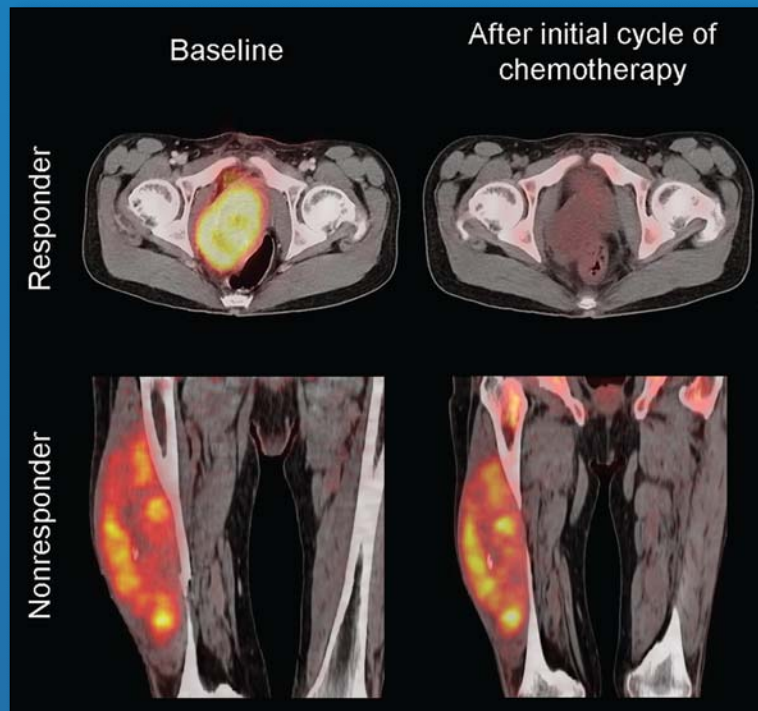


# RSNA® *News*



## PET/CT Predicts Early Response to Chemotherapy

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- EHRs Help Track Cumulative Radiation Dose
- RSNA 2009 Spotlights Integrated Healthcare Technology
- Radiologists Must Take Care of Their Vision, Study Shows
- Novel Myocardial Tagging Technique Stems from RSNA Grant

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**RSNA News**

September 2009 • Volume 19, Number 9

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**

E-mail: [rsnanews@rsna.org](mailto:rsnanews@rsna.org)

Fax: 1-630-571-7837

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## IOM Names Medical Imaging Among National Priorities

**T**HE Institute of Medicine (IOM) has identified several investigative projects related to medical imaging in its 2009 report, Initial National Priorities for Comparative Effectiveness Research. As directed by Congress under the American Recovery and Reinvestment Act (ARRA) of 2009, IOM has recommended national priorities for research questions to be addressed by comparative effectiveness research and supported by ARRA funds.

Among priorities in the first and second quartile project list are: comparisons of the effectiveness of imaging technologies in diagnosing, staging and

monitoring patients with cancer; film-screen or digital mammography alone or with MR in community practice-based screening; new screening technologies, including CT colonography versus usual care for preventing colorectal cancer; and the outcomes of care with and without obstetric ultrasound in normal pregnancies.

In the third and fourth quartile, priorities will include: comparing traditional risk stratification for coronary heart disease with noninvasive imaging using coronary artery calcium and carotid intima media thickness scoring;

the effectiveness of imaging modalities when ordered for neurological and orthopedic indications by primary care practitioners, emergency department physicians and specialists; the effectiveness of CT angiography versus conventional angiography in assessing coronary stenosis; and the effectiveness of diagnostic imaging performed by radiologists and non-radiologists.

For information on IOM's current projects, visit [www.iom.edu/CMS/2954.aspx](http://www.iom.edu/CMS/2954.aspx).



### 2009 International Young Academics Named

The RSNA Committee on International Relations and Education (CIRE) received more than 60 applications for the 2009 Introduction to Research for International Young Academics (IRIYA) program. Selected participants attend a specially designed four-day program, held during the RSNA annual meeting, that encourages them to pursue careers in academic radiology. At its June meeting, the RSNA Board of Directors approved recommendations from CIRE to invite the following 17 candidates to participate in this year's IRIYA program:

NAME	COUNTRY
Owen Arthurs, M.B.B.Chir., Ph.D.	United Kingdom
S.H. Chandrashekara, M.D.	India
Tobias DeZordo, M.D.	Austria
Anthony Eka, M.D.	Nigeria
Alessandro Furlan, M.B.B.S.	Italy/U.S.
Taisa Gasparetto, M.D.	Brazil
Bruno Hochegger, M.D.	Brazil
Pieter Janse van Rensburg, M.D.	South Africa
Amalan Mahalingam, M.B.Ch.B.	Australia
Daniele Marin, M.B.B.S.	Italy/U.S.
Seyed Ali Nabavizadeh, M.D.	Iran
Bishnuhari Paudyal, M.D.	Japan
Annemarieke Rutten, M.D., Ph.D.	The Netherlands
Ronan Ryan, M.D.	Ireland
Andres Vasquez, M.D., Ph.D.	Colombia
Luis Miguel De Alba, M.D.	Mexico (Selected by the Mexican Federation of Radiology and Imaging)
Carmen Rocio Ramirez Carmona, M.D.	Mexico (Selected by the Mexican Society of Radiology and Imaging)

For more information or nomination forms, go to [RSNA.org/IRIYA](http://RSNA.org/IRIYA) or contact Fiona Miller at 1-630-590-7741 or [CIRE@rsna.org](mailto:CIRE@rsna.org). The deadline for nominations each year is April 15.

### JVIR Publishes Radiation Safety Guidelines

As a special supplement to the July issue of the *Journal of Vascular and Interventional Radiology (JVIR)*, the Society of Interventional Radiology has published 2009 standards division guidelines for daily practice reference.

The supplement includes "Guidelines for Patient Radiation Dose Management," which provides guidance on the safe use of fluoroscopy for interventional radiologists performing procedures on adults and children. Guidelines also address procedures including embolization/chemoembolization for cancer, transjugular intrahepatic portosystemic shunt creation for liver disease and renal/visceral artery angioplasty or stent placement. For more information, go to [www.SIRweb.org](http://www.SIRweb.org).

### RADIATION SAFETY

## Question of the Month

**Q** If I am in the CT exam room during a procedure, where are the best places to stand to minimize my radiation exposure?

[Answer on Page 23.]

## House Tables Self-Referral Ban in Healthcare Bill

The U.S. House Energy and Commerce Committee closed its mark-up of HR 3200, America's Affordable Health Choices Act of 2009, without including an imaging self-referral amendment.

Although acknowledging that 66 amendments remained outstanding, the committee closed off further consideration and decided to reconvene this month.

Congressmen Anthony Weiner (D-N.Y.) and Bruce Braley (D-Iowa) are working closely with the American College of Radiology (ACR) on an amendment similar to the Integrity in Medicare Advanced Diagnostic Imaging

Act of 2009 (HR 2962), introduced by Rep. Jackie Speier (D-Calif.). HR 2962 sought to amend Title XVIII of the Social Security Act to close the "Stark Laws" self-referral loophole for certain advanced diagnostic imaging services.

Introduced in the 1989 and 1993 Omnibus Budget Reconciliation Acts in an effort to remedy the problem of self referral, Stark I and Stark II currently contain exceptions for in-house ancillary services, enabling non-radiologist physicians to open their own diagnostic imaging centers and bill insurance providers and Medicare for the services. If passed, HR 2962 will exclude "certain

advanced diagnostic imaging services," including diagnostic MR, CT and PET, from the in-house ancillary services exception.

"Although ACR was extremely disappointed that the Energy and Commerce Committee finished its mark-up of HR 3200 without the amendment being offered, we are still hopeful there will be an opportunity for the amendment's sponsors to offer it at a later time," said James Thrall, M.D., chair of the ACR Board of Chancellors.

View HR 3200 at [hdl.loc.gov/loc.uscongress/legislation.111hr3200](http://hdl.loc.gov/loc/uscongress/legislation.111hr3200).

## PEOPLE IN THE NEWS



**E. Stephen Amis Jr., M.D.**

### Amis Elected ACGME Chair

**E. Stephen Amis Jr., M.D.**, has been elected chair of the Council of Review Committees of the Accreditation Council for Graduate Medical Education (ACGME). Dr. Amis is a professor and university chair in the Department of Radiology at The Albert Einstein College of Medicine and Montefiore Medical Center in the Bronx, N.Y.



**Zvi Lefkowitz, M.D.**

### Lefkowitz named Chair at New York Medical College

**Zvi Lefkowitz, M.D.**, has been appointed chair of the Department of Radiology at New York Medical College in Valhalla. Previously Dr. Lefkowitz was clinical associate professor of radiology at Mount Sinai School of Medicine and vice-chair of radiology at Mount Sinai Medical Center in New York.

### Boechat Selected for National Leadership Program

**Maria Ines Boechat, M.D.**, a professor of radiology and pediatrics in the Department of Radiological Sciences at the David Geffen School of Medicine at UCLA, has been selected for the 2009–2010 class of fellows in the Hedwig van Ameringen Executive Leadership in Academic Medicine Program for Women at Drexel University College of Medicine. Boechat is currently chair of the Board of Directors of the Society for Pediatric Radiology (SPR). She served as president of SPR in 2008 and the American Association for Women Radiologists in 2000.



**Maria Ines Boechat, M.D.**

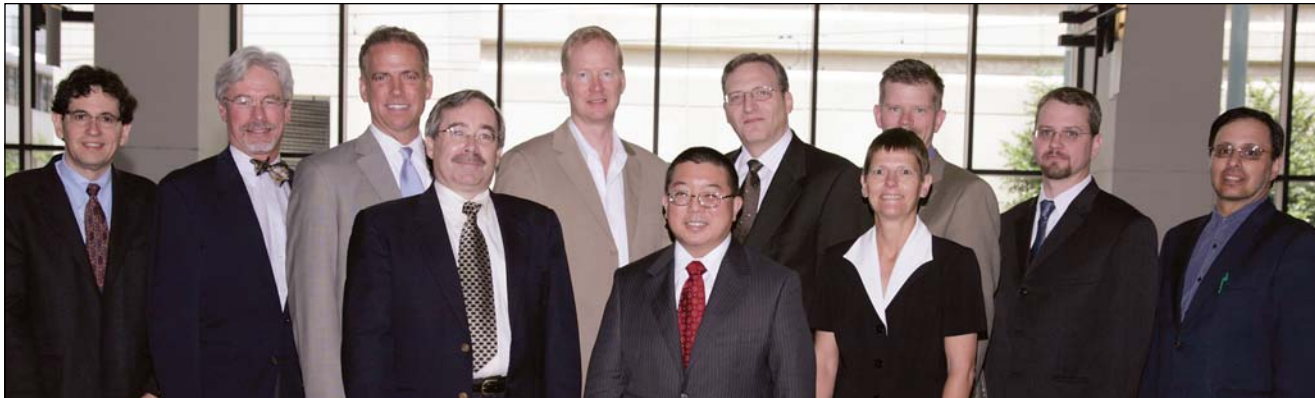
### Janower Receives Academic Achievement Award from APDR

**Murray L. Janower, M.D.**, received the Academic Achievement Award of the Association of Program Directors in Radiology at the annual meeting of the Association of University Radiologists.

