The workshop was held in Phoenix.

and that it was worth the time and effort it will require to complete,” said Dr. Roebuck, who plans to compare the practical advantages of using MR imaging/MR spectroscopy-based methods for detecting prostate cancer at 3 T vs. 1.5 T.

Future Depends on Funding

Organizers said they want to ensure that next year’s students come to the workshop equipped with more information. Dr. Sullivan said an understanding of the fundamentals of clinical trials and biostatistics, as well as knowledge of their local institutional review boards and the kinds of studies to which their colleagues would be willing to send patients, will help students

to be more productive.

Dr. Sullivan added that interest in future workshops will depend on how optimistic would-be researchers are about availability of funding. Organizers too are considering financial issues as they explore possibly covering the costs of future workshops with industry partnerships, sponsorships and grants.

Dr. Becker said RSNA will continue to measure the success of the workshop in terms of how many studies are eventually implemented, adding that he is excited about the possibilities.

“I’d like to see more clinical trialists in radiology and I’d like RSNA to be right at the center of training them,” he said. □

■ The deadline to apply for the 2007 Clinical Trials Methodology Workshop is June 5, 2006. For more information, go to RSNA.org/Research/upload/Clinical_Trials_flyer2006.pdf or contact Fiona Miller at 1-630-590-7741 or fmiller@rsna.org.

Adjuvant Radiation for Endometrial Cancer Increases Survival, Study Shows

RADIODTHERAPY after surgery for stage I endometrial cancer can increase survival for high-risk women, according to the largest retrospective study performed to date.

Christopher M. Lee, M.D., and colleagues retrospectively studied 21,249 patients with American Joint Committee on Cancer stage IA-C node-negative endometrial adenocarcinoma using data from the Surveillance, Epidemiology, and End Result (SEER) program of the National Cancer Institute. Of the more than 21,000 women studied, 4,080 (19.2 percent) received adjuvant radiation therapy. The study was published in the January 25 issue of *The Journal of the American Medical Association (JAMA)*.

Although endometrial cancer is the most common gynecological malignancy in the United States, the optimal adjuvant therapy for stage I endometrial adenocarcinoma has yet to be determined. Previously published randomized trials yielded mixed results.

"In the past, multiple randomized phase three trials have

revealed that radiotherapy improves local control of disease in the pelvis after surgery for endometrial cancer, but the effects on survival have been controversial," commented Dr. Lee, of Huntsman Cancer Hospital at the University of Utah in Salt Lake City. "These data suggest that a survival benefit exists for select subsets of

patients with stage I disease who have high-risk features."

The study showed that adjuvant radiation therapy significantly improved the overall and relative survival for patients with stage IC/grade 1 and stage IC/grades 3 and 4 endometrial adenocarcinoma. A separate analysis of patients with surgical lymph node examination produced similar results.

According to studies published in *Obstetrics & Gynecology*, *The Lancet*, *Gynecologic Oncology*, *International Journal of Radiation Oncology Biology and Physics* and *Cancer*, women with stage I disease who have undergone total hysterectomy and bilateral salpingo-oophorectomy and adjuvant radiation therapy have an overall five-year survival rate of 80 percent to 90 percent. The subgroup of patients with

What Dr. Lee has done is entirely revolutionary. . . . As a radiation oncologist, I view it as a relative victory for the specialty.

Beth A. Erickson, M.D.

stage IC (more than 50 percent myometrial invasion) and high-grade disease has poorer outcomes and higher relapse rates, both local and distant.

"As the largest reported population analyses to date of adjuvant radiation therapy in early stage endometrial adenocarcinoma, it is significant that our study reveals a benefit in overall and relative survival for patients with high-risk stage I disease," Dr. Lee explained. "This study confirms beneficial effects of adjuvant radiation on both local and distant tumor control for certain patient cohorts."



Christopher M. Lee, M.D.

Revolutionary Study

"What Dr. Lee has done is entirely revolutionary," said Beth A. Erickson, M.D., professor of radiation oncology at the Medical College of Wisconsin/Froedtert Hospital in Milwaukee. "This is the first time anyone has proven survival advantage with a large number of patients. As a radiation oncologist, I view it as a relative victory for the specialty."

Previous studies have frustrated radiation oncologists because they evaluated a small number of patients who were at low risk of cancer recurrence, according to Dr. Erickson. The difference in survival is undetectable in a small, low-risk subset of patients, she explained.

The Lee study is the largest series of patients who have been retrospectively reviewed that has shown a difference in survival with radiation. A

previous prospective study, by Aalders et. al., showed improvement in survival for women with high-risk features who received pelvic radiation. However, the relatively small Gynecologic Oncology Group (GOG 99) and the Postoperative Radiation Therapy for Endometrial Carcinoma (PORTEC) trials did not find a significant benefit from radiation in similar subsets of patients.

“The beauty of the Lee study is that they evaluated the IC patients who have a risk of recurrence,” Dr. Erickson said. “They looked at thousands of patients and did find a survival difference with the addition of radiation. Dr. Lee studied the right subgroups and a number of large patients, thus avoiding the flaws of the previous studies.”

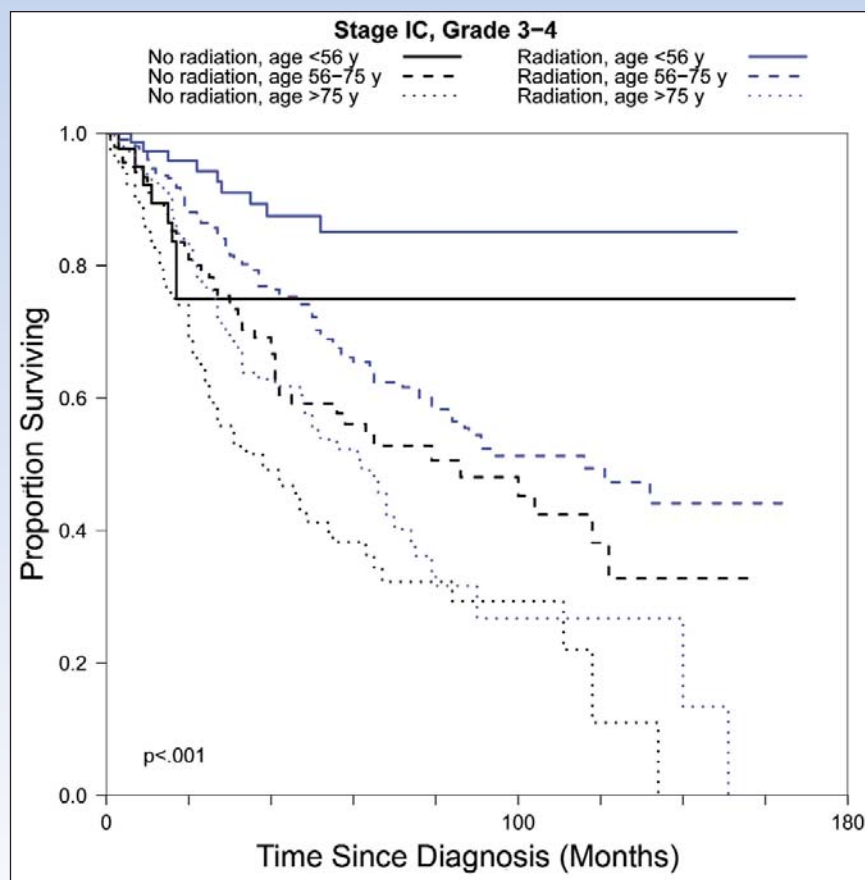
Treatment Ramifications

Dr. Erickson said she frequently uses radiation for stage I endometrial cancer. Radiation oncologists at the Medical College of Wisconsin use external beam to treat the lymph nodes and the vagina, and vaginal brachytherapy to treat the vagina only.

