

RSNA® *News*



Visiting Professors Teach Radiology in Well-wired Estonia

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- Patients Sometimes Equate “Virtual” with “No Discomfort” in CTC
- Rising Obesity Rate Creates Unique Ultrasound Challenges
- Radiology, Family Medicine Urged to Strengthen Ties
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RSNA News

February 2010 • Volume 20, Number 2

Published monthly by the Radiological Society of North America, Inc., 820 Jorie Blvd., Oak Brook, IL 60523-2251. Printed in the USA.

POSTMASTER: Send address correction “changes” to: RSNA News, 820 Jorie Blvd., Oak Brook, IL 60523-2251.

Nonmember subscription rate is \$20 per year; \$10 of active members’ dues is allocated to a subscription of RSNA News.

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Letters to the Editor

rsnanews@rsna.org

FAX: 1-630-571-7837

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ACR/SBI Breast Cancer Screening Guidelines Challenge USPSTF Recommendations

NEW BREAST CANCER screening recommendations from the Society of Breast Imaging (SBI) and the American College of Radiology (ACR) challenge recent controversial U.S. Preventive Services Task Force (USPSTF) recommendations against routine screening mammography for women under age 50.

Published in the January issue of the *Journal of the American College of Radiology (JACR)*, the ACR/SBI guidelines state that breast cancer screening

should begin at age 40 and earlier in high-risk patients. The recommendations also suggest appropriate utilization of medical imaging modalities such as mammography, MR imaging and ultrasound for breast cancer screening.

Issued in November, the USPSTF recommendations advising against routine mammography screening for women 40–49 years of age and then every other year rather than annually for women between 50 and 74, unleashed a firestorm of opposition

from organizations including ACR and SBI.

An abstract of *Breast Cancer Screening With Imaging: Recommendations From the Society of Breast Imaging and the ACR on the Use of Mammography, Breast MRI, Breast Ultrasound, and Other Technologies for the Detection of Clinically Occult Breast Cancer* published in the January issue of *JACR* is available at [jacr.org/article/S1546-1440\(09\)00480-3/abstract](http://jacr.org/article/S1546-1440(09)00480-3/abstract).

Radiologists Deliver “On-Venue Ultrasound” at 2010 Winter Olympics

Radiologists at this month’s Vancouver 2010 Olympics are manning onsite mobile “polyclinics” designed to provide medical care and imaging services—including, for the first time, instant ultrasound diagnoses that can help determine whether an athlete is fit to return to the field of play.

“Our objective for on-venue ultrasound (OVUS) is to image athletes at venues in an expedited, timely way, to allow themselves, their physicians and coaches to make the very important



return-to-play decision,” said Bruce Forster, M.D., director of imaging for the 2010 Olympics. “We’re offering OVUS at the cross-country Nordic, speed skating, freestyle skiing, snowboarding and ice hockey venues.”

In addition to OVUS, radiologists will provide services at three mobile imaging centers—an Alpine site, home to Olympic events including cross-country and downhill skiing; a city site, which hosts sports like hockey and curling; and a site at the Whistler Sliding

Centre, hosting events like bobsledding.

Ultrasound videos obtained near the playing field are sent instantly to imaging centers through a local area network (LAN) line.

Nineteen radiologists and 40 technologists will be onsite at the imaging and game venues. A complete list of radiology team members is available at RSNA.org/Publications/RSNAnews/February-2010/0210_announcements.cfm.

RSNA News will provide a full report on their experiences in the April issue.

High-Resolution CT, CT Pulmonary Angiography Cited as Most Influential Cardiopulmonary Imaging Advances

In response to a question posed in celebration of the 25th anniversary of the *Journal of Thoracic Imaging*—“What is the most influential article or advance in our specialty in the past 25 years?”—25 international leaders in cardiopulmonary imaging most frequently cited high-resolution CT and CT pulmonary angiography. The responses are published in an open-access article in the journal’s February 25 anniversary issue.

In one example, 2008 RSNA President Theresa C. McLoud, M.D., associate radiologist-in-chief and director of education for the Department of

Radiology at Massachusetts General Hospital in Boston and a professor of radiology at Harvard Medical School, wrote that “high-resolution chest CT has permitted a much greater understanding of interstitial lung disease. It has increased the accuracy of diagnosis and the ability of the radiologist to understand the anatomic distribution of disease at the lobular level, to provide a quantitative analysis of the severity of disease and to assess response to treatment.”

CT pulmonary angiography for



diagnosing pulmonary embolism was the most frequently reported new advance in cardiopulmonary imaging. Other frequently cited advances included multidetector-row CT technology, CT coronary angiography and cardiac MR, noted the journal’s editor, Phillip M. Boiselle, M.D., an associ-

ate professor of radiology at Harvard Medical School and director of the thoracic imaging section at Beth Israel Deaconess Medical Center.

The collected responses are available online at thoracicimaging.com.

1991 RSNA President Reflects on 20 Years of *RSNA News* Coverage

In 1991, then RSNA President Carl J. Zylak, M.D., heralded the first issue of *RSNA News*, which began as an eight-page black-and-white newsletter that informed members of RSNA's internal projects. Since then, the magazine, celebrating its 20th year in 2010, has become an award-winning newsmagazine that readers look to for coverage of the dramatic evolution taking place within radiology.

"It's been very special to see the progress of *RSNA News* over the past 20 years," said Dr. Zylak. "The membership is very appreciative of the superb efforts put together by RSNA volunteers and staff who have contributed to the articles and editorial excellence."

Dr. Zylak reflected on some of the developments covered in *RSNA News* over the past two decades.

"The amazing changes in technology that I've been privileged to witness have had a major impact not only on radiology but on the practice of medi-



Carl J. Zylak, M.D.

cine in general," Dr. Zylak said. "To be able to detail not only anatomy but functional anatomy with the various modalities we now have, along with the physiologic information we can provide with these technologies, is truly outstanding.

"Radiology has become pivotal in managing

patients in various settings, so we have a major responsibility as radiologists," Dr. Zylak continued. "The process of continuing preeminence in the field depends on what we do with—and for—the people coming behind us. In particular, we must continue to provide financial support for the RSNA Research & Education Foundation."

In the course of covering those issues, Dr. Zylak noted that *RSNA News* has received honors including the Publications Management Magnum Opus Award, the MarCom Creative Gold Award and the Excellence in Association Publications Award from

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Association Trends Publications.

"The magazine has far surpassed what the 1991 board envisioned," Dr. Zylak said. "As part of that 1991 board, I'm personally delighted for the success of *RSNA News*."

PEOPLE IN THE NEWS

Hricak Receives Lifetime Achievement Award from Croatian President

RSNA President **Hedvig Hricak, M.D., Ph.D., Dr. h.c.**, an internationally recognized leader in radiologic research and public education, received a lifetime achievement award from Croatian President Stjepan Mesic at a December ceremony in Croatia. Dr. Hricak is a native of Croatia.

The award—the Order of the Croatian Morning Star of Katarina Zrinska—is bestowed on individuals who have made a significant contribution to the advancement of health, social welfare and the promotion of moral values. The award is one of the country's highest honors.

Dr. Hricak is chair of the Department of Radiology at Memorial Sloan-Kettering Cancer Center, a professor of radiology at Cornell University Medical College and an attending radiologist at Memorial Hospital, all in New York City.



Croatian President Stjepan Mesic (left) awarded RSNA President Hedvig Hricak, M.D., Ph.D., Dr. h.c., the Order of the Croatian Morning Star of Katarina Zrinska—one of the country's highest honors—at a December 2009 ceremony in Croatia.

CT Tip of the Month

A typical abdominal CT scan has an effective dose approximately equal to 2-3 years of average natural background radiation in the U.S.

 American Association of
Physicists in Medicine

AAWR Bestows 2009 Awards

The American Association for Women Radiologists (AAWR) has announced its 2009 award recipients.

Ella Kazerooni, M.D., M.S., a professor of radiology, associate chair for clinical affairs and director of cardiothoracic radiology at the University of Michigan in Ann Arbor and president of the American Roentgen Ray Society (ARRS), received the Marie Sklodowska-Curie Award.

The Alice Ettinger Award was presented to **Barbara N. Weissman, M.D.**, vice-chair of radiology and director of the radiology residency program at Brigham and Women's Hospital and a professor of radiology at Harvard Medical School, both in Boston. One of the leading clinicians and educators in the field of musculoskeletal radiology, Dr. Weissman was named the RSNA Outstanding Educator in 2002, was among the recipients of the 2008 *Radiology* Editor's Awards and serves as a reviewer for *Radiology* and *RadioGraphics*.

Stephanie Terezakis, M.D., a resident specializing in pediatrics and

lymphoma in the Radiation Oncology Department at Johns Hopkins University in Baltimore, received the Eleanor Montague Distinguished Resident Award in Radiation Oncology.

The Lucy Frank Squire Distinguished Resident Award was presented to **Dorota Jakubowski Wisner, M.D., Ph.D.**, a resident at the University of California, San Francisco, who is completing the Women's Imaging Fellowship at the university.

The AAWR Research & Education Foundation also presented awards: **Trang La, M.D.**, Member-in-Training Award for Outstanding RSNA Presentation in Radiation Oncology; **Megan Daly, M.D.**, Member-in-Training Award for Outstanding ASTRO Presentation in Radiation Oncology; **Alison L. Chetlen, D.O.**, Member-in-Training Award for Outstanding ARRS Presentation in Diagnostic Radiology; **Feng-Ming Kong, M.D., Ph.D., M.P.H.**, Professional Leadership



Ella Kazerooni, M.D., M.S.