Dr. Janower is a recognized authority in chest and gastrointestinal radiology, departmental administration and the socioeconomic of radiology. He is past-president of the American College of Radiology, the Association of Program Directors in Radiology and the New England Roentgen Ray Society and been awarded the highest honors from those organizations.



**Murray L. Janower, M.D.**



SIIM board members (left to right): Daniel L. Rubin, M.D., M.S., J. Raymond Geis, M.D., Keith J. Dreyer, D.O., Ph.D., Carter H. Yates, Bradley J. Erickson, M.D., Ph.D., Steven C. Horii, M.D., Charles E. Kahn, M.D., M.S., Elizabeth A. Krupinski, Ph.D., James T. Whitfill, M.D., Christopher D. Meenan and David L. Weiss, M.D.

### SIIM Elects Board Members

The Society for Imaging Informatics in Medicine (SIIM) elected new board members in conjunction with the society's annual meeting.

- Chair-elect: **Elizabeth A. Krupinski, Ph.D.**
- Treasurer: **Christopher D. Meenan**
- Directors-at-large: **Charles E. Kahn, M.D., M.S.**, and **James T. Whitfill, M.D.**

**Bradley J. Erickson, M.D., Ph.D.**, continues a two-year term as SIIM chair and **J. Raymond Geis, M.D.**, continues his term as secretary. Previously elected directors-at-large for 2009-2010 are **Scott Griffin, Daniel L. Rubin, M.D., M.S.**; **Eliot L. Siegel, M.D., David L. Weiss, M.D.**; and **Carter H. Yates**.

For more information visit [www.siiim.org](http://www.siiim.org).

### American Board of Radiology Names Trustees

The American Board of Radiology (ABR) has elected new trustees nominated by eight sponsoring radiologic and medical organizations including RSNA. Trustees participate in leadership and decision making to carry out the ABR mission and set standards for the board certification process in radiology and the 10-year cycles necessary to maintain certification.

New trustees are:

- **Donald P. Frush, M.D.**, a professor of radiology and pediatrics and chief of the Division of Pediatric Radiology at Duke University Medical Center in Durham, N.C.
- **Jeanne M. LaBerge, M.D.**, a professor of radiology for interventional radiology and fellowship

director in the Department of Radiology at the University of California in San Francisco.

- **Dennis C. Shrieve, M.D., Ph.D.**, chair of the Department of Radiation Oncology at the University of Utah School of Medicine in Salt Lake City and co-director of the Stereotactic Radiosurgery Program at the Huntsman Cancer Institute.
- **Robert D. Zimmerman, M.D.**, executive vice-chair and professor of radiology at Weill Cornell Medical College in New York and director of diagnostic imaging at New York Presbyterian Hospital.



Donald P. Frush, M.D.



Jeanne M. LaBerge, M.D.



Dennis C. Shrieve, M.D., Ph.D.



Robert D. Zimmerman, M.D.



Send news about yourself, a colleague or your department to [rsnanews@rsna.org](mailto:rsnanews@rsna.org), 1-630-571-7837 fax, or *RSNA News*, 820 Jorie Blvd., Oak Brook, IL 60523. Please include your full name and telephone number. You may also include a non-returnable color photo, 3x5 or larger, or electronic photo in high-resolution (300 dpi or higher) TIFF or JPEG format (not embedded in a document). *RSNA News* maintains the right to accept information for print based on membership status, newsworthiness and available print space.

### SCCT Bestows Young Investigator Awards

The Society of Cardiovascular Computed Tomography (SCCT) named **Chirapa Puntawangkoon, M.D.**, and **Thananya Boonyasirinant, M.D.**, recipients of the third annual young investigator awards at its annual scientific meeting.

Dr. Boonyasirinant, of the Cleveland Clinic, was awarded for her paper, "Comprehensive Multidetector Computed Tomographic Assessment for Noninvasive Coronary Sinus Imaging and Myocardial Infarction Correlation in Ischemic versus Non-ischemic Car-

diomyopathy: Implications for Cardiac Resynchronization Therapy."

Dr. Puntawangkoon, of the Wake Forest University School of Medicine in Winston-Salem, N.C., was awarded for her paper, "Elliptical Geometry of Left Ventricular Outflow Tract (LVOT) Results in Underestimation of LVOT Area by Echocardiography Compared to Planimetric Measurement by Cardiac Computed Tomography."

The award includes a \$2,500 cash prize, trophy and an opportunity for



**Chirapa Puntawangkoon, M.D.**



**Thananya Boonyasirinant, M.D.**

priority peer-reviewed publication in the *Journal of Cardiovascular Computed Tomography*.

### MY TURN

## Use or Abuse of CT in the ED? A Call for Action

**W**HEN I WAS a resident, CT was still in its infancy. To witness its spectacular development over the last three decades has been a journey of continuing amazement. Considered by many the most important single development in diagnostic imaging, CT has become the modality of choice for the initial evaluation of many common emergent conditions.

Beyond its widespread use in the assessment of traumatic and neurological emergencies, patients with suspected pulmonary embolism, acute aortic syndromes, renal colic, appendicitis and other acute abdominal conditions routinely receive an emergent CT examination.

Noteworthy is how the number of CT examinations performed in emergency department (ED) patients has climbed to alarming levels in recent years—this number has far exceeded the growth of ED patient volumes. Overutilization drives increasing healthcare costs and,

importantly, raises serious concerns about radiation exposure.

Our challenge as radiologists is to achieve optimal image quality without compromising patient safety. What is our level of engagement in preventing the significant shortcomings of overuse? We must become actively involved in designing and implementing safe, accurate and cost-effective imaging protocols.

Use of appropriateness criteria and clinical prediction rules in our ED practice is of paramount importance, while our contributions to evidence-based emergency imaging criteria are expected to optimize utilization. We must be familiar with dose reduction strategies and develop radiation risk assessment programs, particularly as this issue affects our youngest patient population.



**Diego B. Nunez M.D., M.P.H.**

We must help our referring physicians understand the risk of radiation and its cumulative effect and make these physicians sensitive to reviewing the prior imaging history of our patients. Ongoing educational campaigns in utilization and imaging alternatives should be established as part of our interdepartmental practice-based teaching sessions.

We must step up our involvement in the current cost sensitive and patient safety-driven healthcare environment.

*Diego B. Nunez M.D., M.P.H., is chair of radiology at the Hospital of Saint Raphael and a clinical professor of diagnostic radiology at the Yale University School of Medicine, both in New Haven, Conn. In a feature on Page 8, Dr. Nunez, who chairs the Emergency Radiology Subcommittee of the RSNA Scientific Program Committee and is an associate editor of Radiology, further discusses the concerns emergency radiologists face as CT technology improves and multi-trauma case volume increases.*

*My Turn*  
**ONE RADIOLOGIST'S VIEW**

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**RSNA** Education

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AMA PRA Category 1 Credit™)

# PET/CT Predicts Early Response to Chemotherapy

**W**AITING TO SEE whether the first round of chemotherapy has proven effective can seem endless for patients battling deadly cancer.

That wait time might be shortened for patients with soft-tissue sarcomas thanks to new research, from the Jonsson Comprehensive Cancer Center at the University of California, Los Angeles (UCLA), demonstrating that PET/CT can be used as early as one week after a single treatment cycle to determine whether the drugs are killing the cancer. Researchers made another surprising discovery—some tumors that actually grew in size responded favorably to chemotherapy.

The study, published in the April 2009 issue of *Clinical Cancer Research*, was conducted over a two-year period on 50 patients diagnosed with soft-tissue sarcomas. Patients received neoadjuvant chemotherapy to shrink tumors before surgery, according to Fritz C. Eilber, M.D., an assistant professor of surgical oncology who directs the Sarcoma Program at UCLA and senior author of the study.

The team used fluorodeoxyglucose (FDG) PET/CT scans to evaluate changes in the metabolism of glucose within the tumor compared with standardized uptake values. Cancer cells typically take up large amounts of FDG—a process that can be quantified on PET scans. A 35 percent reduction in the tumor’s metabolic activity indicated a positive effect of chemotherapy on the cancer.

“It wasn’t known how early the effect of the treatment would become



**Fritz C. Eilber, M.D.**  
University of California, Los Angeles



**Steven M. Larson, M.D.**  
Memorial Sloan-Kettering Cancer Center

evident, and there was a good chance that we wouldn’t be able to tell for a while if it was working or not,” said Dr. Eilber. “The thing that surprised us was that within just one cycle you could determine the effect of the treatment, and about half the patients weren’t

*The thing that surprised us was that, within just one cycle, you could really determine the effect of the treatment and about half the patients weren’t responding.*

**Fritz C. Eilber, M.D.**

responding.”  
The drugs are working, the better off you are,” said Dr. Eilber. “You can switch to a better drug or go to surgery because these are operable tumors.”

### Study Results Very Encouraging

These results are particularly significant because patients don’t typically undergo a PET/CT scan until they

are three months into chemotherapy, said Steven M. Larson, M.D., chief of the nuclear medicine service and the Donna and Benjamin M. Rosen Chair of Radiology at Memorial Sloan-Kettering Cancer Center in New York.

“It’s an intriguing result and we look forward to seeing it validated in a larger series,” said Dr. Larson. “Sarcoma is a very difficult disease to treat. Treatments have variable response, so if you can pick out a patient for whom a treatment is likely to work, it would be an important advancement. It’s very encouraging.”

### Tumor Size May Not Indicate Treatment Efficacy

While reviewing images from the study, Dr. Eilber and the UCLA team made an observation they consider critical to metabolic responses in tumors—some tumors that responded to chemotherapy actually grew in size despite a decrease in FDG uptake.

That finding runs counter to current thinking that only tumors that shrink



are considered to be responsive, said Dr. Eilber.

“The other surprise was that the tumor size on CT had no prognostic value at that early time,” he said. “For example, let’s say I do not remove one of the tumors and then I put the patient on a trial drug. Whether a patient is responding or not, and can continue the drug, depends on the tumor size. A lot of people who are actually responding to the drug would get taken off of treatment because they’re not showing response by size criteria.