The Lee research will impact radiation oncology, she said. “If a woman has had just a few lymph nodes sampled, I automatically now would say ‘this patient with IC disease, with negative nodes, needs radiation because there is a survival advantage,’” she said.

Dr. Lee added that the study has proven helpful not only in clinical decision-making, but also in counseling patients and families. “In treatment decisions and counseling sessions with patients, we now utilize this information in addition to previously reported studies in the literature to aid in tailoring the post-operative treatment plan to the individual patient,” he said.

The Lee article also could influence the extent of surgeries performed, Dr. Erickson said. “If gynecologic



Kaplan-Meier curves for overall survival of patients with stage IC/high-grade endometrial adenocarcinoma with or without adjuvant radiotherapy.

Figure courtesy of Christopher M. Lee, M.D.

oncologists are more conservative in terms of the number of lymph nodes that they remove, then this may have a big impact on referred patients and radiation oncologist-recommended treatment,” she said. “The surgeons are the gatekeepers. The aggressiveness of the resection determines which patients we treat. Often, so many lymph nodes have been removed that we don’t want to add radiation because it could increase complications.”

“It should be emphasized that statistical analysis cannot replace clinical judgment when considering the individual patient, tumor characteristics, and the potential risks and benefits of adjuvant radiation therapy,” Dr. Lee concluded. “We are hopeful that future

research will continue to delineate clinical and biological factors that can guide treatment decisions among varied patient subsets.” □

■ To view the abstract of Dr. Lee’s study, “Frequency and Effect of Adjuvant Radiation Therapy Among Women With Stage I Endometrial Adenocarcinoma,” go to jama.ama-assn.org/cgi/content/abstract/295/4/389.

Long-Term Survival Possible After Radiosurgery for Brain Cancer

SOME PEOPLE with brain metastases can live much longer than expected if managed aggressively with radiosurgery, according to new research.

"It is difficult to pick the best candidates at the beginning," said study author Douglas Kondziolka, M.D., M.Sc., of the Department of Neurological Surgery at the University of Pittsburgh Medical Center. He and co-author L. Dade Lunsford, M.D., serve as consultants for Elekta Instruments, Inc., manufacturer of the Gamma Knife. Their study appeared in the December 15, 2005, issue of the journal *Cancer*.

Over the last decade, more and more institutions have begun treating brain metastases with radiosurgery, powerful focused radiation administered in a single session to the tumor, with or without additional whole-brain radiation.

Dr. Kondziolka and colleagues conducted their study to find out why some brain tumor patients who underwent radiosurgery were doing much better than anyone would have expected.

"Through the 1990s, the general expectation for patients with brain metastases who were managed aggressively was an average survival of about a year," said Dr. Kondziolka. "And yet, there were people who were clearly living many years longer than this. We wanted to understand why. Who were these people? Why were they beating the odds, so to speak?"

The researchers studied 677 patients with brain metastases who

underwent radiosurgery procedures between 1988 and 2000. They reported that 44 of the patients (6.5 percent) were still alive four or more years after radiosurgery.

"I think the most surprising finding was that for many of these people, one would not have initially predicted that they would have been in this long-term survivor group," said Dr. Kondziolka. "That's because the extent of their cancer was more than just to the brain."

Survivors included patients with primary cancers of the lung, breast, kidney, skin and other sites. Eighteen of the surviving patients had cancer in two or more organs outside the brain. "People in that group, one would predict, would do the worst," Dr. Kondziolka said. "But almost half of the entire long-term survivor group included people who had multiple organs involved. At the beginning one would have been fairly nihilistic and not predicted that they would have done very well."

David H. Hussey, M.D., 2005 RSNA president and a clinical professor in the Department of Radiation Oncology at the University of Texas Health Science Center at San

Antonio, said he was impressed that a fair number of the survivors had advanced cancers. "Fifteen of the patients that were long-term survivors had lung cancers," Dr. Hussey said.

Compared with patients who died within the first three months after radiosurgery, those who lived more than four years showed no differences in age, gender, percentage of lung carcinoma, melanoma or renal cell carci-



Douglas Kondziolka, M.D., M.Sc.

noma, radiosurgery margin dose, use of prior whole-brain radiation therapy, volume of the largest tumor or total tumor volume.

The patients who beat the odds had higher pre-radiosurgery Karnofsky performance scores, fewer metastases and less extracranial disease burden than those who died in the early months after radiosurgery.

"For the vast majority of people, we were able to get the brain tumor under control, but most were dying because of their systemic cancers," Dr. Kondziolka said. "Obviously, for the people who lived, we learned that the reason they lived was because we were able to bring the brain burden under control and the body cancer was also brought under control."

The median survival of the patients was 68 months. Sixteen patients remained alive at the time of last follow-up, with a maximum survival of 156 months so far.

"I was impressed," Dr. Hussey said. "I probably wouldn't have wanted to

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*Effective and curative care
—not just palliative care—
can be provided for
brain tumors.*

Douglas Kondziolka, M.D., M.Sc.

Leaders Look to Establish Teleradiology Standards

IF RADIOLOGISTS do not adopt a proactive approach to develop and implement international teleradiology standards, they may be left out of the discussion, according to a radiologist who moderated an RSNA 2005 special focus session on international teleradiology.

“For professionalism and for the care of our patients, we must take control of the debate and the development of clinical teleradiology,” said Lawrence S. Lau, M.D., of Monash University and director of the Department of Diagnostic Imaging at Southern Health in Melbourne, Victoria, Australia. “This is why professional organizations are trying to lead and facilitate such development.”

International teleradiology—hiring overseas doctors to interpret films during their daylight hours—emerged as an appealing option as U.S. healthcare administrators struggled to ease the radiologist shortage of a few years ago. As teleradiology now rapidly expands, those same leaders are looking for acceptable quality standards.

While dramatic improvements in computer technology and image clarity, as well as the widespread adoption of Picture Archiving and Communication Systems (PACS), helped lessen the impact of the radiologist shortage, teleradiology has become the “norm” for hospital emergency departments worldwide seeking image interpretation in the middle of the night. In addition to the so-called “nighthawks,” there are a growing number of companies offering “dayhawk” services as well.

Radiologists and radiology decision-makers from the U.S., Great

Britain, France and Australia participated in the RSNA 2005 session, “International Collaboration in Clinical Teleradiology.”

Clinical teleradiology has been used in Australia, where Dr. Lau practices, for more than 10 years. It was first used to offer primary interpretation or second subspecialty opinions to patients in remote areas, then to balance workloads among hospitals. In his study, “Clinical Teleradiology in Australia: Practices and Standards,” Dr. Lau reported that the reasons for the expansion of clinical teleradiology in Australia mirror those in the U.S.—increasing demand for radiology services, radiologist shortages and technical advances in image production, image storage and transmission across secure virtual private networks.

While a radiologist in San Francisco might not think much about a counterpart reading images in Melbourne, Dr. Lau said clinical teleradiology will affect the daily work of all radiologists.

“Teleradiology will affect the care of patients and alter radiologists’ interactions with referrers,” said Dr. Lau, who is immediate past-president of The Royal Australian and New Zealand College of Radiologists (RANZCR), chair of the Medical Imaging Accreditation Advisory Committee for RANZCR/NATA (National Association of Testing Authorities) and chair of the International Radiology Quality Network (IRQN). “It may affect how they will be reimbursed for their services and how they may be covered for malpractice.”



Lawrence S. Lau, M.D.

Image Clarity No Longer Primary Concern

Arl Van Moore Jr., M.D., a radiologist specializing in interventional radiology and body imaging with Charlotte Radiology, PA in Charlotte, N.C., said image clarity is no longer the primary concern when it comes to teleradiology. “We are concerned about unqualified radiologists, other physicians and non-physicians providing reports,” he explained.