Barbara N. Weissman, M.D.



Stephanie Terezakis, M.D.



Dorota Jakubowski Wisner, M.D., Ph.D.

Award—Mid-Career Faculty and **Martha-Gracia Knuttinen, M.D., Ph.D.**, Professional Leadership Award—Early-Career Faculty.

IN MEMORIAM

Steven K. Teplick, M.D.

Steven K. Teplick, M.D., a professor and chair of radiology at the University of South Alabama (USA) in Mobile, died on Dec. 8. He was 68.

As a faculty member of the USA College of Allied Health, Dr. Teplick oversaw the conversion to digital imaging, implementation of PET/CT and many other advances. Prior to his appointment at USA, Dr. Teplick was professor and vice-chair of the Department of Radiology at the University of Arkansas for Medical Sciences in Little Rock.

A longtime RSNA member, Dr. Teplick served as chair of the RSNA Education Exhibits Committee. He was active in many other societies including the American College of Radiology and the Alabama Academy of Radiology and was a founding member of the International Society of Biliary Radiology.

Dr. Teplick was an editorial board member and reviewer for many professional medical journals including *Radiology* and *RadioGraphics*.



Steven K. Teplick, M.D.

Armand Brodeur, M.D.

Armand Brodeur, M.D., a founder of pediatric radiology at Saint Louis University (SLU) and SSM Cardinal Glennon Children's Medical Center, also in St. Louis, died on Dec. 7. He was 87.

Dr. Brodeur helped launch the Pediatric Radiology Department at SLU and Glennon and served as the hospital's first chief of radiology from 1956 to 1988. Dr. Brodeur served as chair of radiology and on the radiology staff at Shriner's Hospital for Children in St. Louis until 2004.

Dr. Brodeur built a second career hosting his own medical show, "Doctor to Doctor," for many years. He founded the National Association of Physician Broadcasters and taught physicians who attended American Medical Association meetings how to work with reporters.

Along with appearing on the "David Letterman Show," Dr. Brodeur was interviewed by Charles Kuralt who called him "the gentle wizard." Helping to create a kid-friendly radiology department at Glennon earned Dr. Brodeur coverage in publications including *Time* and *Reader's Digest*.

A professor emeritus of radiology and pediatrics, Dr. Brodeur was the author of two radiology textbooks and frequently wrote and lectured on diagnosing child abuse.



Armand Brodeur, M.D.

RSNA Board of Directors Report

As RSNA marked a successful 2009 annual meeting, the Board of Directors met at the McCormick Place Convention Center and looked forward to the 2010 annual meeting with optimism. We had the pleasure of welcoming William T. Thorwarth Jr., M.D., as the new Board liaison-designate for publications and communications.

Annual Meeting Plans for 2010

Despite the weak economy, attendance at RSNA 2009 was very strong, with a record number of radiologists attending (see Page 22). The Board was extremely pleased with the continued quality and value of the science, education and technology offered at the meeting.

Because of the popularity of the new early morning **Special Focus Sessions** offered at RSNA 2009, the Board approved increasing the number of early session days from two to four. At RSNA 2010, the sessions will be offered at 7:15 a.m. each day, Monday through Thursday.

In addition, the afternoon focus sessions will be grouped by topic. On Monday, sessions will focus on important medical issues, such as radiation safety. On Wednesday, point/counterpoint sessions will be held, while Thursday's sessions will be hot topics in cutting-edge science.

Attendees at the RSNA 2009 annual meeting responded enthusiastically to the **quantitative imaging** opportunities offered. In 2010, those opportunities will be further expanded.

A new **Residents and Fellows Committee** is being launched to provide input on development of courses and other annual meeting activities that are relevant to radiologists-in-training. In addition, committee members will participate in discussions about Internet tools offered to RSNA members, as well as social networking opportunities.

Remembering a Colleague

The 2010 *RSNA Annual Meeting* program will be dedicated to 2003 RSNA President Peggy J. Fritzsche, M.D., who died last September at her home in Redlands, Calif., at the age of 68. Dr. Fritzsche was a renowned radiologist, educator and a strong champion of organized medicine. Her passion for effective communication left an enduring mark on RSNA through the development and expansion of many of the Society's communications programs.



George S. Bisset III, M.D.
Chairman, 2010 RSNA Board of Directors

Foundation Celebrates Successful Silver Anniversary Campaign

At the annual meeting, the RSNA Research & Education (R&E) Foundation announced it had not only met, but also exceeded its goal to raise \$15 million during its Silver Anniversary Campaign. More than \$15.6 million was raised from 2005 to 2009, thanks to the dedicated efforts of individuals on the R&E Fund Development Committee and Subcommittees and the thousands of donors who came forward to support our specialties.

Collaborations

One of RSNA's strategic plan goals is to shape and advance the future of radiology. Another is to foster productive relationships with other organizations to strengthen radiology. To meet these goals, RSNA has strengthened its relationships with organizations within and outside of radiology.

Each year, RSNA hosts the International Trends Meeting at the RSNA annual meeting (see the January issue of *RSNA News*) at which nearly three

dozen leaders from around the world gather to discuss trends on a particular topic. In 2009, it was hybrid imaging. The 2010 meeting will focus on the radiology research enterprise.

RSNA is now a member of the International Society of Radiology.

A collaboration with the American Academy of Family Physicians resulted in "Radiology and the Family Physician," a course that explored ways to build

professional bridges by helping radiologists and family physicians learn what they expect and need from each other (See article on Page 7). The program complemented RSNA's "Patient-Centered Radiology" program and RSNA's support and involvement in the American College of Radiology's "Face of Radiology" campaign and the "Image Gently" campaign, all aimed at improving patient care.

RSNA and the European Society of Radiology are developing an oncologic imaging program—a daylong course that will be conducted at RSNA 2010, as well as at ECR 2011.

RSNA will cosponsor the SNM Molecular Neuroimaging Symposium this May and will collaborate on a joint session at the 2010 American Society of Clinical Oncology Annual Meeting called "Enhancing Quality Through Innovation."

Residencies in Imaging Physics

The RSNA Board has approved partial financial support for two imaging physics residencies.

With a shortage of imaging physics residency slots and a growing need for appropriately trained imaging

Continued on next page

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physicists, RSNA is working with the American Association of Physicists in Medicine to help create programs in which imaging physicists can acquire “on-the-job” clinical experiences similar to radiology residents.

More Robust Financial Disclosure Policy

The Board has approved recommendations by the editors of *Radiology* and *RadioGraphics* to require all journal authors to complete and submit the

Uniform Disclosure Form for Potential Conflicts of Interest offered by the International Committee of Medical Journal Editors. The form is a more robust financial disclosure document that extends to financial relationships involving an author’s spouse and children.

In my new role as RSNA Board chairman, I look forward to serving you—our members—and to advanc-

ing RSNA’s mission of promoting and developing the highest standards of radiology and related sciences through education and research.

GEORGE S. BISSET III, M.D.

CHAIRMAN, 2010 RSNA BOARD OF DIRECTORS

■ Note: In our continuing efforts to keep RSNA members informed, the chairman of the RSNA Board of Directors will provide a brief report in *RSNA News* following each board meeting. The next RSNA Board Meeting is in March 2010.

MY TURN

When it Comes to Science, Patients Need More than Sound Bites

ALTHOUGH imaging was frequently in the public spotlight in 2009, it was not always reflected in a positive light. As medical professionals, we support scientific rigor in the pursuit of patient health and safety, even—or especially when—it reveals flaws in the standard of patient care. However, we know that medical news isn’t always accurate, especially when distilled into media sound bites. That is why radiologists must be prepared to participate in relevant medical news stories and to talk to patients directly about conflicting media reports.

To that end, RSNA’s Public Information Committee (PIC) and Public Information Advisors Network (PIAN) members proactively promote radiology to the public and news media through studies in *Radiology* and at RSNA annual meetings. Volunteers also provide insight and context on radiology-related issues to news reporters and broadcasters throughout the year.

When such issues are thrust into the national spotlight, this cadre of experts helps provide the public with critical

insight and balanced information. For example, when the U.S. Preventive Services Task Force issued revised screening mammography guidelines advising against routine screening mammography for women under age 50 last November, the issue drew immediate, widespread public interest and global media attention.

Even before the recommendations were issued, various government, patient advocacy and medical specialty groups, including PIC and PIAN, were rallied and prepared to level criticism at the controversial guidelines. That readiness helped us prepare a panel of experts for an RSNA 2009 news conference that put the subject in better focus for confused patients and referring physicians.

Medical science is often mystifying to our patients. While they may understand the general concept of benefit versus risk, the nuances of weighing those benefits and risks are not always as straight forward. As much as we



Mary C. Mahoney, M.D.

can, we need to provide our patients with current, accurate information in a clear and comprehensible way. To aid our specialty in patient communication, PIC and PIAN are also involved in projects to help radiologists become more engaged and comfortable with patient interaction and communication. RSNA’s “Patient-Centered Radiology” initiative and the RSNA/American College of Radiology joint public information Web site, *RadiologyInfo.org*, are two such projects.

Direct contact with patients is key, but realistically we cannot always meet with patients one on one. PIC and PIAN are critical to monitoring medical news and helping the media understand the fine distinctions in radiologic science. Getting important medical information to the public quickly and accurately promotes the high quality medical care we all strive to provide.