“In my opinion, they’re missing a lot of responding patients by just using size as the standard,” said Dr. Eilber. “If the tumor shrinks, that’s usually an indication of response. Just because it doesn’t shrink doesn’t mean the tumor is not responsive. What PET allows you to do is accurately identify those patients who are truly responding.”

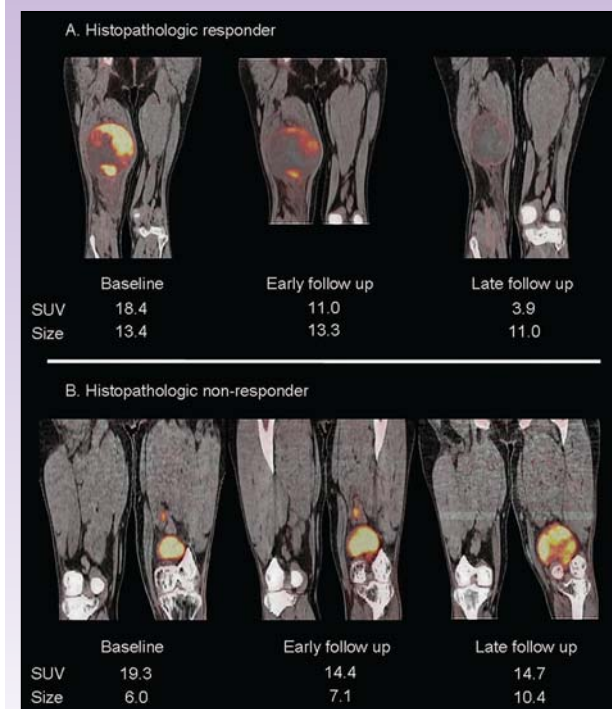
Dr. Eilber said the protocol could easily be used at cancer centers worldwide due to the availability of PET/CT and through the use of commonly measured FDG uptake values.

Dr. Larson agreed. “There were about two million PET scans performed in the U.S. last year and that number is growing by 15 to 20 percent each year,” he said. “That availability makes it likely that someone could have a PET scan anywhere in the country.

“FDG is our most standard tracer,” he continued. “There are now radio-pharmacies throughout the country that provide distribution. We’re talking about widespread use of this nuclear medical tool having a big impact on clinical care. People will begin to implement it on a wider scale.”

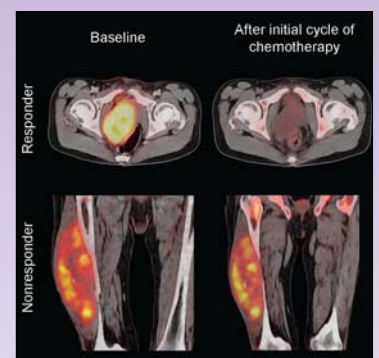
### Patients Gain New Tool in Cancer Battle

Both physicians said it will be important to see reports on long-term outcomes for this patient cohort and to study larger patient groups as well. For now, Dr. Larson said this protocol could provide patients with another tool in their battle to preserve quality of life while fighting a potentially deadly disease.



Baseline, early and late follow-up (FDG) PET/CT in a histopathologic responder (A) and a non-responder (B).

Images courtesy of University of California, Los Angeles.



### ON THE COVER

New research has demonstrated that (FDG) PET/CT can be used as early as one week after a single treatment cycle of chemotherapy to determine whether the drugs are killing the cancer. Above: Baseline and early FDG-PET/CT in a histopathological responder and a non-responder.

“The issue here is the timeliness of response,” said Dr. Larson. “Within a week or two, a physician can make a decision about a patient who does not need to be treated further with expensive drugs that have side effects. The patient can potentially seek alternative treatments which may be effective.”

That is a considerable advantage in today’s increasingly demanding health-care environment, said Dr. Eilber.

“The idea of waiting to see if a treatment works just isn’t good enough for patients these days,” he said.

“They’re trying all kinds of things ... molecular assays on tumors, dumping chemotherapy directly on tumor cells to see whether it kills them or not. They

want to know outcomes fast. Not only does this method accomplish that, it’s noninvasive.” □

### Learn More

■ To view an abstract of the study, “FDG-PET/CT Imaging Predicts Histopathologic Treatment Responses after the Initial Cycle of Neoadjuvant Chemotherapy in High-Grade Soft-Tissue Sarcomas,” published in the April 2009 issue of *Clinical Cancer Research*, go to <http://clincancerres.aacrjournals.org/cgi/content/abstract/15/8/2856>.

## PET/CT Sessions at RSNA 2009

The multisession course, “Case-based Review of Nuclear Medicine: PET/CT,” will be held in conjunction with SNM on Thursday, Dec. 3 at RSNA 2009. The PET/CT sessions and their presenters are:

- Head and Neck Cancers, Michael M. Graham, M.D., Ph.D.
- Cancers of the Thorax, George M. Segall, M.D.
- Cancers of the Abdomen and Pelvis, Dominique Delbeke, M.D., Ph.D.
- Sarcoma/Melanoma/Lymphoma, Eric M. Rohren, M.D., Ph.D.



# EHRs Help Track Cumulative Radiation Dose

**D**ESPITE growing concern over CT-related radiation exposure, measuring risks of cumulative exposure from CT imaging in a standardized or formal way is not part of routine practice for most ordering physicians—something that could change with more widespread use of electronic health records (EHRs).

The need for a risk stratification method is becoming increasingly important in light of new research that shows that frequent or recurring CT use correlates with a heightened risk of developing cancer from cumulative radiation exposure, according to Richard T. Griffey, M.D., M.P.H., an assistant professor in the division of emergency medicine at Barnes-Jewish Hospital at Washington University School of Medicine in St. Louis.

“The number of CT scans is skyrocketing and the risk side of the risk-benefit equation needs more attention,” said Dr. Griffey. “This is certainly true in the emergency department, where physicians often don’t have the time or ability to scroll back and retrieve this element of a patient’s history. Ideally, physicians could be informed at the point of ordering a CT whether a patient is at heightened risk of developing cancer from cumulative radiation exposure.”

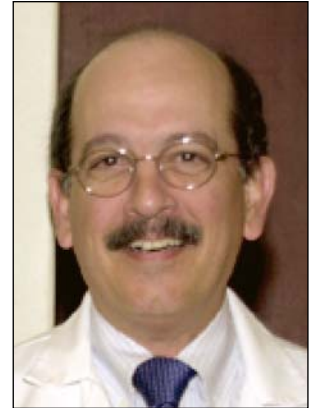
Dr. Griffey and Aaron D. Sodickson, M.D., Ph.D., assistant director of emergency radiology at Brigham and Women’s Hospital (BWH) and Harvard Medical School in Boston, co-authored a study in the April 2009 issue of the *American Journal of Roentgenology* showing that a small cohort



**Richard T. Griffey, M.D., M.P.H.**  
Washington University School of Medicine



**Aaron D. Sodickson, M.D., Ph.D.**  
Brigham and Women’s Hospital and Harvard Medical School



**Diego B. Nunez Jr., M.D., M.P.H.**  
Hospital of Saint Raphael

of emergency patients undergoing CT accrued large cumulative radiation doses from frequent or recurring CT.

In the April 2009 issue of *Radiology*, a larger study by Dr. Sodickson and collaborators at the BWH Center for Evidence Based Imaging (CEBI) used automated methods to study cumulative CT exposures and estimated risks for more than 31,000 patients undergoing CT at BWH. They estimated that historical CT exposures are expected to produce 0.7 percent of the total expected baseline cancer incidence and 1 percent of the total cancer mortality. In particular, frequently scanned

patients accrue large cumulative radiation doses and substantially increased levels of risk, the study showed.

Radiation dose is on the agenda for the RSNA 2009 Emergency Series: Managing Your Emergency. (See sidebar, Page 9).

*Ideally, physicians could be informed at the point of ordering a CT whether a patient is at heightened risk of developing cancer from cumulative radiation exposure.*

**Richard T. Griffey, M.D., M.P.H.**

Co-moderator Diego B. Nunez Jr., M.D., M.P.H., chair of the Department of Radiology at the Hospital of Saint Raphael in New Haven, Conn., and an associate editor of *Radiology*, said advancements in CT technology—combined with media attention and the sheer volume of multi-trauma and other CT cases handled by EDs each day—have put radiation exposure at the forefront of issues facing emergency radiologists.

“In the past 15 years, we’ve gone from a single detector to a 64-channel multidetector row, which has increased our ability to scan faster and cover greater portions of the body,” said Dr. Nunez. “While this capability has increased our reliance on CT, it has also created concerns about radiation exposure and overutilization, especially in the emergency department.”

## Study Gauges Radiation Risk

Drs. Griffey and Sodickson identified all patients over a one-year period, who made at least three visits to the BWH ED, in which they underwent a CT scan

of the neck, chest, abdomen or pelvis. For those 130 patients, Drs. Griffey and Sodickson then identified all diagnostic CT studies performed at any site in the hospital over the previous 7.7-year period. Of the 1,744 CT studies captured, 55 percent were performed in the ED.

To estimate cumulative radiation dose, each patient's cumulative CT effective dose was converted to lifetime attributable risk using the standardized Biologic Effects of Ionizing Radiation (BEIR VII) dose-to-risk conversion factor of one cancer per 1,000 patients receiving a 10-mSv effective dose. Results showed that over half of the group had accrued estimated radiation-induced cancer risks above baseline of greater than 1 in 110, up to a maximum of 1 in 17.

### Technology Can Address Issue

Overcoming the technological hurdles to routinely perform individualized radiation risk assessment could take years or even decades. But health-care systems can begin by adopting the EHRs needed to track a patient's examination and radiation dose history within their own facility or network.

At BWH, the informatics team at CEBI is using EHRs to develop an automated decision support tool that will provide real-time point-of-care

radiation risk assessments to ordering providers.

"Ideally, physician orders for CT would first query a universal database indicating whether the patient is in a high-risk category for radiation exposure," said Dr. Griffey. "If so, the computer decision support tool could suggest an alternative modality such as ultrasound or MR imaging, or it might facilitate real-time consultation with a radiologist about the best imaging strategy. Right now this is not something that is often done or even thought about in any systematic fashion."

In fact, a recent study presented at the American Roentgen Ray Society annual meeting found that the majority of ordering physicians have limited knowledge of CT-related radiation exposure and its associated risks.

In an anonymous, Internet-based survey of ordering physicians at a regional tertiary care teaching hospital, lead author Jeremy McBride, M.D., from the Carilion Clinic in Roanoke, Va., and colleagues, asked respondents to rate the influence of certain factors when ordering CT scans. While 100 percent of respondents rated the ability of CT to rule in/out a diagnosis as influential, concern over radiation exposure was an influential factor for 22 percent and cumulative radiation exposure for 19 percent. When asked

to identify the equivalent radiation exposure a CT scan represents in plain radiographs, 64 percent of respondents underestimated the dose, according to the survey.