Dr. Van Moore is vice-chair of the Board of Chancellors of the American College of Radiology (ACR) and chair of the ACR’s Task Force on International Teleradiology, which issued a white paper last year on the major challenges facing teleradiology.

The taskforce concluded that radiologists interpreting images off-site must be credentialed, on the staff of a hospital and licensed in the states they serve, as well as carry liability insurance coverage. The taskforce also recommended that all radiologists providing image interpretation—both in and out of the U.S.—document their participation in a quality assurance program that is the same or better than the quality assurance programs of their institutions.

In addition, the ACR report served

Continued on next page

Teleradiology will affect the care of patients and alter radiologists’ interactions with referrers.

Lawrence S. Lau, M.D.

Continued from previous page

as a reminder to radiologists who hire outside image interpreters that they, and the interpreters, are subject to state and federal privacy laws, including the Health Insurance Portability and Accountability Act (HIPAA). ACR is now working with several international radiology societies to develop teleradiology standards.

International Standards

Dr. Lau said IRQN is working on a number of steps to harmonize and implement international teleradiology standards, including:

- *Reviewing the existing range of standards, identifying similarities and differences and developing a set of basic*

principles to underpin the development of international teleradiology standards.

- *Recognizing the need for close international collaboration.* “Globalization is the key driver to harmonize the existing international standards to avoid confusion. Our aim should be a set of consensus requirements recognized across jurisdictions and serving the interest of all stakeholders,” Dr. Lau said.
- *Understanding the difference between standards and guidelines.* Standards are mandatory, while guidelines are

recommendations.

- *Making differing standards/guidelines between jurisdictions more consistent.* “Teleradiology is practiced internationally as well as within a country and among local hospital networks,” Dr. Lau said.
- *Developing a system to implement the standards and guidelines.* This includes establishing an accreditation system and determining who should enforce it. “This is a medium- and long-term project requiring understanding and close collaboration of all stakeholders,” Dr. Lau said. □

■ To view the abstract for the RSNA 2005 session, “International Collaboration in Clinical Teleradiology,” go to the RSNA Meeting Program at rsna2005.rsna.org. The direct link is rsna2005.rsna.org/rsna2005/V2005/conference/event_display.cfm?em_id=4404462.

Teleradiology Featured in *The New England Journal of Medicine*

AS RADIOLOGISTS and other physicians work to establish standards for health-care outsourcing, particularly teleradiology, they should not lose sight of the opportunities they have to preserve and enhance in-person practices, according to a perspective in the February 16 issue of *The New England Journal of Medicine*.

“The radiologist who not only reads his colleagues’ radiographs but also discusses important findings with them may be less likely to be replaced by a practitioner living a dozen time zones away,” wrote Robert Wachter, M.D., associate chairman of the Department

of Medicine at the University of California San Francisco, in “The ‘Dis-location’ of U.S. Medicine—The Implications of Medical Outsourcing.”

“Competition may make us more responsive to the needs of our patients and colleagues, even as it extracts waste from the system,” Dr. Wachter said.

While outsourcing can achieve cost and time efficiency when done properly, Dr. Wachter said it also has the potential to diminish healthcare quality and hurt the local healthcare economy. He said physicians expecting modest growth in healthcare out-

sourcing need look no further than the telemarketing industry to realize how quickly the field may grow.

“The outsourcing of healthcare will grow and it will challenge traditional arrangements between patients and both physicians and institutions,” said Dr. Wachter. “It will require rapid and thoughtful development of new ethical, legal and quality standards and it will be controversial.”

The full text of Dr. Wachter’s perspective is available free at content.nejm.org/cgi/content/full/354/7/661.

Long-Term Survival Possible After Radiosurgery for Brain Cancer

Continued from page 10

go to the expense and difficulty of having radiosurgery if I personally had a metastasis in my brain. After reading this paper, maybe I would.”

The researchers concluded that while the expected survival of patients with brain metastases may be limited, select patients with effective intracranial and extracranial treatment for malignant disease can have prolonged, good-quality survival.

Dr. Kondziolka said radiosurgery is just starting to move to spinal applica-

tions, with some additional reports regarding the use of focused radiation in lung tumors.

“For other organs, such as the pancreas and liver, there’s a potential opportunity, but it’s just beginning,” Dr. Kondziolka added.

He said an American College of Surgeons study is focusing not only on survival, but also on quality of life, in patients who undergo radiosurgery or whole-brain radiation.

“There have been significant gains made in the management of brain

metastases over the last decade,” he said. “Effective and often curative care—not just palliative care—can be provided for a brain tumor. Radiosurgery can be an effective approach for such patients, together with their systemic cancer management.” □

■ To read the abstract for Dr. Kondziolka’s study, “Long-Term Survivors After Gamma Knife Radiosurgery for Brain Metastases,” go to www3.interscience.wiley.com/cgi-bin/abstract/112142382/ABSTRACT.

Journal Highlights

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

Imaging of Fistula in Ano

PREOPERATIVE MR imaging findings have been shown to influence subsequent surgery and markedly diminish the chance of recurrent disease in patients with fistula in ano (anal fistula). The common condition has a tendency to recur despite seemingly adequate surgery, and recurrence is usually due to infection that escaped surgical detection and thus has gone untreated. Preoperative imaging, notably MR imaging, can help identify infected tracts and abscesses that would otherwise have been missed.

In an article in the State of the Art section of the April issue of *Radiology* (RSNA.org/radiologyjnl), Steve Halligan M.D., F.R.C.P., F.R.C.R., of the

Radiology



Department of Specialist Radiology at University College Hospital in London, and Jaap Stoker, M.D., Ph.D., of the Department of Radiology at the Academic Medical Center in Amsterdam, the Netherlands:

Fistulography in a male patient. Coronal image shows several obvious high extensions (arrows) surrounding the anorectal junction; however, the exact anatomic location of these is unclear because the pelvic floor (i.e., levator ani in this case) cannot be directly visualized. Definition of extension location (supra- or infralevator) is central to surgical management.

(*Radiology* 2006;239:18-33) © RSNA, 2006. All rights reserved. Printed with permission.

- Detail the pathogenesis of fistula in ano
- Explain how pathogenesis causes the different types of fistula encountered
- Describe how these types can be

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Gastrointestinal Stromal Tumor: Role of CT in Diagnosis and in Response Evaluation and Surveillance after Treatment with Imatinib

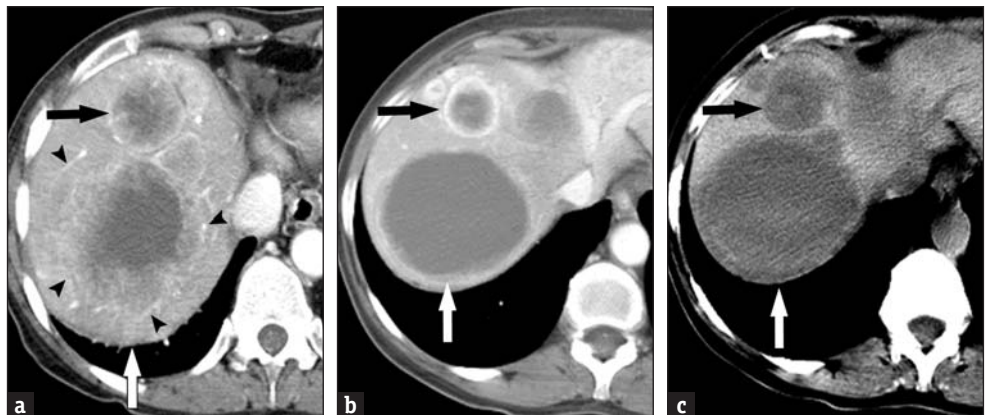
CT IS THE imaging modality of choice for diagnosing gastrointestinal stromal tumors (GISTs), as well as monitoring the effects of treatment and detecting tumor progression. GISTs are the most common nonepithelial tumors of the gastrointestinal tract, with an estimated 4,500 to 6,000 new cases reported

each year in the U.S. Imatinib, a new molecularly targeted tyrosine kinase receptor blocker, results in a dramatic response and markedly improved long-term survival in patients with GISTs.