Mary C. Mahoney, M.D., is director of breast imaging at the University of Cincinnati Medical Center and chair of the RSNA Public Information Committee.

My Turn
ONE RADIOLOGIST'S VIEW

Patients Sometimes Equate “Virtual” with “No Discomfort” in CTC

WHILE radiologists know the benefits of CT colonography (CTC), or virtual colonoscopy, they should be cognizant of how patients’ expectations about the procedure affect their willingness to undergo screening, according to scientific presentations at RSNA 2009.

Presenter Bettina Siewert, M.D., said the overriding issue is with acceptance of the test itself. “You want people to be willing to come for a follow-up screening, but there are misperceptions that may affect their behavior.”

While the level of discomfort with CTC may be very mild, patients hear the word “virtual” and may mistakenly believe there is no discomfort at all, said Dr. Siewert, an assistant professor at Beth Israel Deaconess Medical Center in Boston.

“The uncomfortable part of the procedure is the distending of the colon, which can cause a mild cramping. It’s more a matter of explaining this to our patients and being proactive,” she said.

To help gauge future compliance rates, Dr. Siewert and her colleagues conducted a multicenter trial to determine patient acceptance and tolerance of CTC versus optical colonoscopy (OC). The study involved 2,600 patients over the age of 50 and was conducted between February 2005 and December 2006 as part of the American College of Radiology Imaging Network (ACRIN) CT Colonography Trial.

Researchers compared National CT Colonography Trial (NCTCT) participant experiences with CTC and OC, as

well as their willingness to be rescreened with each procedure. NCTCT participants underwent a single bowel preparation and were scheduled to receive CTC, followed by sedation and OC.

Participants completed a questionnaire two weeks post-exam. They were asked questions about experiences ranging from physical discomfort and embarrassment during CTC to gender preference for a doctor. More than 2,300 participants responded, with results showing that 46 percent preferred CTC, 27.4 percent reported no preference and 24.9 percent preferred OC.

Severe discomfort was reported by 7.1 percent of participants who underwent bowel preparation, 6.3 percent with CTC and 2.2 percent with OC. Severe embarrassment was rare.

Rescreening with CTC is currently recommended every five years, as opposed to every 10 years with OC. Results also showed that if the screening interval for CTC were extended to 10 years as it is with OC, 93.7 percent of participants would be willing to be rescreened.

Second Study Concurs

Patient tolerance and expectations of CTC was also highlighted in a trial



Bettina Siewert, M.D.
Beth Israel Deaconess Medical Center, Boston



Carlos Capuñay, M.D.
Diagnóstico Maipú, Buenos Aires

conducted in Argentina.

The second study was conducted from October 2006 to July 2008. More than 400 patient exams were completed with a 64-row multislice CT scanner.

Presenter Carlos Capuñay, M.D., said his team observed a large number of patients who complained about some degree of discomfort during or after the CTC procedure.

Before the procedure, half the patients thought that CTC would not produce any discomfort, 29 percent thought it would produce mild discomfort and 21 percent expected moderate discomfort, researchers noted. No patients expected severe discomfort.

“However, after the study, only 12 percent perceived no discomfort, 14 percent mild discomfort, 48 percent moderate discomfort and 26 percent severe discomfort,” said Dr. Capuñay, subhead of the CT Department at Diagnóstico Maipú in Buenos Aires. “In 79 percent of cases patients did not know what the procedure was about.”

There was a clear difference between patient expectations and

We really need to address patient expectations, bring awareness of the procedures themselves and make people understand that this screening is very important.

Bettina Siewert, M.D.

Continued on Page 8

Radiology, Family Medicine Urged to Strengthen Ties

INTERSPECIALTY cooperation between radiology and family medicine is critical if patients are truly to benefit from both, according to the presenters of an RSNA 2009 refresher course, “Radiology and the Family Physician.”

Primary care doctors must learn to work better with all specialties, but especially radiology, said presenter Robert Bales, M.D., an assistant professor of Clinical Family Medicine at the University of Illinois College of Medicine in Rockford.

While many areas of medicine, including radiology, focus on depth of knowledge, family medicine is all about breadth of knowledge, said Dr. Bales, who follows the guidelines of the American Academy of Family Physicians’ Patient Centered Medical Home.

Dr. Bales offers patients evening and weekend hours to accommodate their busy lives and has even been known to make a house call. “I love what I do—doing mental gymnastics in caring for patients across the spectrum of life,” he said.

Dr. Bales said his practice is shifting from paper and written prescriptions to electronic health records and e-prescribing. He uses electronic evidence-based decision making to help decide which tests and procedures his patients should undergo, always asking, “Is there a better test to diagnose this condition?”



In a joint presentation at RSNA 2009, Carol Rumack, M.D., and Robert Bales, M.D., stressed the need for cooperation between radiology and family medicine.

Getting involved in the delivery of patient care gives us a chance to be sure that diagnoses are made quickly and with the full knowledge of critical issues.

Carol Rumack, M.D.

“I want to get the results fast—not in two weeks. Sometimes you just have to pick up the phone and call the physician who conducted the test,” Dr. Bales said. “That will never go out of style.”

Recent studies have shown patients with primary care providers spent 33 percent less on healthcare and have 19 percent lower mortality rates than their counterparts without primary care doctors, Dr. Bales said.

Moving Toward Patient-Centered Care

Presenter Carol Rumack, M.D., said there has been an interesting paradigm shift. “We need to put the patient in the center of care,” she said.

PACS have contributed to the further separation of patients and radiolo-

gists, said Dr. Rumack, a professor of radiology at the University of Colorado Denver School of Medicine and president of the American College of Radiology (ACR).

For the past five years, RSNA has supported the “Patient-Centered Radiology” program and ACR launched a “Face of Radiology” campaign—both aimed at engaging radiologists in patient interaction with the ultimate goal of improving patient care. “This is what we would want for our own medical care,” she said.

To increase face-time with patients and their families, Dr. Rumack makes clinical rounds twice a week with a neonatologist in her hospital’s neonatal intensive care unit.

She talks daily by phone to faculty and residents about each patient’s care, conveying any critical information. When performing ultrasound procedures with the family present, Dr. Rumack

makes sure they understand the findings and what they will mean for the patient's prognosis. The neonatologist is there to explain the next step for the patient if necessary.

"During my early training, we were told to send parents out of the room when conducting an ultrasound on babies and children," Dr. Rumack said. "Technologists and nurses taught me that children would be much more cooperative if their parents were in the room. That made it easier to check the children and it gave me the chance to have direct patient contact."

It is also important that radiologists get to know other doctors by participating in hospital committees and operations. "As I like to say, let's get out into the light," she said. "Getting involved in the delivery of patient care gives us a chance to be sure that diagnoses are made quickly and with full knowledge of critical issues."

RadiologyInfo.org Connects Doctors, Patients

She recommends patients visit *RadiologyInfo.org*, the public information Web site developed and funded by RSNA and ACR, that offers a better understanding of radiology procedures, the indication for those exams and what the equipment looks like. It is written in language the patient can understand—in other words, without doctor-speak.

Drs. Rumack and Bales said it is a good idea for patients to receive any bad news from both the primary care physician and the radiologist. While interventional radiologists and radiation oncologists have many more opportunities to work directly with patients, Dr. Rumack said it's time for diagnostic radiologists to get on board. One way is by encouraging residents to interact more with the referring physicians and patients in the community.

"We need to be visible by meeting



patients and discussing medical results with them," she said. "It is important for the patient to know that the radiologist is also a physician so that we don't hear, 'Oh, you don't fix radios?' from patients," she said to laughter from the audience.

Note: This article was adapted from stories that appeared in the RSNA 2009 Daily Bulletin. Daily newspapers from the annual meeting are available online at RSNA.org/bulletin. **DailyBulletin**

Patients Sometimes Equate "Virtual" with "No Discomfort" in CTC

Continued from Page 6

acceptance of CTC studies, according to researchers who added that referring physicians and also radiologists should explain to patients how the study is done in order not to create false expectations.

Dr. Siewert said the studies indicate that patients need more information about these procedures. "We really need to address patient expectations, bring awareness of the procedures themselves and make people understand that this screening is very important," she said.

The NCTCT study also indicated that improvements in technology that would extend screening intervals and eliminate the need for bowel preparation would most likely improve compliance rates, Dr. Siewert noted.

Non-cathartic CTC Screening Technique Shows Promise

Cathartic bowel preparation is a major obstacle to widespread colorectal cancer screening and is medically difficult

for some patients, said Joel Fletcher, M.D., who presented a study of 564 patients who underwent CTC with no dietary modifications other than barium ingestion.

Dr. Fletcher and his colleagues used a technique that supplemented primary 2D interpretation with locally adaptive stool subtraction software and 3D problem solving. Results were compared to those of complete colonoscopy.

The method detected adenomas greater than 6 mm in 76 percent of patients, including the lone cancer in the study. The stool subtraction software was helpful in identifying polyps.

Researchers concluded that while non-cathartic CTC shows potential as a screening technique for patients wishing to forego cathartic bowel cleansing, mild dietary restrictions, improving tagging regimens and optimizing computer-aided detection software will further improve its performance.