That awareness level will increase among physicians as the spotlight on radiation risks begins to impact routine medical practice, said Dr. Griffey.

Dr. Nunez agreed that physicians who frequently turn to CT as their only imaging option will need to be educated on attendant radiation risks as well as the potential for other imaging modalities.

"It becomes more critical to use clinical predictors to determine the likelihood of a patient having a given disease, and not always rely on CT as the first option," he said. "We need to educate the ED physicians on potential issues with radiation and the development of appropriate imaging methods." □

### Learn More

■ An abstract of the study, "Cumulative Radiation Exposure and Cancer Risk Estimates in Emergency Department Patients Undergoing Repeat or Multiple CT," is available at [www.ajronline.org/cgi/content/abstract/192/4/887](http://www.ajronline.org/cgi/content/abstract/192/4/887).

The study, "Recurrent CT, Cumulative Radiation Exposure and Associated Radiation-Induced Cancer Risks from CT of Adults," is at [Radiology.RSNA.org/content/251/1/175.abstract](http://Radiology.RSNA.org/content/251/1/175.abstract).

## Teleradiology, ED Practice Models Part of RSNA 2009 Emergency Series

ORIGINALLY intended to provide preliminary interpretations to guide patient care overnight—primarily in emergency departments (ED)—teleradiology is expanding to provide final readings that are not re-interpreted the next day by the radiologist at the ordering facility.

While saving time and money, that method is not without drawbacks, according to Aaron D. Sodickson, M.D., Ph.D., an assistant director of emergency

radiology at Brigham and Women's Hospital and Harvard Medical School in Boston.

"One of the biggest concerns it that the teleradiology service doing a final reading should have access to prior imaging," said Dr. Sodickson. "If you find an abnormality, you need to know if it's new or pre-existing."

Teleradiology readings will be covered during Dr. Sodickson's presentation, "Emergency Radi-



ology Practice Models and Teleradiology," on Tuesday, Dec. 1, at RSNA 2009.

His section on ED practice models will explore different models for setting up ED radiology practices.

The multisession course, Emergency Series: Managing Your Emergency, also includes "Imaging Utilization in the Emergency Center," by Stephen R. Baker, M.D., and "Radiation

Reduction Strategies in Children and Young Adults," by Carlos J. Sivit, M.D. Co-moderators are Diego B. Nunez Jr., M.D., M.P.H., and O. Clark West, M.D. Scientific papers will be presented between lectures.

Enrollment for this and all RSNA 2009 courses is under way. For more information, go to [RSNA2009.RSNA.org](http://RSNA2009.RSNA.org).

# RSNA 2009 Spotlights Integrated Healthcare Technology

**T**HROUGH ITS technology development and partnerships with the federal government, RSNA has a principal role in setting universal operability standards for medical imaging—just as the government launches its \$20 billion initiative to expand health information technology (HIT) and achieve a nationwide electronic health record (EHR).

RSNA is formally involved in the White House-directed process for achieving a nationwide EHR, which is governed by the Office of the National Coordinator for Health Information Technology (ONCHIT). RSNA sits on ONCHIT's certification commission as an invited representative and is also working to incorporate medical imaging into EHRs and include image exchange as a routine part of patient cares.

"In this country we have a fractionated healthcare system and a lot of independent players," said David E. Avrin, M.D., Ph.D., chair of the RSNA Radiology Informatics Committee. "We're proposing a much better way of making imaging studies available across enterprise boundaries, and we're putting the control and authorization in the hands of the patient."

To that end, RSNA recently was asked by the National Institute of Biomedical Imaging and Bioengineering (NIBIB) to submit a proposal that, if approved, would eliminate the need to provide patients with images on CD—the most common method for image exchange.

## Document Sharing Focus at RSNA 2009 IHE® Demonstration

Some of the latest technological developments can be viewed in real time at the Integrating the Healthcare Enterprise (IHE®) Image Sharing Demonstration at RSNA 2009.

IHE is a global initiative by healthcare providers and industry to improve interoperability and information exchange. IHE develops standards-based interoperability specifications called IHE profiles and conducts annual testing events called Connectathons for systems that implement those specifications in North America, Europe and several countries in Asia. Comprising more than 250 member organizations around the world, IHE is sponsored by RSNA, the Health-



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



**Paul J. Chang, M.D.**  
University of Chicago School of Medicine

*We're proposing a much better way of making imaging studies available across enterprise boundaries, and we're putting the control and authorization in the hands of the patient.*

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

care Information and Management Systems Society (HIMSS) and several other health professional organizations.

Past RSNA annual meeting demonstrations have helped accelerate adoption of DICOM standards for medical imaging and IHE profiles that improve workflow and systems interoperability in radiology.

"You have users working with industry, staff and vendors on these integration profiles," said Paul J. Chang, M.D., a professor and vice-chair of radiology informatics and medical director

of pathology informatics at the University of Chicago School of Medicine and consultant to RSNA's RadSCOPE® and myRSNA® initiatives. "Even though it sounds like nerdy stuff, users also have to be involved. That's the only way they're going to get an infrastructure that works for their needs."

At the heart of this year's demonstration is IHE's Cross-Enterprise Document Sharing (XDS-I) profile, which defines a method for sharing medical information across sites and potentially makes the information available to patients.

XDS and XDS-I, a related profile supporting exchange of medical images, are used by national EHR programs in Canada and several European countries and have been adopted by the federally supported Health Information Technology Standards Panel (HITSP) in the U.S. HITSP has published standards-based interoperability specifications that will likely be the basis for testing and certification of HIT systems that qualify for federal incentives under the Health Information Technology for Economic and Clinical Health (HITECH) Act.

Making images and reports acces-

sible to patients and care providers will help address issues such as redundant studies and excessive patient radiation exposure and eliminate inefficiencies encountered by providing patients images on CD.

### 'CD Over the Wire' Part of Pilot

In response to an NIBIB request for proposals, RSNA proposed a pilot to develop a multisite image sharing network. "We were asked to make a proposal," Dr. Avrin explained. "This is not a grant; it's a contract for services where RSNA and five leading institutions that have expertise in this area to demonstrate a prototype of basically 'CD over the wire' with authentication."

If approved, the network would implement IHE architecture—XDS with complementary profiles for security and patient ID management—to ensure that data are transmitted securely across the Internet with the patients' permission, Dr. Avrin said. Linking this infrastructure to patient-controlled personal health record systems (PHRs) presents significant challenges. "We're trying to put the patient at the center of the authorization process, and in some ways the security is actually more complicated than the transfer," he said. "We're working on a process that meets Health Insurance Portability and Accountability Act (HIPAA) requirements and the expectations of the public."

The network would provide a seamless process in which patients authorize the release of specific healthcare information in much the same way as at a medical records desk. "But this is a Web transaction," Dr. Avrin said. "It's as secure as a credit card, or more secure." Through their PHRs, patients will have persistent access to their full medical record.

Including the patient in the process was critical considering the exploding use of the Internet and the growing patient demand for healthcare involvement, according to David Mendelson, M.D., a member of the RSNA Radiology Informatics Committee and co-chair of IHE International. While IHE

was building the technical infrastructure to transmit images on the Internet, he said, consumers were learning to manage their bank accounts, finances and shopping on the same network.

"We recognized that we should now combine IHE technical solutions for image sharing with the consumer's ability to manage their personal information on the Internet," said Dr. Mendelson, of Mount Sinai Medical Center in New York. "It is our hope that a large-scale pilot will bring this into the mainstream in short order."

### Interoperability Means Better Patient Care

Data sharing is especially valuable in situations demanding time-critical reports, interdisciplinary collaboration and follow-up of incidental findings, said Dr. Chang, who will present the "Critical Test Results and Electronic Health Records: A Practical Framework" section of an RSNA 2009 Informatics in Practice refresher course (See sidebar).

In addition to accelerating report turnaround, IT can create a virtual forum for real-time collaboration, as is done in person by tumor boards planning treatment for patients with cancer, Dr. Chang said. "I believe the tumor board is our shining moment in medicine," he said. "With informatics we have the potential to do that for everybody."

Additionally, said Dr. Chang,

informatics can help assuage an all-too-common problem in the clinical setting: "The patient comes in for trauma, and fortunately doesn't have anything significant, but I see a subcentimeter indeterminate lung nodule," he said. "My report will say the nodule should be followed up in six months. Guess what? No one follows it up. Is it the ED doc's fault? No—she's only focused on the acute trauma. The primary physician never gets the report. Where was the failure? It's a failure of informatics."

Informatics could remedy the discrepancy through an integration profile that alerts physicians at six months to the patient's follow-up status, Dr. Chang said.

### Collaboration Urged

While Drs. Avrin and Chang agree the movement towards expanding HIT and adopting a nationwide EHR is slow going, they both urge collaboration among developers, legislators, vendors and users in the meantime.

"We can't just view these information systems as appliances we live with," said Dr. Chang. "We're the ones who understand the workflow, so we need to help guide the vendor community to define and optimize it. In order for us to add value and be relevant in patient care, we have to be collaborators. We have to fully embrace these tools." □

## Informatics at RSNA 2009

THE interoperability movement will be the focus of informatics courses at RSNA 2009:

- The Special Focus Session, "The Use of Medical Imaging Data Distribution Standards to Improve Patient Care and Safety," will be held from 3 to 4 p.m., Thursday, Dec. 3. The moderator is Steven Falcone, M.D.
- The "Communicating Results (Informatics in Practice)" refresher course (RC126) will be offered in association with the Society for Imaging Informatics in Medicine. Sessions include:
  - Communication of Critical Test Results and the National Patient Safety Goals: What You Need to Do, presented by Ramin Khorasani, M.D.
  - IT Toolkit for Optimizing Communication: What You Need to Know, presented by Nabile M. Safdar, M.D.
  - Critical Test Results and Electronic Health Records: A Practical Framework, presented by Paul J. Chang, M.D.

Registration for RSNA 2009 continues at [RSNA.org/register](http://RSNA.org/register).



# Radiologists Must Take Care of Their Vision, Study Shows

**N**EW RESEARCH is raising awareness about the visual accuracy of radiologists as well as questions about the need to create vision requirements within the specialty.

Research from the University of Maryland School of Medicine (UMSM) in Baltimore shows that 16.7 percent of the radiologists surveyed don't recall ever having their vision tested and 35 percent said it had been 24 months or longer since their last vision exam. The study was published in the June 2009 issue of the *American Journal of Roentgenology*.

Considering that good vision is critical to a radiologist's ability to make accurate interpretations, the results proved somewhat surprising to lead author Nabile Safdar, M.D., an assistant professor in the Department of Diagnostic Radiology and nuclear medicine at UMSM.