In an article in the March-April

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RadioGraphics



Development of an intratumoral hemorrhage as an adverse effect of imatinib in a 60-year-old woman with recurrent small bowel GIST in the liver.

(a) Pretreatment contrast-enhanced CT scan shows multiple heterogeneous hepatic metastases with moderately enhancing solid nodules at the peripheries (arrows). Prominent tumor vessels (arrowheads) are noted within the masses. (b) Contrast-enhanced CT scan obtained 2 months after imatinib treatment shows that the tumors (arrows) have become homogeneous and the enhancing tumor nodules have markedly resolved, indicating a good response to the treatment. (c) Unenhanced CT scan from the same data acquisition shows a fluid-fluid level within the smaller tumor (black arrow); the fluid-fluid level was caused by an intratumoral hemorrhage. The attenuation of the smaller tumor increased from 73 HU to 115 HU. White arrow = larger tumor.

(*RadioGraphics* 2006;26:481-495) © RSNA, 2006. All rights reserved. Printed with permission.

Radiology in Public Focus

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

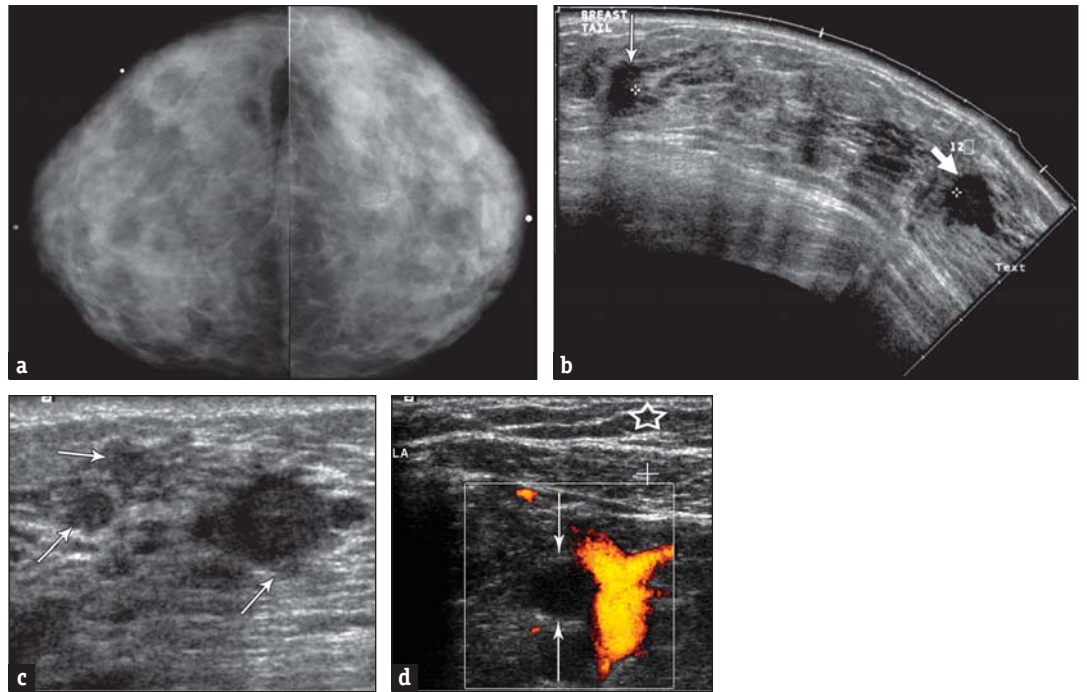
Imaging of Breast Cancer Diagnosed and Treated with Chemotherapy during Pregnancy

MAMMOGRAPHY and sonography have a complementary role in imaging the pregnant patient, while sonography should be used as the initial imaging modality in symptomatic pregnant women, researchers at the University of Texas M.D. Anderson Cancer Center have concluded.

Wei Tse Yang, M.D., and colleagues retrospectively assessed mammography, high-frequency-transducer ultrasonography and color Doppler ultrasonography for initial and subsequent evaluation of breast cancer diagnosed and treated with chemotherapy during pregnancy. The team studied 23 women in whom 24 cancers were imaged between January 1989 and December 2003. Three cancers were imaged with mammography alone, four with sonography alone and 17 with both mammography and sonography.

“Breast cancer diagnosed during pregnancy is mammographically evident despite dense parenchymal background,” the team wrote.

“Ultrasonography, when performed, demonstrates all masses and provides



Palpable mass at 20 weeks gestation in a 33-year-old woman.

(a) Bilateral craniocaudal mammograms show no abnormality despite palpable mass (skin marker) in right breast. (b) Sonogram with extended-field-of-view imaging shows index palpable lesion as irregular mass with indistinct margins (short arrow) and as associated with mass in separate quadrant (long arrow), which confirms multicentric disease. (c) Transverse US scan shows three separate nonpalpable solid nodules with indistinct margins (arrows), consistent with multifocal disease. (d) Transverse power Doppler US in infraclavicular region shows oval, homogeneously hypoechoic node (arrows) deep to pectoralis major (☆) and pectoralis minor (+) muscles. Adjacent vessel is yellow-orange.

(*Radiology* 2006;239:52-60) © RSNA, 2006. All rights reserved. Printed with permission.

information regarding response to neoadjuvant chemotherapy.”



Mammography remains useful in diagnosing breast cancer during pregnancy, the team concluded, as it may demonstrate malignant calcifications not imaged at ultrasonography. “We believe mammography should be performed on

pregnant women with a diagnosis of invasive or in situ malignancy,” the

team wrote. “Both breasts of the pregnant woman with a diagnosis of breast cancer should be imaged to rule out bilateral malignant disease.”

Imaging of Fistula in Ano

Continued from page 13

imaged, with the emphasis on MR

- Describe how the radiologist is well placed to answer the surgical questions that must be solved for treatment to be effective

“In those patients with fistula in ano who have a high likelihood of complex disease, the evidence that preoperative MR imaging influences the surgical approach and the extent of exploration and improves the ultimate outcome is now overwhelming,” Drs. Halligan and Stoker concluded.

Gastrointestinal Stromal Tumor: Role of CT in Diagnosis and in Response Evaluation and Surveillance after Treatment with Imatinib

Continued from page 13

issue of *RadioGraphics* (RSNA.org/radiographics), Xie Hong, M.D., Ph.D., and colleagues from the University of Texas M.D. Anderson Cancer Center in Houston:

- List the clinical features and imaging findings of GISTs
- Describe how GISTs can be diagnosed on the basis of the imaging findings
- Discuss the use of imaging in evaluating the response to imatinib treatment and in detecting tumor progression

This article meets the criteria for 1.0 CME credit.

The authors noted that contrast-enhanced CT is as reliable as fluorodeoxyglucose (FDG) PET in evaluating treatment responses, assuming that changes in enhancement patterns are taken into account along with the traditional measure of tumor size. FDG PET is indicated whenever CT findings are inconsistent with the clinical presentation or are inconclusive, the authors stated, adding that a short-term follow-up CT study can be a good alternative when FDG PET is not available.

Media Coverage of Radiology

Stories generated from two articles in the February issue of *Radiology* reached an estimated 98 million people worldwide.

Stories regarding the use of functional MRI (fMRI) for lie detection (*Radiology* 2006;238:679-688) were

featured on CNN's Anderson Cooper 360°, the Discovery Health channel, WGN-TV and Fox News, as well as in the *Boston Herald*, *Philadelphia Inquirer*, *Washington Times* and Reuters Health-care. Stories also appeared on the Internet news outlets

Yahoo! News, *Forbes.com* and *Excite.com* and in one of Italy's national daily newspapers, *La Repubblica*.