Learn More

- To view an abstract for the study, "Patient Acceptance and Tolerance of CT Colonography versus Optical Colonoscopy during the National ACRIN CT Colonography Trial," go to RSNA2009.rsna.org/search/event_display.cfm?em_id=8006966&printmode=Y&autoprint=N.
- To view an abstract for the study, "Patients Expectation and Acceptance to CT Virtual Colonoscopy Studies," go to RSNA2009.rsna.org/search/event_display.cfm?em_id=8015635&printmode=Y&autoprint=N.
- To view the abstract for the study, "Non-cathartic CT Colonography: Performance in a Large Screening Population," go to RSNA2009.rsna.org/search/event_display.cfm?em_id=8015958&printmode=Y&autoprint=N.

Note: This article was adapted from stories that appeared in the RSNA 2009 Daily Bulletin. Daily newspapers from the annual meeting are available online at RSNA.org/bulletin. **DailyBulletin**

Visiting Professors Teach Radiology in Well-wired Estonia

ALTHOUGH they were able to see the sights, sample local fare and learn a bit of the language, two members of the International Visiting Professor (IVP) Program devoted the majority of their fall 2009 visit to the Republic of Estonia in Northern Europe to a decidedly more important endeavor: education.

The team spent the better part of 11 days giving presentations and teaching seminars to the Estonian Society of Radiology (ESR) and the University of Tartu's (UT) radiology department whose members were more than eager to learn.

"In the Soviet era, radiology was not a highly sought area of specialization but it has become increasingly popular," said Loren H. Ketai, M.D. "There are now many well-trained radiologists in Estonia, but they work hard to maintain the clinical workload and they have little time or formal structure to support resident education. The education of all 30 Estonian radiology residents is managed by only three faculty members, so while their equipment is rapidly approaching state of the art, they just didn't have the academic infrastructure in place."

While in Estonia, Dr. Ketai, of the University of New Mexico in Albuquerque, and Michelle A. Michel, M.D., of the Medical College of Wisconsin in Milwaukee, gave presentations at UT and ESR's annual meeting in Tartu.

"We were fortunate to spend a lot



ON THE COVER:

Michelle A. Michel, M.D., and Loren H. Ketai, M.D., (second and third from left) spent the better part of 11 days last fall teaching and presenting seminars in Estonia as part of the RSNA-sponsored International Visiting Professor Program. Here they pose with Estonian hosts, Mare Lintrop, M.D., (far left) and Pilvi Ilves, M.D., Ph.D., (far right) both from the Department of Radiology at the University of Tartu Hospital.

of time teaching residents who are self-motivated, enthusiastic and really want to learn," Dr. Ketai said. "We stayed in Tartu, which was great, safe and fun. We were teaching every day but it was relaxing."

Improving the Quality of Care

Estonia, bordered to the north by the Gulf of Finland, to the west by the Baltic Sea, to the south by

Latvia and to the east by the Russian Federation, fits perfectly into the category of "developing" country.

This post-Soviet country was incorporated into the European Union (EU) in May 2004. While Estonians are a Finnic people with their own language, most speak English.

"They are truly in a transition phase after joining the European Union," Dr. Michel said. "Estonians brought their country up by the bootstraps after the Soviets left and are really working hard to improve the quality of care. It was very rewarding to assist these people in their mission."

The two major hospitals are in Tallinn, the capital city, and Tartu, which is home to the country's only medical school. "The hospital in Tallinn was built in the Soviet era and the radiology department was small, gloomy and institutional-looking," said Dr. Ketai. "Now, with an influx of EU funds, a three-story facility is being built and it's going to be great. The change is even more dramatic in Tartu where the medical school and university hospital have just recently moved from buildings built in the 19th century."

Another major goal is the creation of an academic infrastructure to support

There are now many well-trained radiologists in Estonia, but they work hard to maintain the clinical workload and they have little time or formal structure to support resident education.

Loren H. Ketai, M.D.



RSNA International Visiting Professors Loren H. Ketai, M.D. and Michelle A. Michel, M.D., and Estonian host Pilvi Ilves, M.D., Ph.D., (all center) pose with Estonian radiology residents who study at the University of Tartu Hospital and at hospitals in Tallinn.

the development of radiology throughout the country, he said.

“Estonia has all of the ingredients for creating an academic radiology system, but they need help with the academic infrastructure,” he said. “It would be a good place to do some clinical research that would be beneficial.”

Estonia Among “Most Wired” Countries

While some areas are ripe for development, Estonia’s information technology sector is surprisingly advanced, said Drs. Michel and Ketai. In fact, Estonia has been called one of the “most wired” countries in Eastern Europe.

“The whole country is very well wired and we basically had Internet access everywhere,” Dr. Michel said. “Even when we were in medieval towns we were able to get online anywhere, which was very nice.”

Both doctors were also surprised that the entire country operates under one PACS. “This allows anyone to view a patient’s images from any location in the country, and they use one medical record system, too,” Dr. Michel said. “We could only imagine the research potential and ease of consulting with other radiologists under such a uniform system.”

As for the residents, Dr. Ketai was impressed with the amount of independent study taken on by students. “They do not get many subspecialty lectures and they really work hard on their own

to learn,” he said.

Dr. Ketai also pointed out the “cultural shock” experienced by the Estonian radiology residents in terms of U.S. teaching methods.

“In the U.S., individual residents look at images and present cases,” he said. “By nature, Estonians are more reserved and they were initially rather horrified at what we were asking them to do. It took us awhile to show them it’s a valuable experience and not to be intimidated.”

Drs. Michel and Ketai tried to make the residents feel more comfortable in any way possible.

“We gave didactic lectures every morning and case conferences with smaller groups in the afternoon,” said Dr. Michel. “We also showed the residents many pictures of the U.S. and of our families and I think they really enjoyed that.”

RSNA Relationship Could Continue

While the IVP team undoubtedly taught a lot to the Estonians, Dr. Ketai said the doctors also took back a few lessons.

“It’s a place I probably never would have visited, but I’m so glad I went because it is a beautiful country and they were wonderful people,” he said. “Having to teach in a completely different setting makes you reevaluate. You

get in kind of a rut when teaching and you keep doing things the same way, but in this case you get to reevaluate and see what works.”

Dr. Ketai added that the Estonian radiologists expressed an interest in a continuing relationship with RSNA, which he agreed would be a “worthwhile investment.”



Estonia

Established in 1986, the RSNA IVP annually sends teams of North American professors to lecture at national radiology society meetings and visit with radiology

residency training programs at selected host institutions in developing nations. The RSNA Committee on International Radiology and Education administers the program which is made possible by support from Agfa HealthCare and Fujifilm Medical Systems.

In addition to Estonia, 2009 IVP teams traveled to Argentina, Bolivia, South Africa and Mexico. In 2010, IVP teams will travel to the Philippines, Brazil, Thailand and Mexico. Other recent trips have included China, Nigeria, Vietnam and Mexico. □

Learn More

■ For more information on the RSNA International Visiting Professor Program, go to RSNA.org/International/CIRE/ivpp.cfm.

Rising Obesity Rate Creates Unique Imaging Challenges

WITH approximately two thirds of the U.S. population estimated as overweight or obese, ultrasonographers should be aware of imaging considerations—as well as pathological findings—that are often specific to overweight patients, according to presenters at RSNA 2009.

“We were taught fatty liver was a benign and reversible process and there was no concern about having fat in your liver,” said Stephanie Wilson, M.D., a professor of radiology at the University of Calgary in Canada, who led an interactive session with a discussion of how obesity affects the liver. “Since I’ve been practicing, I’ve seen fatty liver become recognized as one of the major risks for westernized societies. A consensus prediction is that by 2020, fatty liver will be the major cause of liver cancer in North America.”

Currently, about 50 percent of tumors manifest with untreatable disease at the time of detection, she said.

Dr. Wilson urged radiologists who diagnose fatty livers on ultrasound exams to refer patients for liver consultations due to the increased risk for developing chronic liver disease with its increased risk for development of hepatocellular carcinoma.

Obesity Impacts Image Interpretation

Growing numbers of radiology reports are classified as “habitus limited,” meaning a patient’s size interfered with proper diagnoses, said Raul Uppot, M.D., an assistant professor of radiology at Harvard University in Boston. Using an electronic audience-response



Ultrasonographers should be aware of imaging considerations specific for overweight patients, stressed Stephanie Wilson, M.D., during an RSNA 2009 presentation.

system, 78 percent of session attendees reported that obesity had impacted their ability to interpret images on ultrasound exams.

Since I've been practicing, I've seen fatty liver become recognized as one of the major risks for westernized societies.

Stephanie Wilson, M.D.

Dr. Uppot suggested alternatives to aid ultrasonographers working with overweight patients, including reducing transducer frequency from the standard 4-5 MHz to 2-3 MHz, allowing the ultrasound beam to better

penetrate tissues and target the abnormal area. On the technical exhibits floor at RSNA 2009, said Dr. Uppot, he has seen transducers go as low as 1 MHz.

High-Quality Ultrasound Critical During Pregnancy

According to Phyllis Glanc, M.D., an assistant professor of radiology and

obstetrics/gynecology at the University of Toronto, the ability to perform high-quality ultrasound exams on obese pregnant women is especially critical due to increased risks to mother and baby. “One-third of maternal deaths occur in obese patients,” she said.

Dr. Glanc also outlined some of the physical risks to the fetus including stillbirth, congenital anomalies and birth trauma.

While highlighting the barriers to acquiring useable images during ultrasound, Dr. Glanc also presented imaging tips. She recommended low-frequency probes and that both patients and technicians change positions to achieve better fetal access and reduce fatigue among technicians.