"Most radiologists have 20/20 vision or better, which we expected, but we didn't expect to see such variability in terms of how radiologists are taking care of their own vision," he said. "While so much attention and research has been dedicated to imaging technology, we hadn't looked at whether or not the radiologist can actually see the fine level of detail that is being shown, which is important because physicians and patients depend on the ability of radiologists to accurately discriminate findings."

*Most radiologists have 20/20 vision or better, which we expected, but we didn't expect to find such variables in terms of how radiologists are taking care of their own vision.*

**Nabile Safdar, M.D.**



**Nabile Safdar, M.D.**  
University of Maryland School of Medicine

## Visual Acuity Tested

In the study conducted in 2005 and 2006, 48 radiologists from four institutions completed a brief survey before undergoing visual acuity testing at three separate times during the day. Subjects wore corrective lenses if routinely used. Testing was performed with modified versions of a U.S. Federal Aviation Administration visual acuity test instrument.

"We wanted there to be reliability to the vision test and also to see if their vision changed due to eye strain, stress, et cetera," Dr. Safdar said.

Results showed that eight of the 48 participating radiologists could not recall ever having their vision examined and 14 of the participants reported that their last eye examinations were 24 months or more in the past.



**Elizabeth Krupinski, Ph.D.**  
University of Arizona

Results also showed a statistically significant difference between a radiologist's visual acuity in the morning versus other parts of the day, though the difference was relatively modest and within previously published ranges of variability for similar visual acuity tests.

The study also found that not every radiologist had 20/20 vision, a few needed visual correction, and more than a few had not undergone a thorough eye examination in as long as 15 years.

## Vision Guidelines for Radiology Needed?

While the study's goal was not to determine whether results affected patient outcomes, Dr. Safdar said it is reasonable to think they could.

"There are instances when the smallest detail might make a difference depending on what the radiologist is reading," he said. "With technology like PACS, radiologists have the ability to enlarge or enhance the image, so even those with less than perfect vision can do a fine job, but if they don't

know their vision is not up to par, they might not think about it.”

For that reason Dr. Safdar said he believes it makes sense for the radiology community to raise awareness of the importance of their own visual health.

“Although the variation we found in visual acuity among radiologists is unlikely to have an influence on clinical diagnostic performance, I think it would be reasonable to discuss whether radiologists should undergo a baseline level of visual maintenance since that is so critical to their work,” he said. “That said, it would be important to find out if this actually does make a difference in outcomes before any kind of firm regulations or guidelines were entertained.”

At least one radiologist who is not in favor of creating guidelines said he believes the study should be taken with a grain of salt.

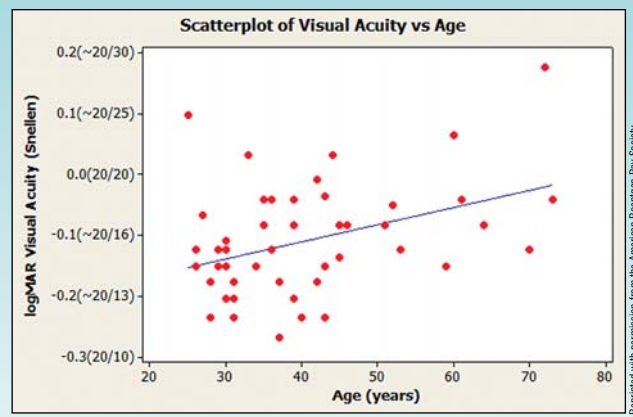
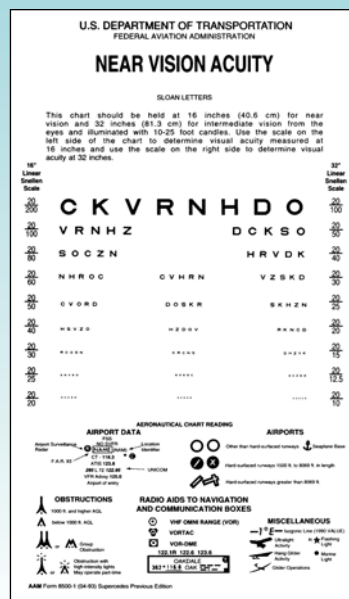
“There is absolutely no study that says a radiologist’s vision has to be 20/20 in order to render accurate interpretations,” according to Leonard Berlin, M.D., vice-chair of the Department of Radiology at NorthShore University HealthSystem, Skokie Hospital in Skokie, Ill., and chair of the RSNA Professionalism Committee.

“I admit it would be difficult for a blind radiologist to do an adequate job, but various limited impairments of a radiologist’s eyes do not necessarily make him or her inadequate as a radiologist,” said Dr. Berlin.

### New Study Targets Reader Fatigue

In another study currently under way, Elizabeth Krupinski, Ph.D., a professor of radiology at the University of Arizona in Tucson and president-elect of the Society for Imaging Informatics in Medicine, and Kevin Berbaum, Ph.D., a professor of radiology at the University of Iowa in Iowa City, are examining the impact of visual fatigue on diagnostic accuracy.

Researchers are acquiring an objective measure of fatigue by using a refractometer to record visual accom-



New research showing that 16.7 percent of the 48 radiologists surveyed don't recall ever having their vision tested used a modified version of a U.S. Federal Aviation Administration visual acuity test instrument (left). A scatterplot (above) shows the correlation between age and logarithm of minimum angle of resolution (logMAR) visual acuity.

modation (the ability to maintain focus) before and after a day of reading images. Drs. Krupinski and Berbaum are also surveying radiologists on fatigue in the workplace. To measure diagnostic accuracy, subjects are reading a set of 60 bone cases—with and without fractures—once early in the day and once after spending time reading images.

“The results have not yet been published, but I can say that we have demonstrated there is more fatigue toward the end of the day and diagnostic accuracy is impacted negatively, so radiologists should be more careful and maybe take a bit longer to look at things during that time period,” she said.

Dr. Krupinski said she believes the results of her study of 40 radiologists and Dr. Safdar’s study of 48 subjects will be mirrored in a larger group of radiologists. She said she does not, however, feel the outcome of these studies should lead to regulation.

“I don’t really think so—I can’t think of a medical discipline that requires that,” Dr. Krupinski said. “I just think radiologists should be aware of their vision and we are hoping this study helps with that.”

### Learn More

To view an abstract of the study, “Vision and Quality in the Digital Imaging Environment: How Much Does the Visual Acuity of Radiologists Vary at an Intermediate Distance?” published in the June 2009 issue of the *American Journal of Roentgenology*, go to [www.ajronline.org/cgi/content/abstract/192/6/W335](http://www.ajronline.org/cgi/content/abstract/192/6/W335).

## Professional Issues at RSNA 2009

A HOST OF professional issues facing radiologists will be addressed in, “When the Doctor is the Problem: Dealing with the Disruptive or Impaired Physician,” refresher course (RC316)



at RSNA 2009. Courses featured during the Interactive Session, sponsored by the RSNA Professionalism Committee, and presenters are:

- The Physician with Behavioral Problems: Carol M. Rumack, M.D., and Alan C. Hartford, M.D., Ph.D.
- The Physician with a Substance Abuse Problem: John P. Livoni, M.D., and Leonard Berlin, M.D.
- The Physician with a Mental or Physical Illness: Stephen D. Brown, M.D., Marilyn J. Goske, M.D., and Craig M. Johnson, D.O.
- The Aging Physician: Richard B. Gunderman, M.D., Ph.D., and Donald M. Bachman, M.D.

Registration for RSNA 2009 continues at [RSNA.org/register](http://RSNA.org/register).

# Novel Myocardial Tagging Technique Stems from RSNA Grant

**C**ARDIAC IMAGING took a major step forward when Elliot R. McVeigh, M.D., Ph.D., used a \$90,000 RSNA GE Medical Systems/RSNA Research Scholar Grant that enabled a groundbreaking, two-year study of myocardial tissue tagging — the first noninvasive method of measuring strain in the myocardium.

The full impact of this novel imaging technique will come into focus as more cardiac patients are referred to MR imaging. Dr. McVeigh developed the imaging technique for obtaining high-resolution estimates of strain as a function of position in the myocardium. The method involves placement of a “tag” in a thin slice of myocardium using a spatially selective radiofrequency (RF) pulse that is perpendicular to the imaging plane. The motion is then tracked.

“The primary goal of the study was to show that we could measure myocardial function at different depths within the heart wall and get endocardial versus epicardial function,” said Dr. McVeigh, Massey Professor and Director of the Department of Biomedical Engineering at The Johns Hopkins University School of Medicine since 2007. “It was a big step forward.”

The 1990 study, “High Resolution MRI of Myocardial Deformation,” allowed identification of myocardial deformation in previously inaccessible areas of the heart and was the springboard for an additional 15 years of National Institutes of Health (NIH)-funded research on myocardial tagging—now the gold standard for measuring cardiac function.

“Unfortunately, the analysis is so

time intensive that it has not been adopted in clinical practice,” Dr. McVeigh said. “But most studies that test new methods for studying myocardial function, such as echocardiography techniques using speckle tracking, will use myocardial tagging as the ‘gold standard.’”

“Right now, one of the primary applications for the technique is examining the asynchronous myocardial function in patients with heart failure and determining who is likely to respond to cardiac resynchronization therapy,” said Dr. McVeigh.

## RSNA Grant Launches Career, Funding

The RSNA Research and Education (R&E) grant served as the stepping stone for Dr. McVeigh’s subsequent research, which totals more than \$20 million in individual funding and approximately the same amount as

*“It was a big deal to get that RSNA grant.*

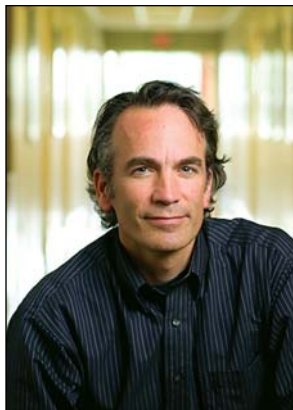
*It essentially secured my position at Johns Hopkins at the time.”*

**Elliot R. McVeigh, M.D., Ph.D.**

a co-investigator. It also helped launch his research career at The Johns Hopkins University School of Medicine in 1988.

“It was a big deal to get that RSNA grant,” he said. “It essentially secured my position at Johns Hopkins at the time. I had just earned my Ph.D., and it gave me the confidence to communicate the importance of my research to reviewers.”

Although Dr. McVeigh originally planned to spend only one year at



**Elliot R. McVeigh, M.D., Ph.D.**  
The Johns Hopkins University  
School of Medicine



**Elias A. Zerhouni, M.D.**  
Former NIH Director

Johns Hopkins, he ended up staying a decade, starting as an instructor and assistant professor in the Department of Radiology and later becoming an assistant professor in the Department of Biomedical Engineering. In 1999, he moved to NIH, where he served as a principal investigator for the National Heart, Lung and Blood Institute until returning to Johns Hopkins in 2007.