A study on using SPECT to guide lower back pain treatment (*Radiology* 2006;238:693-698) was the subject of stories featured by

the *Los Angeles Times* and Ivanhoe Broadcast News, as well as Internet news outlets Doctor's Guide, MedPage Today and Medical News Today. The Society of Nuclear Medicine also shared this story with its members.

EDUCATION RESEARCH

Program and Grant Announcements

NEW!

NIH Pathway to Independence Award Program

THE NEW National Institutes of Health (NIH) Pathway to Independence Award program allows postdoctoral scientists to receive both mentored and independent research support from the same award.

NIH expects to issue between 150 and 200 awards for this program each of the next five years, with the first awards issued this fall.

NIH will spend almost \$400 million on the program, which is part of a larger NIH effort to support new scientists as they transition to research independence.

For more information on the NIH Pathway to Independence Award program, go to <http://grants.nih.gov/grants/guide/pa-files/PA-06-133.html>.



Continued on next page

Program and Grant Announcements

Continued from previous page

Molecular Imaging in Medicine

RSNA/SNM/SMI • August 29-30, Hilton Waikoloa Village, Hawaii

HELD BEFORE the annual meeting of the Society of Molecular Imaging (SMI), this symposium will provide an introduction and overview of molecular imaging to radiologists, nuclear medicine physicians, neuroradiologists and other physicians. Topics will include:

- Molecular biology for imaging scientists
- Advances in PET imaging technology and new PET imaging agents
- Advances in MR imaging technology and new MR imaging agents
- Advances in optical technology and new optical imaging agents
- Molecular basis of cancer, cardiovascular disease and neurological disorders
- Clinical applications of new technology and tracers

The symposium is sponsored by RSNA, Society of Nuclear Medicine and SMI. More information is available at www.molecularimaging.org/2006meeting/preferencesymp06.php.

Introduction to Research Program

RSNA/AUR/ARRS • Application deadline – July 15

RSNA, the Association of University Radiologists (AUR) and the American Roentgen Ray Society (ARRS) offer this Introduction to Research program for second-year residents. The programs will be held during RSNA 2006, November 26–December 1 at McCormick Place in Chicago, and during the 2007 ARRS meeting, May 6–11 at the Grande Lakes Resort in Orlando, Fla.

The program aims to encourage young radiologists to pursue research careers by:

- Introducing residents to research early in their training
- Demonstrating the importance of research to the practice and future of radiology
- Sharing the excitement and sat-

isfaction of research careers in radiology

- Introducing residents to successful radiology researchers, future colleagues and potential mentors

The program will cover such topics as designing a research question, finding a mentor, critically reviewing scientific literature and publishing a manuscript in *Radiology*.

Nominations must be made by the candidate's department chair or training director and are limited to one nomination per department. Eighty residents will be selected to attend the annual meeting of either RSNA or ARRS. Applications are available at RSNA.org/i2rapp.

BIROW 4



More than 90 people attended the fourth Biomedical Imaging and Research Opportunities Workshop (BIROW 4) in North Bethesda, Md., February 24–25. The goal of BIROW is to identify and explore new opportunities for basic science research and engineering development in biomedical imaging, as well as related diagnosis and therapy. BIROW is sponsored by RSNA, Academy of Radiology Research, American Association of Physicists in Medicine, American Institute for Medical and Biological Engineering and Biomedical Engineering Society.

Working For You

Online CME Credits via *RadioGraphics* Increase in 2005

RSNA awarded more than 63,000 CME credits to users accessing *RadioGraphics* online and mailing in *RadioGraphics* postcards in 2005. This is a 6 percent increase over 2004. Online CME via *RadioGraphics* can be accessed through the RSNA Education Portal at RSNA.org/education. Click on InteractED® and then *RadioGraphics* CME Tests/Education Exhibits.

Approximately 43,000 CME credits were awarded by InteractED, which offers more than 300 peer-reviewed programs as an RSNA member benefit.

RadioGraphics Editor and RSNA Education Editor William W. Olmsted,

M.D., said he is enthusiastic about the increase in CME use.

“RSNA is the major contributor to the continuing education of radiologists as we move into the era of maintenance of certification,” Dr. Olmsted said. “Journal-based CME, self-assessment modules, and interactive online learning materials are going to be extremely important to practitioners as we advance in these areas in education.”

Virtual Monographs, collections of

important topics and materials from *RadioGraphics* and InteractED, also can be accessed from the RSNA Education Portal by clicking Continuing Professional Development and then RSNA Education Collections. The AFIP Archives, topics with radiologic-pathologic correlation from the Armed Forces Institute of Pathology receive the most hits each month of any of the Virtual Monographs.



RSNA Executive Department

ACTIVITIES of the RSNA Board of Directors are supported by the Executive Department. Under the direction of Barbara Jarr, director of board affairs, the department helps develop Board agendas, coordinate meetings, implement Board actions and keep records. The department also oversees the annual committee appointment process, maintaining a database of RSNA members who have volunteered to serve on RSNA's approximately 90 committees, sub-committees and editorial boards.

The department also supports RSNA's

Working for you
DEPARTMENT PROFILE

strategic planning process and the interaction of RSNA Officers and Board members with the leadership of other national and international radiology organizations.

The Executive Department reports to Dave Fellers, C.A.E., executive director of RSNA.



(from left)
Natalie Enriquez,
Barbara Jarr, Director,
Judy Marton,
Gina Tepavchevich,
Debra Brody

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.

Product News

NEW PRODUCT

New Ergonomic Reading Station

BROADWEST CORPORATION (www.broadwest.com) now offers the E-Carrell™ ergonomic reading station. Designed for softcopy reading, the E-Carrell maintains ambient and background luminance in an optimal ratio for viewing productivity.

The height, monitor stands and desktop surface angle are adjustable and the station also has a privacy and sound barrier. The lighting system includes a downward task light, a background light behind the monitors and an upward ambient light.



NEW PRODUCT

Lighter Lead-Free Radiation Protection Aprons

AliMed Inc. (www.alimed.com) has introduced its new line of lightweight StarLite Lead-Free Radiation Protection Aprons. The aprons weigh up to 20 percent less than standard lightweight, lead-free aprons and offer protection equal to 0.5-mm Pb at 100kVp. The aprons are available in several styles including Quick Drop and Wraparound.



PRODUCT VIDEO

Fluke Biomedical Offers Instructional Video

Fluke Biomedical Radiation Management Services (www.flukebiomedical.com/rms) has launched an instructional video on its Web site featuring the Halcyon Cantilever Board™ designed for intensity-mod-

ulated radiation therapy (IMRT) of head and neck cancer.

Fluke Biomedical designed the Halcyon Cantilever Board to allow for a full 360° treatment with minimal attenuation. The

board also was designed to increase setup reproducibility and reduce patient motion without requiring a large sheet of thermoplastic to the shoulders.

NEW PRODUCTS

New Treatments for Radiation Dermatitis, Xerostomia

Align Pharmaceuticals (www.alignpharma.com) has introduced new products for the treatment of radiation dermatitis and xerostomia.

Xclair™ Cream is water-based and intended to hydrate skin and provide protective barriers to maintain skin integrity during the course of radiation therapy. The cream contains no steroids or alcohol and is fragrance-free.

Numoisyn™ Lozenges and Numoisyn™ Liquid are designed for people who experience xerostomia while undergoing radiation treatment for head and neck cancers. The lozenges are saliva stimulants for people with some salivary function, while the liquid is a saliva replacement for people with little or no salivary function.