Optimal timing for ultrasound exams can also minimize difficulty, said Dr. Glanc. “In the obese popula-

tion, a routine fetal anatomic scan is probably best performed after 20 weeks, providing better visualization.” She also pointed out the possible benefits of transvaginal ultrasound exams for visualization of the fetus at around 15 weeks of gestation.

When obesity is a factor, a so-called “normal” ultrasound exam may not give accurate information needed for counseling and management, Dr. Glanc reminded attendees. She also explained that obesity is the most visible clue to “metabolic syndrome,” a combination of major and minor health conditions including hypertension, diabetes and insulin resistance that affects women of reproductive age.

Dr. Glanc concluded by stressing the importance of communicating to obese, pregnant patients the limitations of obstetrical ultrasound and necessity for longer clinical exam times. Utilizing newer imaging techniques and industry aids to position patients and pre-planning for surgical delivery when necessary can help assure better medical outcomes for both mother and child, she said.

MR Imaging Reveals Lumbar Disc Disease in Overweight Children

Another RSNA 2009 scientific presentation revealed that lumbar disc disease in pediatric patients occurs more frequently than commonly thought and at a higher rate in children who are overweight.

The link between lumbar spine abnormalities and increased body mass index (BMI) in children had been poorly established in research, according to the study’s co-author, Judah Burns, M.D., a radiologist in the Division of Neuroradiology at The Children’s Hospital at Montefiore Medical Center in New York.

When Dr. Burns saw MR images from two overweight teenage patients with disc herniations, he wondered if there was a connection to their BMI.

“There is growing medical literature about the effects of obesity in



Phyllis Glanc, M.D., stressed the need for high-quality ultrasound exams during pregnancy during her RSNA 2009 presentation.

children with various diseases and the radiologic manifestations of those processes,” Dr. Burns said. “But in terms of musculoskeletal disease as it relates to obesity in young people, there is not much research about it.”

Dr. Burns conducted a retrospective study of four years worth of existing MR imaging data in patients aged 12 to 20 complaining of back pain. He also considered a patient’s height and weight to establish age-corrected BMI. Of the 188 patients who met his criteria, 52 percent exhibited abnormal lumbar spine MR imaging exams, the study showed.

“A lot of kids actually have some abnormality of the spine, which was surprising to me and others who saw the results,” Dr. Burns said. “Often it is widely assumed that musculoskeletal pain in children is due to back spasm or pulled muscle. My conclusion is that you shouldn’t just assume that kids don’t get disc disease.”

The study further showed that patients with elevated BMI had a much higher rate of lumbar disc abnormalities than other groups. Height and weight information was available on 108 of the 188 patients. Of those, 49 percent in the highest BMI quartile exhibited MR

imaging abnormalities, a statistically significant difference when compared to children with lower BMI.

Dr. Burns pointed out that obesity in children doesn’t automatically mean pathology. “From a public health perspective, the fact that it’s happening at greater rates in children who are obese doesn’t mean that if you see an obese kid you have to do an MRI to find their disc disease,” he said. “It’s more of a statement that this is yet another documented consequence of pediatric obesity that we have to be aware of.” □

Learn More

- To view an abstract of the study, “The Metabolic Syndrome and its Impact on Ultrasound,” go to RSNA2009.rsna.org/search/search.cfm?action=add&filter=Author&value=54756.
- To view an abstract of the study, “Pediatric Lumbar Disc Disease: MRI Abnormalities in Normal and Overweight Children,” go to RSNA2009.rsna.org/search/event_display.cfm?em_id=8008230&printmode=Y&auto_print=N.

Note: This article was adapted from stories that appeared in the RSNA 2009 Daily Bulletin. Daily newspapers from the annual meeting are available online at RSNA.org/bulletin. **Daily Bulletin**

Engineering Expertise Aids Radiofrequency Probe Project

COMBINING his biomedical engineering background with an RSNA Research & Education (R&E) Grant, Georgetown University researcher Filip Banovac, M.D., developed a novel system that uses real-time electromagnetic position sensing of the needle tip to aid precision guidance into a liver tumor.

Data from that research led to Dr. Banovac's current project developing physician-assist systems that incorporate visualization and instrument tracking to aid the physician in minimally invasive interventions.

"The RSNA study channeled very nicely into further research in this field," said Dr. Banovac, an associate professor of radiology and chief of vascular interventional radiology and clinical director for the Computer Aided Interventions and Medical Robotics Division of the Imaging Science and Information Systems (ISIS) Center at Georgetown University in Washington, D.C.

Dr. Banovac's 2001 study, "Development and Validation of New Magnetic Position Sensing Technology Used to Assist in Precise Placement of Radio-

frequency Probes during Hepatic Tumor Ablation," was funded by a \$30,000 RSNA Research Resident Grant. At the time, radiofrequency ablation of primary and metastatic liver tumors was becoming an accepted alternative to surgical resection, said Dr. Banovac. Despite promising applications in liver cancer treatment, radiofrequency ablation had shortcomings including probe positioning and real-time treatment monitoring.

Tumors larger than 4–5 cm required

multiple probe repositioning to achieve adequate tumor margins. However, probe repositioning using ultrasound—the most common guidance and monitoring modality—can be technically difficult, he said.

Although conventional contrast-enhanced CT provided excellent pre-procedural visualization of the tumor and relative anatomic relationships to other structures, it was not a real-time modality and required multiple "blind" repositionings with repeated re-scanning for confirmation of the probe location, Dr. Banovac said.

System Uses Magnetic Position Sensing

Drawing on his background in biomedical engineering, Dr. Banovac proposed a system that used real-time magnetic position sensing of the needle tip.

The system consisted of a magnetic field generator, a compatible custom-made needle/stylette combination that could be tracked using the position sensing system, as well as software used to register, plan the path to the tumor and provide that real-time visual assistance.

The research was not without challenges.

Researchers compared the accuracy of needle placement into silicone liver tumors within a liver phantom that simulated respiration. Residents and faculty placed the needle into multiple silicone tumors using both conventional CT guidance and the new magnetic position sensing system and researchers compared the difference. Finally, researchers performed swine studies



Filip Banovac, M.D.
Georgetown University



Kevin Cleary, Ph.D.
Georgetown University

comparing the same task in an anesthetized animal.

There was no statistical difference in the planning time, procedure time or accuracy between experienced and inexperienced operators, according to the study. But researchers encountered overall errors in system accuracy, altering the second goal of the study, Dr. Banovac said.

Because software modifications could not rectify the error, researchers opted not to compare magnetic tracking to CT placement. CT placement may require multiple repositioning of the needle, but ultimately the target would be reached and comparison in accuracy would be meaningless, said Dr. Banovac.

"At that time, the magnetic system did not function well in a CT environment," he continued. "Electromagnetic fields created in the CT suite interfered with the signal of our electromagnetic device. However, the magnetic system has since improved and we have now started a CT-based clinical trial."

Nevertheless, the research yielded advancements, said Dr. Banovac. "We still evaluated the ability of the system to aid experienced and inexperienced radiologists in needle placement and compare the two groups."

The initial RSNA grant also clarified for me that I wanted an academic career.

Filip Banovac, M.D.

NAME:

Filip Banovac, M.D.

GRANT RECEIVED:

2001 RSNA Research Resident Seed Grant, \$30,000.

STUDY:

“Development and Validation of New Magnetic Position Sensing Technology Used to Assist in Precise Placement of Radiofrequency Probes during Hepatic Tumor Ablation.”

CAREER IMPACT:

The RSNA grant confirmed Dr. Banovac’s intentions to remain in academic radiology and led to funding from other agencies for his current Computer Aided Interventions and Medical Robotics project. Dr. Banovac said the research offered insight into the in-depth commitment needed to be a successful investigator.

CLINICAL IMPLICATIONS:

Dr. Banovac’s development of a system that uses real-time electromagnetic position sensing of the needle tip to aid with precision guidance into a liver tumor translated into his current research and led to an ongoing clinical trial using this technology. Researchers are evaluating the utility of this device in performing a lung biopsy using the electromagnetically tracked needles.



Grants in Action

For more information on all Foundation grant programs, go to RSNA.org/Foundation or contact Scott Walter, M.S., assistant director, grant administration at 1-630-571-7816 or swalter@rsna.org.

Research Continues on Medical Robotics

Preliminary data from that research are the basis for Dr. Banovac’s current Computer Aided Interventions and Medical Robotics Project focusing on developing physician-assist systems for precision placement and manipulation of surgical instruments.

Goals of the project headed by Kevin Cleary, Ph.D., director and associate professor at ISIS, are the use of medical robotics for precision needle placement in perispinal nerve and facet blocks and magnetic tracking of instruments. The research is funded by the U.S. Army and the National Institutes of Health.

“One long-term goal is to define what precision is needed for these procedures and to develop methods for characterizing the precision attainable with this new technology,” Dr. Banovac said. “In a related effort, we are investigating the problem of respiratory motion. The characterization of respiratory motion and compensation for its effects is another long-term goal.”

Researchers recently received conditional approval for an FDA investigational device exemption to use a joystick-controlled robot in a randomized clinical trial for needle placement in perispinal nerve and facet blocks. Additionally, animal studies are planned on

a liver respiratory motion simulator.

“We hope our systems will help physicians complete these procedures in a more accurate manner,” said Dr. Cleary.