Major highlights of his years of research include working with former NIH Director and world-renowned radiology researcher Elias A. Zerhouni, M.D., to develop a research program in cardiac MR imaging. He also founded and ran the Medical Imaging Laboratory at Johns Hopkins, a joint effort of the Biomedical Engineering and Radiology Departments, until he joined NIH in 1999.

Also at NIH, Dr. McVeigh helped develop several new MR imaging techniques including methods for performing interventions under MR guidance.

“When you’re a principal investigator at NIH, your main job is to do research and publish,” said Dr. McVeigh. “It’s an absolutely wonderful



environment. It's like nirvana."

### Research Continues in Surgical Planning, Mitral Valve Repair

Today Dr. McVeigh continues to juggle research and administrative duties.

"Research and new technological innovations in imaging are what I do when I'm not being chairman of my department," he said. "I don't have as much time, but I enjoy working with younger faculty and still have graduate students. I do investigative work in interventional MR, developing techniques for surgical planning and mitral valve repair, as well as guiding bronchoscopic biopsies of cancer and helping develop techniques for making high-resolution MR from data which has motion compensation techniques applied to it," Dr. McVeigh continued. "I'm still doing a lot of research."

### Zerhouni Influences Career

Looking back, Dr. McVeigh feels fortunate to have spent the bulk of his career at Johns Hopkins and credits Dr. Zerhouni, who initially hired him, as being highly influential in setting him on that course. This year, Dr. Zerhouni, who spent much of his career as a professor and chairman in the Department of Radiology at Johns Hopkins, returned as senior advisor.

"Johns Hopkins is an extraordinary environment for a young person start-

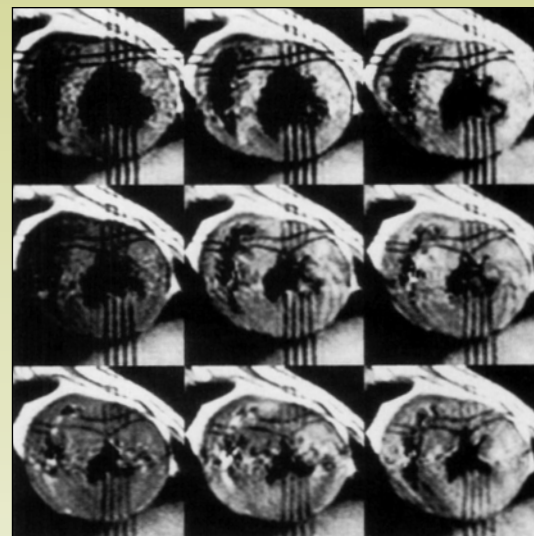
ing a research career because you have so many very experienced, generous scientists who help you launch your career," Dr. McVeigh said. "Dr. Zerhouni was one of those people. He was like my big brother in a way. He introduced me to so many good people and encouraged me to interact with them."

Dr. Zerhouni recalled his first impressions of meeting Dr. McVeigh.

"Elliot, a freshly minted Ph.D., from Toronto, was the first colleague I had in building the MR imaging research division at Hopkins," said Dr. Zerhouni. "I could not have asked for a better scientific colleague and life-long friend. Elliot brought the rigor of the physical sciences to radiology research at Hopkins and was the key to the creation of the imaging program in biomedical engineering—all with an unparalleled grace and generosity. He proved the power of interdisciplinary collaboration, and my own research would not have been possible without him."

As a Canadian, Dr. McVeigh is particularly thankful the grant was not restricted to U.S. citizens.

"The fact that it was available to someone living in the U.S. on a work visa made it possible to capture that talent and bring it to the U.S.," he said. "Which is what we want to do, right? We want to be able to work with the best minds from around the world."



In his 1991 research paper, "Noninvasive Measurement of Transmural Gradients in Myocardial Strain with MR Imaging," published in the September issue of *Radiology*, Elliot R. McVeigh, M.D., Ph.D., and co-author Elias A. Zerhouni, M.D., presented a method for performing high-resolution strain measurements by using MR tagging. In vivo data produced with the multispectral radio-frequency pulse tagging sequence. Nine time points (25, 55, 85, 115, 145, 175, 205, 235, 265 msec) were measured through the systolic interval in the normal dog. ( $t = 0$  was at the initial upstroke of the R wave in the QRS complex.) The voxel dimensions were  $0.6 \times 1.2 \times 5.0$  mm, collected with a  $256 \times 128$  matrix and four signals averaged. The phase-encoding direction was horizontal in these images. The total imaging time was 46 minutes. The tags were separated by 4.0 mm. To view the study, go [Radiology.RSNA.org/content/180/3/677.full.pdf+html](http://Radiology.RSNA.org/content/180/3/677.full.pdf+html)

"Awards like the RSNA grant are absolutely essential for launching the careers of young people," said Dr. McVeigh. □

#### NAME:

Elliot R. McVeigh, M.D., Ph.D.

#### GRANT RECEIVED:

1990 RSNA GE Medical Systems/RSNA Research Scholar Grant, \$90,000

#### STUDY:

"High Resolution MRI of Myocardial Deformation"

#### CAREER IMPACT

Dr. McVeigh said the RSNA R&E grant essentially secured his position as an instructor in the Department of Radiology at the Johns Hopkins University School of Medicine and served as a springboard to 15 years of NIH-funded research on myocardial tissue tagging, as well as other research. Since his 1990 RSNA grant, Dr. McVeigh has received \$20 million in funding as the principal investigator and approximately the same amount as a co-investigator.

#### CLINICAL IMPLICATIONS

Dr. McVeigh's research on myocardial tissue tagging helped establish the method for analyzing the deformation of localized regions of contracting myocardium as the gold standard for cardiac imaging. Although the method is not currently used in clinical practice, Dr. McVeigh said the technique will have a greater impact on healthcare when analysis becomes automated and more cardiac patients are referred to MR imaging.



## Grants in Action

For more information on all Foundation grant programs, go to [RSNA.org/Foundation](http://RSNA.org/Foundation) or contact Scott Walter, M.S., Assistant Director, Grant Administration at 1-630-571-7816 or [swalter@rsna.org](mailto:swalter@rsna.org).



# Research & Education Foundation Donors

THE Board of Trustees of the RSNA Research & Education Foundation and its grant recipients gratefully acknowledge the contributions made to the Foundation June 20 – July 16, 2009.

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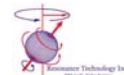


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# Journal Highlights

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

## Imaging-based Quantification of Hepatic Fat: Methods and Clinical Applications

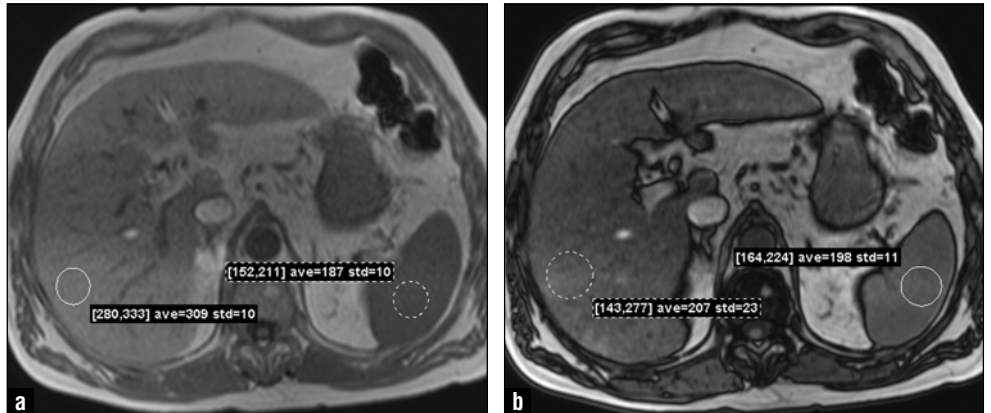
**I**MAGING is a valuable noninvasive alternative to histopathologic analysis. It allows assessment of the entire liver, thereby avoiding sampling errors; permits both qualitative and quantitative evaluation of fat content; is well suited for repeated assessments;

**RadioGraphics**

and allows concomitant screening for other liver abnormalities, including hepatocellular carcinoma. Because early recognition is critical, selecting an appropriate imaging method for detecting and quantifying liver fat requires an understanding of the advantages and limitations of each modality and the suitable clinical setting.

In an article in the September-October issue of *RadioGraphics* ([RSNA.org/RadioGraphics](http://RSNA.org/RadioGraphics)), Xiaozhou Ma, M.D., and colleagues from Massachusetts General Hospital in Boston review imaging methods and clinical applications for quantification of hepatic fat. Specifically, the authors:

- Discuss the advantages and limitations of ultrasound, CT and MR imaging methods for liver fat quantification



### Moderate hepatic steatosis in a 58-year-old man with a history of alcohol abuse.

Opposed-phase MR imaging was performed with a 1.5-T system. (a) In-phase (TR/TE = 139/4.76) MR image obtained at the level of the right liver lobe and spleen shows a signal intensity ratio of 309/187 = 1.65. (b) Out-of-phase (TR/TE = 139/2.38) MR image, obtained at the same level as a, shows a signal intensity ratio of 207/198 = 1.05. Calculated by using the Dixon method, the percentage of liver fat is  $[(1.65 - 1.05)/(2 \cdot 1.65)] \cdot 100 = 18$  percent, a finding indicative of mild to moderate steatosis.

(*RadioGraphics* 2009;29:1253-1280) © RSNA, 2009. All rights reserved. Printed with permission.

- Describe imaging features that are indicative of fatty liver disease and suggestive of its cause
- Identify the unique advantages of MR spectroscopy for quantifying liver fat in specific settings

“Although CT and ultrasound allow qualitative and quantitative measurements of hepatic fat, MR techniques—in particular, chemical shift imaging

and spectroscopy—provide higher sensitivity for more accurate detection of small amounts of fat, allowing more reliable disease characterization and thus better guidance for patient management,” the authors conclude.

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## Air (CO<sub>2</sub>) Double-Contrast Barium Enteroclysis

**A**LTHOUGH air (CO<sub>2</sub>) double-contrast barium enteroclysis compares favorably with wireless capsule endoscopy and double-balloon endoscopy in the diagnosis of mucosal abnormalities of the small bowels, the technique is underused due to its technical demands and discomfort to the patient.