Research & Education Foundation Donors

THE BOARD OF TRUSTEES of the RSNA Research & Education Foundation and its recipients of research and education grant support gratefully acknowledge the contributions made to the Foundation between **January 21 – February 17, 2006.**

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

VANGUARD GROUP

Berlex, Inc.




\$105,000
A Vanguard company since 2004

Philips Medical Systems



\$115,000
A Vanguard company since 2001


Toshiba America Medical Systems



\$25,000
A Vanguard company since 2001


VISIONARIES IN PRACTICE

Radiological Associates of Sacramento Medical Group, Inc.
Sacramento, Calif.



\$25,000
Silver level

Southeast Medical Imaging at Brinton Lake
Glen Mills, Pa.



\$10,000
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Stanley Benzel, M.D.
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EXHIBITOR NEWS RSNA 2006

RSNA 2006 Exhibitor News

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Many opportunities exist for companies to promote their exhibit at RSNA 2006, the world's largest annual medical meeting. For more information, go to RSNA.org/Advertising/upload/meeting-3.pdf or contact:

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 Director of Advertising
 1-630-571-7819
jdrew@rsna.org
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 1-630-571-7818
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Exhibitor Prospectus

The RSNA 2006 Exhibitor Prospectus was mailed in late March. RSNA awards space assignment priority points to its exhibitors. It is beneficial to submit the exhibit space application quickly to earn the most priority points possible and to ensure the best possible exhibit booth position.



To achieve the maximum available space and assignment points, your completed application must have been received by RSNA by April 10, 2006. The first-round space assignment deadline is May 8.

June Exhibitor Planning Meeting

Booth assignments will be released on June 27 at the Exhibitor Planning Meeting and Luncheon. All RSNA 2006 exhibitors are invited to attend at Rosewood Restaurant and Banquets near Chicago's O'Hare International Airport.

Important Exhibitor Dates for RSNA 2006

- April 10** Exhibit Space Assignment Point System initiated
- May 8** First-round space assignment deadline
- June 27** Exhibitor Planning/ Booth Assignment Meeting
- July 5** Technical Exhibitor Service Kit available online
- Nov. 26– Dec. 1** RSNA 92nd Scientific Assembly and Annual Meeting

■ For more information, contact RSNA Technical Exhibits at 1-800-381-6660 x7851 or exhibits@rsna.org.

News about RSNA 2006

Advance Registration and Housing Opens April 24

RSNA 2006 advance registration and housing opens April 24 for RSNA and AAPM members. Non-member registration and housing opens May 22.

How to Register

There are four ways to register for RSNA 2006:

1 Internet

Go to RSNA.org/register

Use your member ID# from the 

RSNA News label or meeting flyer sent to you. If you have questions, send an e-mail to rsna@itsmeetings.com.

2 Fax (24 hours)

1-800-521-6017

1-847-940-2386

3 Telephone

(Monday–Friday,
8:00 a.m.–5:00 p.m. CT)

1-800-650-7018

1-847-940-2155

4 Mail

ITS/RSNA 2006

108 Wilmot Rd.,
Suite 400

Deerfield, IL 60015-0825
USA

International Delegates

Invitation Letters

Personalized invitation letters are available at www2.rsna.org/visa_form/invitation_letter.cfm.

Apply Early for Your Visa!

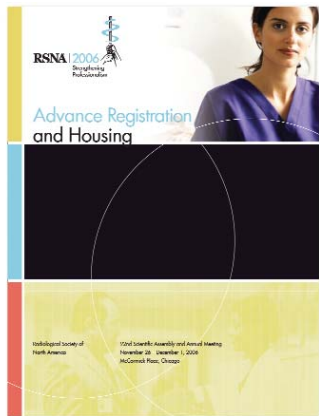
Visa applicants are advised to apply as soon as they decide to travel to the United States and at least **three to four months** in advance of their travel date. That means

international attendees should start the visa process by July or August.

The following Web sites have additional information on applying for a visa:

- unitedstatesvisas.gov
- travel.state.gov/visa
- www.nationalacademies.org/visas

Accessing a Brochure



The *Advance Registration and Housing* brochure will be available in electronic format only.

Go to RSNA.org/register and click on the PDF file.

Registration Fees

BY 11/10	ONSITE	
\$0	\$100	RSNA Member, AAPM Member
\$0	\$0	Member Presenter
\$0	\$0	RSNA Member-in-Training, RSNA Student Member and Technical Student
\$0	\$0	Non-Member Presenter
\$120	\$220	Non-Member Resident/Trainee
\$120	\$220	Radiology Support Personnel
\$570	\$670	Non-Member Radiologist, Physicist or Physician
\$570	\$670	Hospital Executive, Research and Development Personnel, Healthcare Consultant, Industry Personnel
\$300	\$300	One-day registration to view only the Technical Exhibits area

For more information about registration for RSNA 2006, visit RSNA.org, e-mail reginfo@rsna.org, or call 1-800-381-6660 x7862.

CME Update: Earn up to 85 AMA PRA Category 1 CME Credits™ at RSNA 2006

Important Dates for RSNA 2006

- April 15** Deadline for abstract submission
- April 24** Registration and housing opens for RSNA and AAPM members
- May 22** General registration and housing opens
- June 19** Course enrollment opens
- Nov. 10** Final advance registration deadline
- Nov. 26–Dec. 1** RSNA 92nd Scientific Assembly and Annual Meeting



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92nd Scientific Assembly and
Annual Meeting
November 26–December 1, 2006
McCormick Place, Chicago

MEETING WATCH RSNA 2006 - PRELIMINARY PROGRAM GRID

	8:00 A.M.	9:00 A.M.	10:00 A.M.	11:00 A.M.	12:00 P.M.	1:00 P.M.
Sat 11/25						AAPM/ RSNA Physics Tutorial for Residents 12:00–2:00 PS10
				**Protecting Assets Against Creditor Claims, Including Malpractice 10:00–12:00 PS01		Lunch 12:00–1:00
Sun 11/26		Opening Session 8:30–10:15 PS30		Scientific Sessions 10:45–12:15 SSA		Lunch, Visit Posters & Exhibits 12:15–2:00
				Pediatrics Session 10:30–12:00 VP		
	Radiology Assistants Program 8:30–10:00 RA			Radiology Assistants Program 10:15–11:45 RA	Lunch, Visit Posters & Exhibits 11:45–12:45	Rad. Assist. Prog. 12:45–2:15 RA
			Technical Exhibits 10:00–5:00			
Mon 11/27		Refresher Courses 8:30–10:00 RC200		Scientific Sessions 10:30–12:00 SSC		Lunch, Visit Posters & Exhibits 12:00–1:30
		Pediatrics Session 8:30–12:00 VP				
		Associated Sciences Symposium 8:30–11:30 PS45				
		Case-based Review: NR 8:30–10:00 CN		Case-based Review: NR 10:30–12:00 CN		
		Case-based Review: RO 8:30–10:00 CR		Case-based Review: RO 10:30–12:00 CR		
			Technical Exhibits 10:00–5:00			
Tue 11/28		Refresher Courses 8:30–10:00 RC300		Scientific Sessions 10:30–12:00 SSG		Lunch, Visit Posters & Exhibits 12:00–1:30
		Pediatrics Session 8:30–10:00 VP		Pediatrics Session 10:30–12:00 VP		
		Emergency Radiology Session 8:30–12:00 VE				
		Associated Sciences RC 8:30–10:00 AS		Associated Sciences RC 10:30–12:00 AS		
		Case-based Review: IV 8:30–10:00 CI		Case-based Review: IV 10:30–12:00 CI		
		Essentials Course 8:30–10:00 ES		Essentials Course 10:30–12:00 ES		Lunch, Visit Posters & Exhibits 12:00–1:00
			Technical Exhibits 10:00–5:00			
Wed 11/29		Refresher Courses 8:30–10:00 RC500		Scientific Sessions 10:30–12:00 SSK		Lunch, Visit Posters & Exhibits 12:00–1:30
		Associated Sciences RC 8:30–10:00 AS		Associated Sciences RC 10:30–12:00 AS		
		Case-based Review: PED 8:30–10:00 CP		Case-based Review: PED 10:30–12:00 CP		
		Essentials Course 8:30–10:00 ES		Essentials Course 10:30–12:00 ES		Lunch 12:00–1:00
			Technical Exhibits 10:00–5:00			
Thu 11/30		Refresher Courses 8:30–10:00 RC600		Scientific Sessions 10:30–12:00 SSQ		Lunch, Visit Posters & Exhibits 12:00–1:30
		Case-based Review: MR 8:30–10:00 CM		Case-based Review: MR 10:30–12:00 CM		
			Technical Exhibits 10:00–2:00			
Fri 12/1		Refresher Courses 8:30–10:00 RC800		Scientific Sessions 10:30–12:00 SST		Lunch, Visit Posters & Exhibits 12:00–12:45 Image Symp. 12:45–3:15