Although less invasive procedures are beneficial to patients, they require a great deal of skill for physicians, said Dr. Cleary, also the principal investigator for the Image-Guided Surgery Toolkit, a high-level, component-based framework that provides a common functionality for image-guided surgery applications.

Because he bridges the medical and engineering worlds, researchers like

Continued on Page 17

2010 RSNA Research & Education Foundation Board of Trustees Announced

In 2010, the RSNA Research & Education Foundation will advance its mission through funding radiologic research and education. In its 25 years, the Foundation has awarded 760 grants, totaling nearly \$30 million. Members of the 2010 Board of Trustees: (top row, left to right) Jack E. Price, chair, Hedvig Hricak, M.D., Ph.D., Dr. h.c., Burton P. Drayer, M.D., James P. Borgstede, M.D., Valerie P. Jackson, M.D., G. Scott Gazelle, M.D., Ph.D., Sarah S. Donaldson, M.D. (bottom row, left to right)



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Engineering Expertise Aids Radiofrequency Probe Project

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Dr. Banovac are vital to this line of research because, Dr. Cleary said.

“Dr. Banovac’s engineering background has positioned him well,” said Dr. Cleary, who also trained as a mechanical engineer with a background in systems engineering and robotics.

Grant Provided Vital Start

The initial data from the RSNA-funded research were necessary to securing funding for their current research,

according to Drs. Cleary and Banovac.

“The R&E Foundation grants provide a vital start at a time when it is difficult to secure larger grants without preliminary data,” said Dr. Cleary.

Dr. Banovac agreed, pointing out the springboard effect the grants provided. “It’s seed money that really enables young scientists who wouldn’t otherwise have the funds to obtain preliminary data and go for bigger grants.”

“The initial RSNA grant also clarified for me that I wanted an academic

career,” added Dr. Banovac.

Subsequently, Dr. Banovac served as the scientific advisor to Amy White, M.D., whose RSNA grant-funded research, “Uterine Artery Embolization: The Role of Postembolization Abdominal Aortography and Associated Patient Radiation Exposure,” was published in the July 2007 edition of *Radiology*.

“Mentoring continues the pipeline of education and research,” said Dr. Banovac. □

Journal Highlights

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

Fluoroscopically Guided Interventional Procedures: A Review of Radiation Effects on Patients' Skin and Hair

IN THE past two decades, radiation-induced skin damage has been recognized as a rare complication of fluoroscopically guided interventional procedures. Radiation dose, the interval between irradiations (dose fractionation) and the size of the skin area irradiated **Radiology** affect the expression and severity of the radiation injury, as do a variety of physical and patient-related factors.

In a review article in the January issue of *Radiology* (RSNA.org/Radiology), Stephen Balter, Ph.D., and colleagues present a consensus based on available information of the radio-



Radiation injury in a 60-year-old woman subsequent to successful neurointerventional procedure for the treatment of acute stroke.

Estimated fluoroscopy time was more than 70 minutes; 43 imaging series' were performed during the course of the procedure. The head was not shaved. Note focal epilation on scalp and skin injury on neck but not on scalp. No dose estimates were available for this case.

(*Radiology* 2010;254:2:326-342) ©RSNA, 2010. All rights reserved. Printed with permission.

biology of the skin and the relationship between radiation dose and skin effects in interventional fluoroscopy. Specifically, authors examine:

- Clinical use of radiation

- Biologic factors that influence skin reactions
- Radiobiology of radiation injuries
- Initiating dose and time course of radiation injury
- Interaction between different types of damage
- Risk management of skin effects in interventional procedures

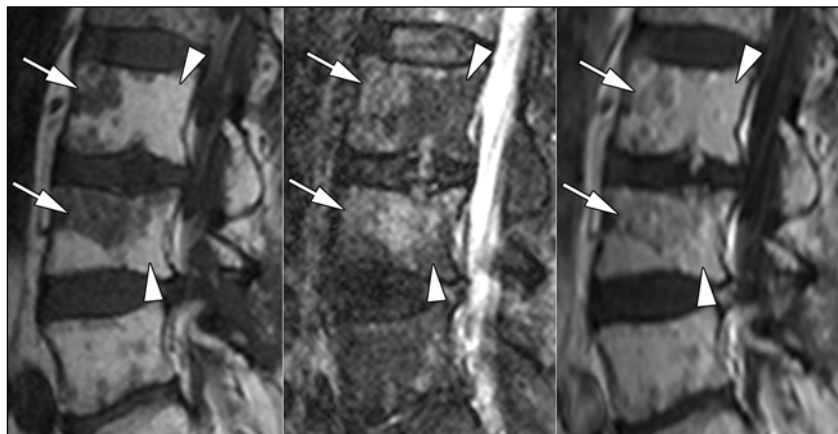
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Current Concepts in the Evaluation of Multiple Myeloma with MR Imaging and FDG PET/CT

WITH improvement in chemotherapeutic options and the increased use of autologous transplantation, advanced imaging is becoming more important in the evaluation of multiple myeloma, which varies **RadioGraphics** widely in its manifestations, aggressivity and histopathologic pattern.

In a review article in the January–February issue of *RadioGraphics* (RSNA.org/RadioGraphics), Christopher J. Hanrahan, M.D., Ph.D.; Carl R. Christensen, M.D.; and Julia R. Crim, M.D., of the University of Utah School of Medicine in Salt Lake City, review the epidemiologic profile, diagnostic criteria, clinical manifestations, genetic prognostic factors, staging, treatment

Continued on Page 20



MR imaging appearance of multiple myeloma.

Sagittal unenhanced T1-weighted STIR and contrast material-enhanced T1-weighted MR images demonstrate areas of bone marrow with low-signal intensity in intermediate signal intensity and contrast enhancement (*arrows*). This signal intensity pattern is characteristic of active multiple myeloma lesions. The areas with high-signal intensity, low-signal intensity and only mild or no enhancement (*arrowheads*) represent fat that has replaced the marrow as a result of radiation therapy.

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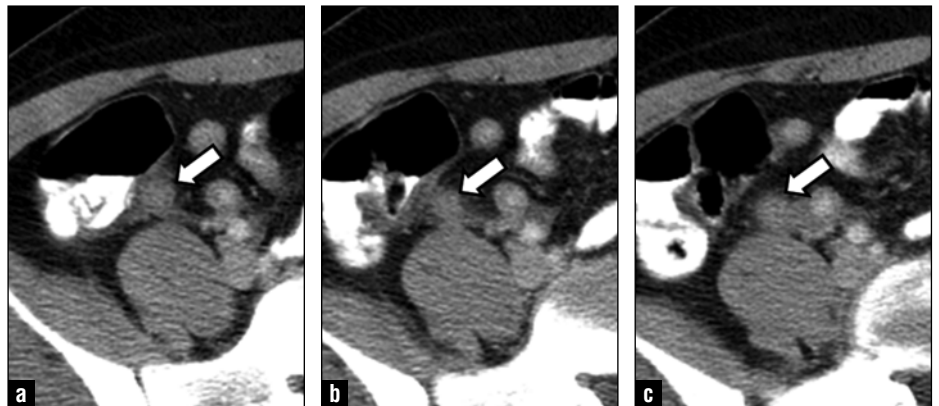
Radiology in Public Focus

Making the Diagnosis of Acute Appendicitis: Do More Preoperative CT Scans Mean Fewer Negative Appendectomies? A 10-Year Study

INCREASED use of preoperative CT in patients with suspected appendicitis coincides with a dramatic decrease in negative appendectomies for younger women, a February *Radiology* study has found.

Courtney A. Coursey, M.D., of the Department of Radiology at Duke University Medical Center in Durham, N.C., and colleagues, examined a surgical database of 925 patients who underwent urgent appendectomy between January 1998 and September 2007. In 2007, 93.2 percent of patients underwent preoperative CT, compared with 18.5 percent of patients in 1998.

Dr. Coursey and colleagues found that the negative appendectomy rate in women 45 years or younger decreased from 42.9 percent in 1998 to 7.1 percent in 2007, though they noted that the timing of the decline could not be proven to be associated with increased CT use.



False-positive CT scans obtained with intravenous and oral contrast material in a 20-year-old woman with a 1-day history of abdominal pain that migrated to the right lower quadrant.

The appendix (*arrow*) measures up to 10 mm in diameter, and periappendiceal fat stranding is present. The appendix appeared somewhat inflamed and enlarged at surgery, but no inflammation was noted at pathologic examination. An alternate cause of right lower quadrant pain was never established definitively.

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For women over 45 years of age and for men regardless of age, there was no significant trend toward a lower negative appendectomy rate with increased use of CT. “The shift from

single detector CT to multidetector CT and the use of decreasing slice thickness also correlated with a reduction in false positive diagnoses,” researchers added.

Media Coverage of Radiology

IN December 2009, media outlets carried 208 news stories generated by articles appearing in the print and online editions of *Radiology*. These stories reached an estimated 104 million people.

A news release was issued for a study about women at elevated risk for breast cancer who refuse breast MR imaging screening (*Radiology* 2010;254:79-87).

December coverage included *America This Morning* (ABC National TV), *The Daily Buzz* (Syndicated National TV), CBS Radio Network (National), *Wall Street Journal This Morning* (National Radio), WCBS-AM (New York), WCAU-TV (Philadelphia), KCBS-AM (San Francisco), WCCO-AM (Minneapolis), WWJ-AM (Detroit), WTOP-FM (Washington, D.C.), KIRO-FM (Seattle), WGRZ-TV (Buffalo), WNWO-TV (Toledo), WBAL-AM (Baltimore), KMOX-AM (St. Louis), Reuters, Gannett News Service, North American Press Syndicate, Healthday, MSN Health, *Women's Health Weekly*, *Innovations Report*, *Health & Medicine Week*, *Cardiovascular Week*, *usnews.com*, *health.com*, *businessweek.com*, *foxnews.com*, *palmbeachpost.com*, *sciencedaily.com*, *medscape.com*, *modernmedicine.com* and *esciencenews.com*.