### Radiology

In a review article in the “How I Do It” section of the September issue of *Radiology*, ([RSNA.org/radiology](http://RSNA.org/radiology)), Dean D.T. Maglinte, M.D., of the Indiana University School of Medicine, Indiana University Hospital, Indianapolis, and colleagues describe their technique for performing air (CO<sub>2</sub>) double-contrast barium enteroclysis as well as its clinical indications and pitfalls. Authors discuss the following technical considerations:

- Pre-procedural assessment and use of conscious sedation

- Catheter balloon and tip position
- Single-contrast barium infusion
- Use of analgesic boost prior to CO<sub>2</sub> insufflation
- Administration of CO<sub>2</sub> and sequential segmental double-contrast radiography
- Gastric suction and catheter removal
- Post-processing and image interpretation

Attention to such technical details will result in a faster examination with less discomfort, the authors write.

“Proper performance of this method of small-bowel examination can result in earlier diagnosis of diseases that are now evaluated with capsule endoscopy, which is more expensive, and with double-balloon and newer enteroscopic modifications, which are not only costly but invasive and time consuming,” the authors conclude.

This article is accompanied by a “How I Do It” video that can be down-



Double-contrast barium enteroclysis image obtained following initial administration of methylcellulose shows poorly defined defect in pelvic segment of ileum (arrow).

(*Radiology* 2009;252:633–641) © RSNA, 2009. All rights reserved. Printed with permission.

loaded at [Radiology.RSNA.org/site/video/index.xhtml](http://Radiology.RSNA.org/site/video/index.xhtml).

## RSNA Journals Join GO RAD

*Radiology* and *RadioGraphics* are now among the 11 radiology publications participating in GO RAD, a new global outreach program developed by the International Society of Radiology.

GO RAD was developed to advance radiology education throughout a global radiology community by aggregating current, practical and timely radiology literature with content targeted and dedicated to developing nations and underserved populations. The RSNA Board of Directors approved the participation of the journals in June.

GO RAD, [www.isradiology.org/gorad/index.php](http://www.isradiology.org/gorad/index.php), provides immediate open access to a limited amount of journal content otherwise restricted to subscribers of the participating journals, providing an electronic link to the original online article at the time of first publication. *Radiology* and *RadioGraphics* will identify suitable articles for the virtual journal offering free

access for readers.

The first *Radiology* article to appear on GO RAD is from July 2009: “Rotator Cuff Calcific Tendonitis: Short-term and 10-year Outcomes after Two-Needle US-guided Percutaneous Treatment— Nonrandomized Controlled Trial.” The first *RadioGraphics* article, “US Artifacts,” to appear on the site is from the May-June issue.

*RadioGraphics* Editor William W. Olmsted, M.D., and *Radiology* Editor Herbert Y. Kressel, M.D., serve on the GO RAD Editorial Committee headed by Eric J. Stern, M.D. Dr. Stern is GO RAD editor-in-chief.

The Web site will provide open access up to at least one article per issue. Other participating journals are:



*Academic Radiology*, *American Journal of Neuroradiology*, *American Journal of Roentgenology*, *Current Problems in Diagnostic Radiology*, *Journal of Medical Imaging and Radiation Oncology*, *Korean Radiology Journal*, *Mexican Annals of Radiology*, *Radiología* and *Journal of the American College of Radiology*.

# Radiology in Public Focus

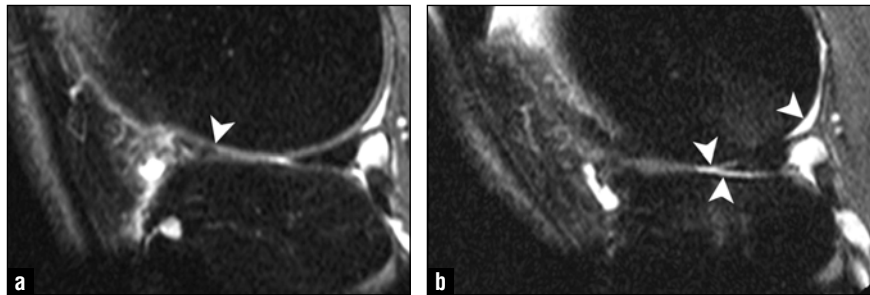
A press release has been sent to the medical news media for the following article appearing in *Radiology* in July at [RSNA.org/radiology](http://RSNA.org/radiology) and in the September print issue:

## Tibiofemoral Joint Osteoarthritis: Risk Factors for MR-depicted Fast Cartilage Loss over a 30-month Period in the Multicenter Osteoarthritis Study

**MR** DEMONSTRATES features associated with rapid tibio-femoral cartilage loss in patients with osteoarthritis and may reveal possible risk factors, researchers have found.

Frank W. Roemer, M.D., of the Department of Radiology at Boston University Medical Center, and colleagues studied a cohort of participants in a multicenter osteoarthritis trial. Only knee images with minimal baseline cartilage damage were included—347 knees in all. Researchers found that 25.9 percent of knees exhibited cartilage loss over a 30-month period and 5.8 percent showed rapid cartilage loss as defined by the whole organ magnetic resonance imaging score (WORMS) system.

“High body mass index, the presence of meniscal tears, meniscal extrusion, synovitis/effusion and any high-grade MR-defined risk factor were



**Sagittal intermediate-weighted fat suppressed MR images (4800/35) show fast cartilage loss in lateral compartment between (a) baseline and (b) followup.**

(a) Maceration (arrowhead) of anterior horn of lateral meniscus. (b) Diffuse cartilage loss in central and posterior parts of lateral femur and in central region of lateral tibia (arrowheads). (*Radiology* 2009;252:772-780) © RSNA, 2009. All rights reserved. Printed with permission.

strong predictors of rapid cartilage loss,” Dr. Roemer and colleagues noted.

Researchers proposed that patients exhibiting these predictors may be good candidates for preventive research trials.

“We did not succeed in defining baseline predictors that can unequivocally differentiate slow from rapid car-

tilage loss,” Dr. Roemer and colleagues noted. “However, including knees with baseline meniscal damage and extrusion and knees with high-grade baseline MR features, a subpopulation at high risk of progressive cartilage loss may be identified.”

### Media Coverage of Radiology

In July, media outlets carried 266 news stories generated by articles appearing in the print and online editions of *Radiology*. These stories reached an estimated 190 million people.

News releases promoted findings from studies on a minimally invasive treatment for calcific tendonitis of the shoulder (*Radiology* 2009;252:157-164), detection and staging of deep endometriosis (*Radiology* 2009; 10.1148/radiol.2531082113), contributing factors to rapid cartilage loss in the knee (*Radiology* 2009; 10.1148/10.1148/radiol.2523082197) and how calcium levels in the

coronary arteries may predict future severe cardiac events (*Radiology* 2009; 10.1148/radiol.2531082137).

July coverage included WLS-TV (Chicago), KTLA-TV (Los Angeles), WXYZ-TV (Detroit), KSAT-TV (San Antonio), KTVK-TV (Phoenix), WFAA-TV (Dallas), WREG-TV (Memphis, Tenn.), KMPH-TV (Fresno, Calif.), Reuters, UPI, *Imaging Economics*, *Jackson Sun* (Jackson, Tenn.), MSN Health, MSNBC Online, Yahoo! News, *latimes.com*, *usnews.com*, *forbes.com*, *ajc.com* and *docguide.com*.

### September Public Information Activities Focus on Ovarian and Prostate Cancers

In recognition of September as the awareness month for ovarian and prostate cancer, RSNA will distribute public service announcements (PSAs) focusing on:

- Symptoms of ovarian and prostate cancers
- Risk factors
- Screening methods
- Possible treatment options

In addition to PSAs, RSNA’s “60-Second Checkup” radio program will focus on ovarian and prostate cancers and include such themes as prostate cancer screening and pelvic imaging in women.

# Working For You

## Associated Sciences Consortium

RSNA News continues its series highlighting the work of organizations working with RSNA in the Associated Sciences Consortium.

### American Association of Medical Dosimetrists

**B**Y EXTENDING its educational opportunities and increasing collaboration with related organizations, the American Association of Medical Dosimetrists (AAMD), is heightening public and professional awareness of medical dosimetry on a worldwide scale.

The international society, which provides members with opportunities for education, a forum for professional interaction and a representative voice in the healthcare community, is open to practicing medical dosimetrists consisting largely of certified medical dosimetrists and those practicing or interested in the field of medical dosimetry. Current membership totals around 2,300.

"We've taken on a big collaborative outreach effort with the related organizations in order to show how medical dosimetrists are viable members of the radiation oncology and medical physics teams," said Gregg Robinson, AAMD Executive Director.

Robinson explained that AAMD is working with organizations including RSNA, American Society for Radiation Oncology, American Society of Radiologic Technologists, American Asso-

ciation of Physicists in Medicine and American College of Medical Physics and the Medical Dosimetry Certification Board to extend the association's outreach. AAMD became a member of RSNA's Associated Sciences Consortium in January.

AAMD's recent annual meeting in Scottsdale, Ariz., drew more than 500 attendees including medical dosimetrists, medical physicists and radiation therapy technologists and featured presentations on treatment planning, brachytherapy, simulation, coding and more.

"This year we produced our first annual business report and decided to extend our educational activities to present more regional meetings," Robinson said. "One goal is to present three regional meetings per year to give members more opportunities to receive continuing education. In turn we hope to promote certification for all medical dosimetrists by assisting in the development of educational programs and online continuing education."

The AAMD Web site, [www.medicaldosimetry.org](http://www.medicaldosimetry.org), offers directed journal

reading activities for online continuing education as well as information about careers in medical dosimetry. The association also publishes the official journal *Medical Dosimetry*.

"We recently introduced the *eMonitor*, our quarterly electronic newsletter that provides updates on AAMD activities and medical dosimetry developments," Robinson said.

Future plans for AAMD include further involvement in issues such the Consistency, Accuracy, Responsibility and Excellence in Medical Imaging and Radiation Therapy (CARE) bill and reimbursement, said Robinson.

"As a member of RSNA's Associated Sciences Consortium and organizations such as the Health Profession Network, AAMD is gaining awareness of how the allied health community and other associations approach issues such as healthcare reimbursement and visibility of individual professions," Robinson said. "We will use that information to create more services for our members."

For more information, visit [www.medicaldosimetry.org](http://www.medicaldosimetry.org).



### NEW Online Educational Offerings on InteractED®

Several new Refresher Course programs from RSNA 2008 are now available online for *AMA PRA Category 1 Credits™* as an RSNA member benefit:

- Categorical Course in Diagnostic Radiology: Imaging of Cardiac Physiology—MR Imaging
- CTA and MRA in Vascular Intervention: Treatment of Occlusive Disease
- Quality Control in PACS: Image Quality Process, Data Integrity and Putting Display QC into Practice
- Pediatric PICC: How to Establish and Run the Service
- Update Course in Diagnostic Radiology: Clinical PET and PET/CT Imaging — Lymphoma, Melanoma and Sarcomas
- Sinonasal Infection and Chronic Inflammatory Disease
- Endocrine Neoplasia: A Radiologic-Pathologic Review
- Imaging Before and After Aortic Stent-Grafting: Current Recommendations
- Imaging of Focal Liver Lesions: Techniques for CT and MR Imaging, Noncirrhotic Liver and Cirrhotic Liver
- PET Imaging Protocols and Normal Anatomy/Variants

To view these new programs, visit [RSNA.org/education](http://RSNA.org/education). For additional information on other available products, contact the Education Center at 1-800-381-6660 x3753 or 1-800-272-2920.