* Awards/Ceremonies to open Plenary Session (1:30–1:45) ** An additional fee is charged for this course

1:00 PM.	2:00 PM.	3:00 PM.	4:00 PM.	5:00 PM.	6:00 PM.	
AAPM/RSNA Physics Tutorial for Residents 12:00–2:00 PS10		AAPM/RSNA Physics Tutorial on Equipment Selection 2:15–4:15 PS20				Sat 11/25
** Effective Investment Strategies 1:30–5:00 PS11						
** NIH Grantsmanship Workshop 1:00–5:00 PS12						
Lunch, Visit Posters & Exhibits 12:15–2:00		Refresher Courses 2:00–3:30 RC100		Image Interpretation Session 4:00–5:45 PS40		Sun 11/26
		Pediatrics Session 2:00–3:30 VP				
Radiology Assistants Program 12:45–2:15 RA		Radiology Assistants Program 2:30–4:00 RA				
Technical Exhibits 10:00–5:00						
Lunch, Visit Posters & Exhibits 12:00–1:30		* New Horizon's Lecture 1:30–2:45 PS50		Scientific Sessions 3:00–4:00 SSE		Mon 11/27
		Basic Physics Lecture for the RT 1:30–2:45 PS51		Special Focus Sessions 4:30–6:00 SFF		
		Associated Sciences RC 1:30–3:00 AS		Associated Sciences RC 3:30–5:00 AS		
		Case-based Review: NR 1:30–3:00 CN		Case-based Review: NR 3:30–5:45 CN		
		Case-based Review: RO 1:30–3:00 CR		Case-based Review: RO 3:30–5:00 CR		
		Physics Symposium 1:30–3:30 PS52		Physics Symposium 3:45–5:45 PS52		
Technical Exhibits 10:00–5:00						
Lunch, Visit Posters & Exhibits 12:00–1:30		* Annual Oration in Diagnostic Radiology 1:30–2:45 PS60		Scientific Sessions 3:00–4:00 SSJ		Tue 11/28
				Pediatrics Session 3:00–4:00 VP		
		Associated Sciences RC 1:30–3:00 AS		Associated Sciences RC 3:30–5:30 AS		
		Case-based Review: IV 1:30–3:00 CI		Case-based Review: IV 3:30–6:00 CI		
Essentials Course 1:00–2:30 ES		Essentials Course 3:00–4:30 ES				
Technical Exhibits 10:00–5:00						
Lunch, Visit Posters & Exhibits 12:00–1:30		* Annual Oration in Radiology Oncology 1:30–2:45 PS70		Scientific Sessions 3:00–4:00 SSM		Wed 11/29
				Special Focus Sessions and Oncodiagnosis Panel 4:30–6:00 SFN		
		Case-based Review: PED 1:30–3:00 CP		Case-based Review: PED 3:30–5:00 CP		
Essentials Course 1:00–2:30 ES		Essentials Course 3:00–4:30 ES				
Technical Exhibits 10:00–5:00						
Lunch, Visit Posters & Exhibits 12:00–1:30		* RSNA/AAPM Symposium 1:30–2:45 PS80		Special Focus Sessions 3:00–4:00 SFS		Thu 11/30
		Case-based Review: MR 1:30–2:30 CM		Case-based Review: MR 2:45–4:15 CM		
				Refresher Courses 4:30–6:00 RC700		
				Case-based Review: MR 4:30–6:00 CM		
Technical Exhibits 10:00–2:00						
Friday Imaging Symposium 12:45–3:15 PS90						Fri 12/1

* Awards/Ceremonies to open Plenary Session (1:30–1:45) ** An additional fee is charged for this course