February Public Information Activities to Focus on Heart Imaging

In February, RSNA's 60-Second Checkup program will focus on imaging of the heart, particularly cardiac CT.

Journal Highlights

Fluoroscopically Guided Interventional Procedures: A Review of Radiation Effects on Patients' Skin and Hair

Continued from Page 18

• Staged and repeated procedures

Authors also present expected skin reactions for an average patient in tabular form as a function of peak skin dose and time after irradiation.

“Rigid adherence to any dose-effect table is unwise,” the authors conclude. “Because of clinical variability, it is appropriate to assume that any skin changes observed after a fluoroscopically guided interventional procedure

are radiogenic in origin unless a definitive alternative diagnosis is established.”

Current Concepts in the Evaluation of Multiple Myeloma with MR Imaging and FDG PET/CT

Continued from Page 18

and imaging of multiple myeloma, with emphasis on the increasingly important and complementary roles of MR imaging and fluorine 18 fluorodeoxyglucose (FDG) PET combined with CT.

Imaging features of the disease before and after treatment are described and illustrated in detail, with emphasis

on potential pitfalls in diagnosis.

“Imaging plays an important role in the detection of bone marrow disease, characterization of the disease pattern, quantitation of focal lesions, depiction of extramedullary disease, and differentiation of multiple myeloma from other normal and pathologic processes,

and the imaging findings may lead to alterations in staging and prognosis,”

the authors conclude. “Post-treatment MR imaging or FDG PET/CT of myeloma also may be useful for evaluating the response to therapy and assessing residual disease.”

This article meets the criteria for 1.0 AMA PRA Category 1 Credit. CME is available in print and online.

Working For You

RSNA 2009 Physics Modules Available Online

The physics modules introduced at RSNA 2009 are now available online free of charge to RSNA and AAPM members. Designed to educate radiology residents about important concepts in physics, these self-guided modules include a testing feature that creates a comprehensive learning experience for the viewer.

Modules are developed by teams that include at least one physicist and one radiologist and are peer reviewed for content and quality before being officially

launched online. The goal is to provide a basic understanding of physics in the following areas: general imaging, radiography, mammography, fluoroscopy, interventional radiology and CT and imaging processing. RSNA will release additional online physics modules in 2010.

View these modules at *RSNA.org/physics*. For more information on the physics modules, call 1-630-368-3753 or email us at *physics@rsna.org*.

RSNA Education Center CD-ROM Collections

RSNA Education Center's new CD-ROM Collections of Refresher Courses from past RSNA annual meetings are available for viewing in the 2009–2010 product catalog at www2.rsna.org/timssnet/search/tnt_genericsearch.cfm.

Bundled into topical sets for easy reference, the Collections allow members to build a comprehensive education library at a reduced price.

For more information on these products, please contact the RSNA Education Center at ed-ctr@rsna.org or call 1-800-381-6660 x3753 or 1-800-272-2920.

Program and Grant Announcements

RSNA Introduction to Research for International Young Academics

Deadline for Nominations—April 15

The RSNA Introduction to Research for International Young Academics program encourages young radiologists from countries outside the U.S. and Canada to pursue careers in academic radiology. The program consists of a special seminar held during the RSNA annual meeting.



Eligible candidates are residents and fellows currently in radiology training programs or radiologists not more than two years out of training who are beginning or considering an academic career. Nominations must be made by the candidate's department chairperson or training director. Fluency in English is required. Nomination forms can be found at RSNA.org/IRIYA.

RSNA 2009 Quality Storyboards Available Online

Selected RSNA 2009 Quality Storyboards detailing successful quality improvement projects that can help inspire and guide other institutions are available online at RSNA.org/Quality/storyboards/2009_storyboards/index.cfm.

Offered for the first time, Quality Storyboards include projects evaluating personalized dose reduction techniques, reducing the need for sedation in pediatric imaging and systemic defenses against wrong patient, wrong procedure and wrong site incidents.

More than two dozen Quality Storyboards were available at RSNA 2009.

RSNA-Sponsored Sessions at the Association of University Radiologists (AUR) Annual Meeting

March 23–26 • Hilton San Diego Bayfront Hotel, San Diego

Association of Program Directors in Radiology (APDR) and RSNA will co-sponsor the medical education research certificate (MERC) workshop “Getting Started/Asking Questions” open to all AUR, APDR and SCARD members. The Tuesday, March 23, workshop is part of a series offered by the Association of American Medical Colleges (AAMC) and is part of an AAMC MERC program. The workshop targets clinicians and other educators who want to learn research skills enabling collaborative participation in medical education research projects. Workshop facilitator is Carol Hodgson, Ph.D., of the University of Colorado in Denver.

For more information, go to www.AUR.org.

RSNA Outstanding Researcher and Educator Awards

Nomination Deadline—May 1

The RSNA Outstanding Researcher and Outstanding Educator awards annually honor one senior physician or scientist in each award category who has made a career of significant contributions to the field of radiology or radiologic sciences through research or teaching/education. The 2009 Outstanding Researcher was Sanjiv Sam Gambhir, M.D., Ph.D., and the 2009 Outstanding Educator was Elliot K. Fishman, M.D.

To be considered for the award, nominees must be RSNA members and not have received an RSNA Gold Medal.

The letter of nomination should be explicit, address relevant criteria and be accompanied by the nominee's complete curriculum vitae. Letters of nomination should be addressed to George S. Bisset III, M.D., chairman, RSNA Board of Directors, and sent to Barbara Jarr, director of Board Affairs, at bjarr@rsna.org.

For more information, go to:

- RSNA.org/Education/Outstanding_Educator_Award.cfm.
- RSNA.org/Research/Outstanding_Researcher_Award.cfm.

RSNA NEWS 20TH ANNIVERSARY

Below are the answers to last month's crossword puzzle to mark the 20th anniversary of *RSNA News*. Crossword puzzles will appear bimonthly in 2010.

B	A	R	K	L	A		P	R	O	T	O	N		
U	S	A		O		R		O		O		O	A	K
C	A	D		S	I	E	G	E	L	M	A	N		E
K		I	S	T		N		N		O				N
Y	A	O				B	O	L	T		G	L	E	N
		F	R	A	Y		A	G	A	R		R		E
P	E	R	O	T		D	Y	E		A	P		G	D
L	I	E		L		E		N		P		M		Y
U		Q	U	A	S	A	R			S	H	R	E	K
T		U		N		N		K		Y		T	E	D
O	P	E	N	T	O			M	I	R		M	A	Y
N	A	N		A	U	S		D	I	P				W
I	N	C	A		S	P	A	M		E	U	R	O	
U		Y		G	T	O		A	N	N		U		B
M	O			B	O	S	T	O	N		N	I	B	I

News about RSNA 2010

Submit Abstracts for RSNA 2010

THE online system to submit abstracts for RSNA 2010 is now open. The submission deadline is 12:00 p.m. Central Time on April 15, 2010. Abstracts are required for scientific presentations, education exhibits, applied science and quality storyboards.

To submit an abstract online, go to RSNA.org/abstracts.

The easy-to-use online system helps the Scientific Program Committee and Education Exhibits Committee evaluate submissions more efficiently. For more information about the abstract submission process, contact the RSNA Program Services Department at 1-877-776-2227 within the U.S. or 1-630-590-7774 outside the U.S.



RSNA 2010
PERSONALIZED MEDICINE:
In Pursuit of Excellence

Important Dates for RSNA 2010

April 28	RSNA/AAPM member registration and housing open
May 26	General registration and housing open
June 30	Course enrollment opens
October 22	Deadline for international mailing
November 5	Deadline for final advance discounted registration, housing and course enrollment
Nov. 28 – Dec. 3	RSNA 96th Scientific Assembly & Annual Meeting

Hricak Featured in Online Meeting Videos

Visitors to the annual meeting Web site, RSNA.2010.RSNA.org, can view promotional videos featuring 2010 RSNA President Hedvig Hricak, M.D., Ph.D., Dr. h.c. In a series of videos to be released over the next several months, Dr. Hricak will address topics including abstract submission, member registration and course enrollment.



RSNA 2009 Attendance Stays Strong

Despite a slow economy, attendance for RSNA 2009 remained very strong, even setting a new record for the number of radiologists in attendance.

More than 11,000 members attended RSNA 2009, a 4 percent increase from the previous year, while the 15,644 radiologists at the meeting set an all-time record for the number of radiologists attending. Dipping slightly below 2008, overall attendance at RSNA 2009 totaled nearly 57,000.