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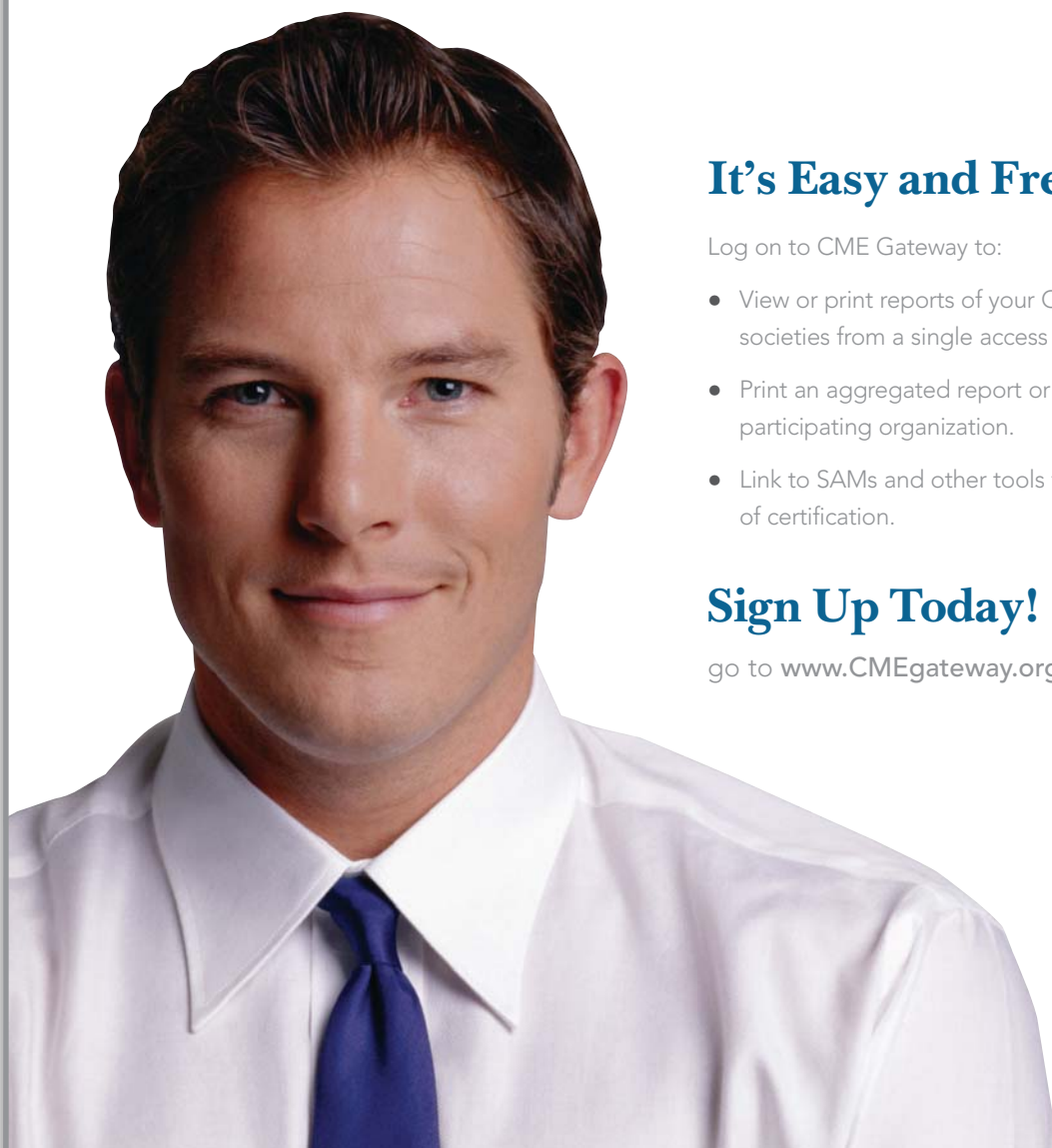
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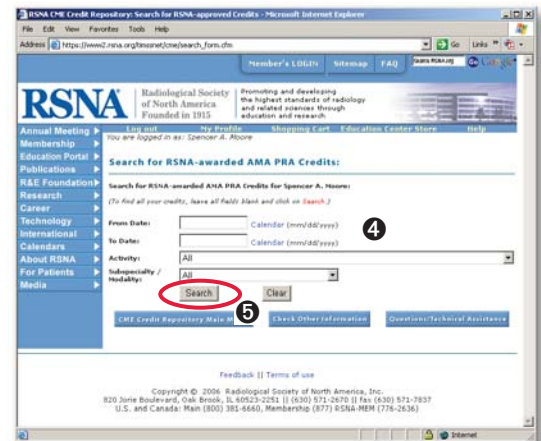
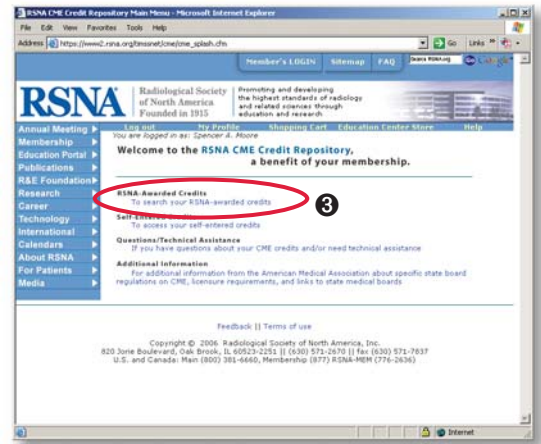
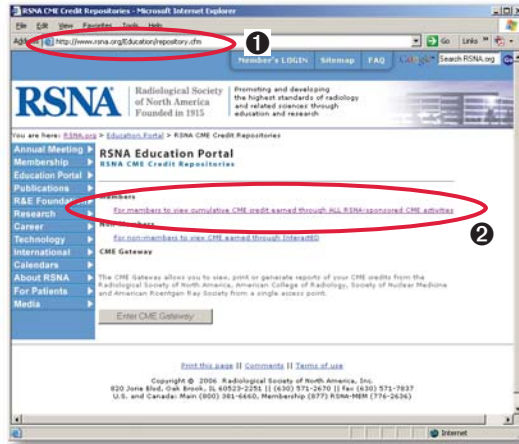
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Access the RSNA CME Credit Repository by going to [RSNA.org/education/repository.cfm](http://www.rsna.org/education/repository.cfm) ❶ and clicking on For Members To View Cumulative CME Credit Earned Through ALL RSNA-Sponsored CME Activities ❷.

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OTHER WEB NEWS:

Online Library of Breast Cancer Proteins Now Available

Harvard Medical School investigators have created the first publicly available library of reliably expressible proteins for breast cancer. The Breast Cancer 1000, or BC1000, is available at the Harvard Institute of Proteomics Web site (www.hip.harvard.edu).

VIEWING TECHNOLOGY

Answer

[Question on page 2.]

A The spatial resolution and number of available grayscale steps may not be sufficient for you to see fine details such as a pneumothorax or subtle consolidation. Caution is indicated when rendering clinical opinions on such displays.

Q&A courtesy of AAPM

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RSNA Highlights: Critical Issues for 2007

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Medical Meetings

May – June 2006

APRIL 29–MAY 5

American Society of Neuroradiology (ASNR), 44th Annual Meeting, San Diego Convention Center • www.asnr.org

APRIL 30–MAY 5

American Roentgen Ray Society (ARRS), 106th Annual Meeting, Vancouver Convention and Exhibition Centre, British Columbia • www.rrs.org

MAY 5–6

American Society of Interventional and Therapeutic Neuroradiology (ASITN), 4th Annual Practicum, Omni San Diego Hotel • www.asitn.org

MAY 6–12

International Society for Magnetic Resonance in Medicine (ISMRM), 14th Scientific Meeting & Exhibition, Washington State Convention & Trade Center, Seattle • www.ismr.org

MAY 6–9

Magnetic Resonance Managers Society (MRMS), 15th Annual Educational Conference, South Seas Island Resort, Captiva, Fla. • www.mrms.org

MAY 10–12

American Brachytherapy Society, 27th Annual Meeting, Philadelphia Marriott • www.americanbrachytherapy.org

MAY 15–17

UK Radiological Congress (UKRC), UKRC 2006, National Indoor Arena, International Conference Centre and Austin Court, Birmingham, United Kingdom • www.ukrc.org.uk

MAY 16–20

International Pediatric Radiology 5th Conjoint Meeting, Society for Pediatric Radiology (SPR) and European Society of Paediatric Radiology (ESPR), Fairmont Queen Elizabeth Hotel, Montreal • www.pedrad.org

MAY 20–25

American College of Radiology (ACR), Annual Meeting and Chapter Leader Conference, Hilton Washington • www.acr.org

MAY 24–27

German Radiology Society, 87th German Radiology Congress, Messe Berlin, Berlin • www.roentgenkongress.de

MAY 26–29

InterAmerican Congress of Radiology (CIR), 23rd CIR Congress, Spanish Society of Radiology (SERAM), 28th National SERAM Congress, Zaragoza Convention Center, Zaragoza, Spain • www.radcentroamerica.org

MAY 28–JUNE 1

World Federation for Ultrasound in Medicine and Biology (WFUMB), 11th Congress, COEX Convention & Exhibition Center, Seoul, Korea • www.wfumb2006.com

JUNE 3–7

Society of Nuclear Medicine (SNM), 53rd Annual Meeting, San Diego Convention Center • www.snm.org

JUNE 4–7

Radiology Business Management Association (RBMA) 2006 Radiology Summit, Loews Miami Beach Hotel South Beach • www.rbma.org

JUNE 8–11

Caribbean Society of Radiologists, 13th Congress, Hilton Miami Airport Hotel • www.csor.org

JUNE 9–13

International Society for Radiographers and Radiological Technologists (ISRRT), 14th World Congress, hosted in conjunction with American Society of Radiologic Technologists (ASRT) and the Association of Educators in Radiological Sciences (AERS), Adams Mark Hotel, Denver • www.asrt.org

JUNE 12–16

World Conference on Interventional Oncology (WCIO), Centro Congressi Villa Erba, Cernobbio, Italy • www.wcio2006.com

JUNE 19–23

European Society of Gastrointestinal and Abdominal Radiology (ESGAR), 17th Annual Meeting, Society of Gastrointestinal Radiologists (SGR), 35th Annual Meeting, Crete, Greece • www.esgar.org

NOVEMBER 26–DECEMBER 1

RSNA 2006, 92nd Scientific Assembly and Annual Meeting, McCormick Place, Chicago • rsna2006.rsna.org

FEBRUARY 26–28, 2007

RSNA Highlights: Clinical Issues for 2007, J.W. Marriott Desert Ridge Resort & Spa, Phoenix, Ariz. • RSNA.org/highlightsconference

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