MEDICAL MEETINGS

March – April 2010

MARCH 1–4

Healthcare Information and Management Systems Society (HIMSS), Annual Conference and Exhibition, Atlanta • www.himssconference.org

MARCH 4–8

European Congress of Radiology (ECR), Austria Center, Vienna • www.myesr.org/cms

Visit the
RSNA Booth

MARCH 13–18

Society of Interventional Radiology (SIR) 35th Annual Scientific Meeting, Tampa Convention Center, Florida • www.sirweb.org

MARCH 20–23

13th Asian Oceanian Congress of Radiology (AOCR), Taipei International Convention Center, Taiwan • www.aocr2010.org/congress.htm

MARCH 23–26

Association of University Radiologists (AUR), 58th Annual Meeting in Joint Sponsorship with RSNA, Hilton San Diego Bayfront Hotel • www.aur.org

Visit the
RSNA Booth

MARCH 24–27

American Institute of Ultrasound in Medicine (AIUM), Annual Meeting, San Diego Marriott • www.aium.org

APRIL 9–12

International Congress of Radiology, Shanghai International Convention Center, China • www.icr2010.org

Visit the
RSNA Booth

APRIL 13–17

Society for Pediatric Radiology (SPR), Annual Meeting, Boston Park Plaza Hotel & Towers • www.pedrad.org

APRIL 22–23

Canadian Association of Radiologists (CAR), International Guidelines Symposium, Montréal, Quebec • www.car.ca

APRIL 22–25

Canadian Association of Radiologists (CAR), 73rd Annual Scientific Meeting, Hyatt Regency Hotel, Montréal, Quebec • www.car.ca

APRIL 29–MAY 1

American Brachytherapy Society (ABR), Annual Meeting, Hyatt Regency, Atlanta Towers • www.americanbrachytherapy.org

NOVEMBER 28–DECEMBER 3

RSNA 2010, 96th Scientific Assembly and Annual Meeting, McCormick Place, Chicago
• RSNA2010.RSNA.org

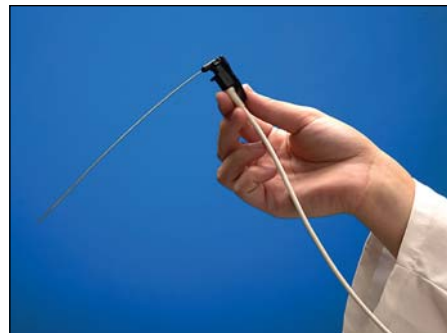
Product News

NEW PRODUCT

Biopsy Needles with Navigation Sensors

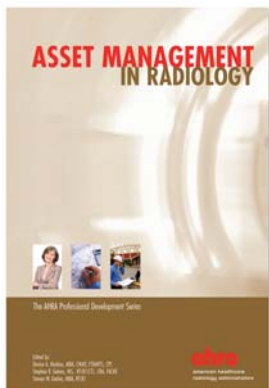
Ascension Technology (www.ascension-tech.com) and CIVCO Medical Solutions (www.civco.com) introduce the eTRAX™ needle guidance system, which allows physicians to follow the tip of a needle moving inside a patient. Magnetic sensors 0.6 mm – 0.9 mm wide enable real-time navigation of biopsy needles for anatomical visualization, instrument positioning and pathology targeting.

Microminiaturization technology permits the sensors to be embedded in the distal end of needles as small as 16 gauge. As a result, clinicians can quickly and precisely guide needles and ablation tools to soft-tissue lesions.



NEW PRODUCT

Radiology Asset Management Textbook



The Association for Medical Imaging Management (AHRA) (www.ahraonline.org/products) is offering “Asset Management in Radiology,” a comprehensive textbook on the latest, most effective best practices in asset management. Issues include capital equipment planning, building and construction planning, project implementation, maintenance and supplies. The book is designed to provide the imaging administrator with the foundational knowledge needed to manage these assets on a day-to-day and annual basis.

NEW PRODUCT

Area Lighting for MR Suites

The Med-Vizion ZXR LED down light by ETS-Lindgren (www.ets-lindgren.com) is specially designed for MR imaging suite applications. The high performance, vertical light-emitting diode down

light has no ultraviolet, infrared or radiofrequency emissions and features engineered heat displacement preventing premature LED failure. Without filaments, LEDs are unaffected by magnetic fields. This low-cost, maintenance-free lighting solution eliminates the need for lamp replacement. It operates at 120/240 VAC, and can be used in any field strength MR room, providing up to 100,000 hours of low-energy operation. The noise-free operation and nonferrous construction deliver optimal illumination at task and floor levels and provide flexibility in suite design and functionality.



NEW PRODUCT

Quality Control for DICOM Send/Burn

PACSGEAR™ (www.pacsgear.com) introduces GEARView™ QC, a simple and powerful quality control tool to view, import, fix, print, burn and send DICOM studies to PACS.

GEARView QC lets PACS administrators fix common demographic issues—incorrect patient name, accession number or any DICOM field—as well as enables visual editing for splitting/combining studies or adding/removing images. Users can even anonymize studies by masking burned-in annotations. GEARView QC’s robotic Stacker option automates the manual process of importing DICOM media and can process up to 50 CDs or DVDs in a single batch.



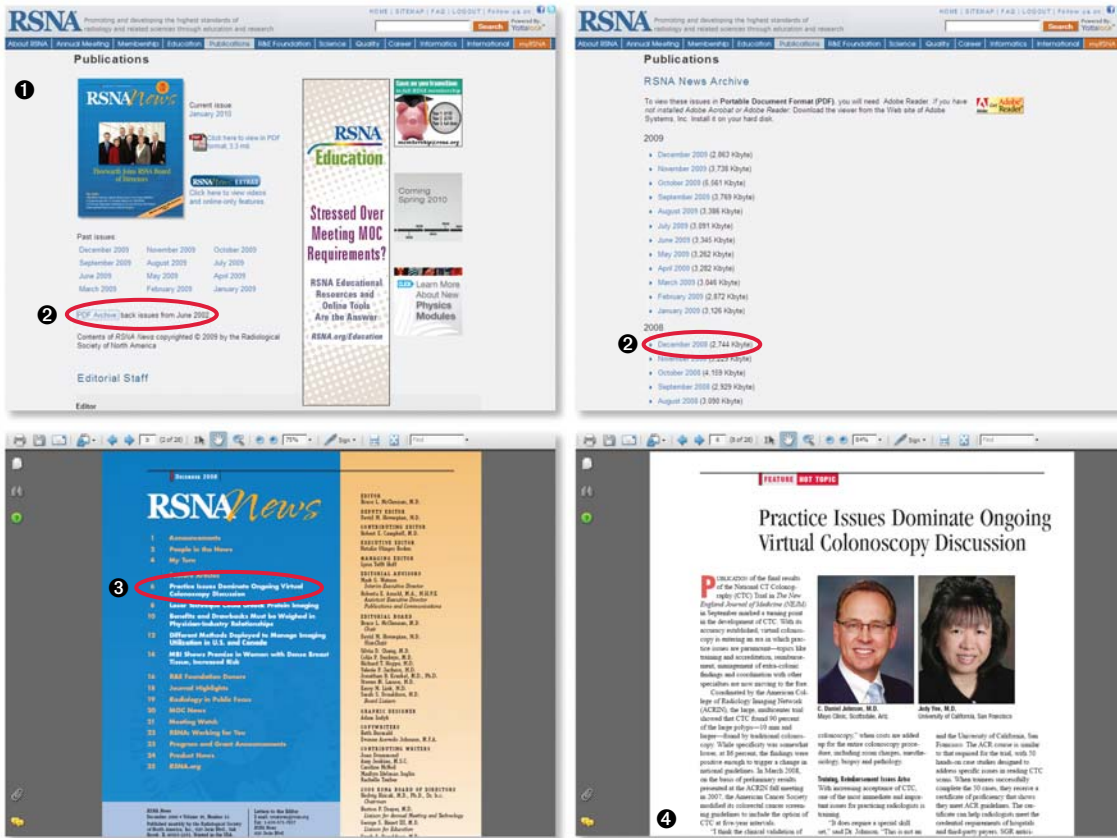
RSNA.org

RSNA News Online Archive

While *RSNA News* is accessible in an HTML format for one year, previous issues of *RSNA News* dating back to June 2002 are archived as PDFs at *RSNA.org*.

- ❶ Access the *RSNA News* home page at RSNA.org/publications/rsnanews. The cover of the current magazine is displayed along with the masthead.
- ❷ Click on PDF Archive and select an issue from the list.
- ❸ After opening the PDF, advance to the second or third page to see the Table of Contents for that issue.
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For information about using material published in *RSNA News*, go to RSNA.org/publications/rsnarights.



E-connections

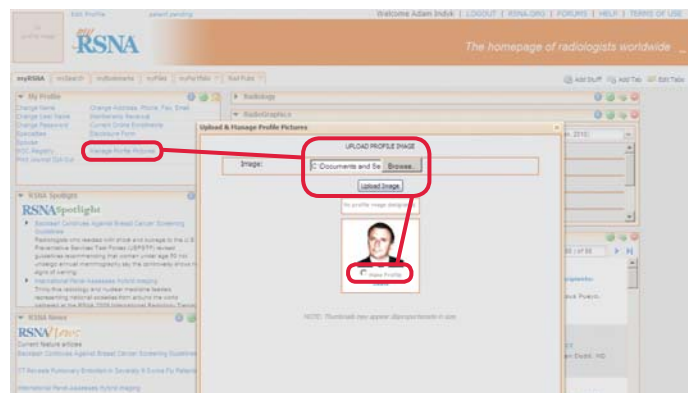
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Call for Abstracts



Submit abstracts online at RSNA.org/abstracts

You can submit abstracts for

Scientific Presentations
Applied Science
Education Exhibits
Quality Storyboards

Deadline
April 15, 2010

*Includes sessions in joint
sponsorship with the
American Association
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