# Program and Grant Announcements

## Writing a Competitive Grant Proposal

January 29-30, 2010 • RSNA Headquarters, Oak Brook, Ill. • Registration Deadline—December 15

**R**EGISTRATIONS are being accepted for the Writing a Competitive Grant Proposal workshop designed for researchers in radiology, radiation oncology, nuclear medicine and related sciences who are interested in actively pursuing federal funding.

A limited number of slots is available for this 1½-day intermediate-level program that combines didactic and small group interactive sessions designed to help radiologic researchers understand and apply the key components of writing a competitive

grant proposal. Topics include the NIH grant review process, developing specific aims and funding opportunities.

Guided by a faculty of leading researchers with extensive experience in all aspects of grant applications and funding, the program will focus on developing realistic expectations and provide tools for getting started. Faculty includes G. Scott Gazelle, M.D., Ph.D., M.P.H., of Massachusetts General Hospital in Boston, King C. Li, M.D., M.B.A., of

Methodist Hospital in Houston, Robert Nordstrom, Ph.D., of the National Cancer Institute in Bethesda, Md., Ruth Carlos, M.D., M.S., of the University of Michigan Health System in Ann Arbor and Elizabeth Burnside, M.D., M.P.H., of the University of Wisconsin in Madison.



The course fee is \$175. Registration forms can be found at [RSNA.org/CGP](http://RSNA.org/CGP). Contact Fiona Miller at 1-630-590-7741 or [fmiller@rsna.org](mailto:fmiller@rsna.org) for further information.

## New Days for Financial Seminars at RSNA 2009

Two investment seminars will be offered at RSNA 2009. “Effective Real Estate Investment Strategies,” will be presented by J. Michael Moody, M.B.A., on Saturday, Nov. 28, and “Asset Protection and Retirement Planning in the New (Stimulus?) Era,” will be presented by Barry Rubenstein, B.S., J.D., L.L.M., on Monday, Nov. 30. This year’s new two-day format offers attendees more flexibility.

In challenging financial times, these simple and direct educational seminars specifically tailored for the medical professional will provide attendees with the tools necessary to achieve real estate and investment goals.

Register now at [RSNA.org/register](http://RSNA.org/register) or use the Registration and Housing Form 1 included in the Advance Registration,



Housing and Course Enrollment Brochure. Additional fees apply for these seminars, so you must be registered for the annual meeting to sign up. These seminars do not qualify for *AMA PRA Category 1 Credit™*. For more information, contact the RSNA Education Center at 1-800-381-6660 x7772 or e-mail [ed-ctr@rsna.org](mailto:ed-ctr@rsna.org).

## 2010 R&E Grant Applications Start Soon

**NEW RSNA Membership Now Required**

Applicants for R&E research and education grants can begin preparing their applications starting in October. New this year: applicants for 2010 R&E grants are now required to be RSNA members (at any level) at the time of application.

Application deadlines are:

- January 10: Education Grants
- January 15: Research Grants
- February 1: Medical Student Grant

For more information on all Foundation grant and recognition programs, including current and past grant projects, go to [RSNA.org/Foundation](http://RSNA.org/Foundation) or contact Scott Walter, M.S., Assistant Director, Grant Administration at 1-630-571-7816 or [swalter@rsna.org](mailto:swalter@rsna.org).

## RSNA Co-Sponsors WMIC Session

The World Molecular Imaging Congress (WMIC), to be held Sept. 23-26 in Montreal, includes a session co-organized by RSNA and SNM. “Translational/Clinical Imaging,” to be offered Thursday, September 24, includes:

- Administration of SPIO-Labeled Human Mononuclear Cells into Man: A Pilot Study
- Retention Index from Dual-Time-Point F-18 FDG PET/CT as a Prognostic Marker of Rectal Cancer
- Pre-Clinical Validation of a Novel Method for Ex Vivo Sentinel Lymph Node Detection in Col-

orectal Cancer Using Near-Infrared Fluorescence Imaging

- In vivo Microscopy in Mouse Models of Monogenic Skin Disease
- Clinical Validation of Experimental Radioimmunoimaging of Human AL Amyloid Deposits
- Characterization of Human Lymphatic Architecture and (Dsy)function with Near-infrared Fluorescence Imaging

For more information or to register, go to [www.wmicmeeting.org](http://www.wmicmeeting.org). Attendees can also register onsite.

# News about RSNA 2009

## Registration Materials

**N**ORTH AMERICANS who register for RSNA 2009 by November 6 will have their registration materials mailed to them in advance of the annual meeting. International attendees will have their materials mailed to them if their registration forms are received by October 23. Registration will be accepted after these dates but will be processed at the increased onsite rate. Attendees must obtain badges, tickets and other conference materials at the McCormick Place Convention Center.

### Registration materials include:

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

### Name Badge

A name badge is required to attend RSNA courses or events or to enter the exhibit halls. A complimentary copy of the *RSNA Meeting Program*, an official meeting bag and a name badge lanyard can be obtained by presenting a voucher at the distribution counters.



## Course Enrollment

Seats are still available in many of the courses to be offered at RSNA 2009. Online registration occurs instantly, while faxed or mailed registration forms are processed in the order of receipt. The Advance Registration, Housing and Course Enrollment brochure and online registration is available at [RSNA.org/register](http://RSNA.org/register). You must be registered for RSNA 2009 in order to enroll in courses.



## Important dates for RSNA 2009

- October 23** International deadline to have full-conference materials mailed in advance
- November 6** Final discounted advance registration, housing and course enrollment deadline, to have full-conference materials mailed in advance
- Nov. 29 – Dec. 4** RSNA 95th Scientific Assembly and Annual Meeting

Register by Nov. 6 to receive the discounted registration fee and full conference materials mailed to you in advance. International visitors must register by Oct. 23 to receive these materials in advance. Registrations received after Nov. 6 will be processed at the increased fee and conference materials must be obtained at the McCormick Place Convention Center. No hotel reservations will be accepted after Nov. 6.

## Registering for RSNA 2009

There are four ways to register for RSNA 2009:

- 1 Internet—Fastest way to register!**  
Go to [RSNA.org/register](http://RSNA.org/register)
- 2 Fax (24 hours)**  
1-800-521-6017  
1-847-996-5401
- 3 Telephone**  
(Monday–Friday,  
8:00 a.m.–5:00 p.m. CT)  
1-800-650-7018  
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## Registration Fees

BY 11/6	ONSITE	
\$0	\$100	RSNA/AAPM Member
\$0	\$0	RSNA/AAPM Member Presenter
\$0	\$0	RSNA Member-in-Training, RSNA Student Member and Non-Member Student
\$0	\$0	Non-Member Presenter
\$150	\$250	Non-Member Resident/Trainee
\$150	\$250	Radiology Support Personnel
\$680	\$780	Non-Member Radiologist, Physicist or Physician
\$680	\$780	Hospital or Facility Executive, Commercial Research and Development Personnel, Healthcare Consultant and Industry Personnel
\$300	\$300	One-day registration to view only the Technical Exhibits

■ For more information about registering for RSNA 2009, visit [RSNA2009.RSNA.org](http://RSNA2009.RSNA.org), e-mail [reginfo@rsna.org](mailto:reginfo@rsna.org) or call 1-800-381-6660 x7862.



# News about RSNA 2009

## Technical Exhibition a Must See at RSNA 2009

WITH MORE THAN 600 of the leading healthcare companies from across the globe slated to attend, the Technical Exhibition at the RSNA annual meeting remains the top healthcare exhibition in the U.S.

Once again, the RSNA Technical Exhibition will span three halls (Lakeside Center – Hall D; South Building – Hall A; and North Building – Hall B) anchored by companies at the forefront of medical technology. A sampling of exhibitors and their locations include:

### Hall D, Level 3, Lakeside Center

- Carestream Health
- Hologic, Inc
- Siemens Medical Solutions
- TeraRecon

### Hall A, Level 3, South Building

- Bayer Healthcare Pharmaceuticals
- Bracco
- FujiFilm Medical Systems
- GE Healthcare
- Hitachi Medical
- Shimadzu Medical Systems
- Toshiba America Medical Systems

### Hall B, Level 3, North Building

- Agfa Healthcare
- Canon, Inc.
- McKesson Provider Technologies
- Philips



Inside the RSNA Technical Exhibition, visitors to the popular Publishers Row (Hall A) can purchase the newest healthcare publications, get up-to-date on trends in informatics at the IHE showcase (Hall A, booth 2843), consult computer experts at a company-hosted Vendor Computer Workshop (Hall D) and dine in a Bistro

RSNA restaurant (Halls A, B, D & E).

A complete list of RSNA 2009 Technical Exhibitors is available at [RSNA.org/showcase](http://RSNA.org/showcase). The list is searchable by company name or product/service and includes a company description, list of product/services, featured products and contact information.



## RADIATION SAFETY

# Answer

[Question on Page 1.]

**A** Radiation exposure is minimized by standing in the plane of the CT gantry, as nearly all of the radiation is absorbed in the detector array and gantry mechanism. Alternatively, stand to one side as far away from the patient table as possible.

Q&A courtesy of AAPM.

# Product News

## PRODUCT UPGRADE

### QA Upgrade for Radiotherapy Software

**S**TANDARD IMAGING ([www.standardimaging.com](http://www.standardimaging.com)) has released QA BeamChecker Plus Communication Software Version 2.2, a free upgrade to its current application adding new features and improved performance. The upgrade adds rotational quality assurance functionality to assist users in maintaining consistent output of their treatment machines.

The QA BeamChecker Plus, used for traditional linear accelerators and TomoTherapy® Hi-Art Systems®, features the patented Wire-Free Mode, which allows medical physicists to pass quality assurance data to radiation therapists.

No PC is required to perform this task: Users place the QA BeamChecker Plus on the treatment couch, select a QA plan to be delivered and perform the measurement. Results are presented on the large alphanumeric display, saved and can be downloaded later for further review.



## NEW PRODUCT

### FFDM Archiving with Prior Exam Recall

CoActiv ([www.coactiv.com](http://www.coactiv.com)) announces a digital workflow initiative focusing on women's imaging and women's health centers offering full field digital mammography (FFDM) and related imaging exams. The managed image archiving solution features fully automated prior exam recall.

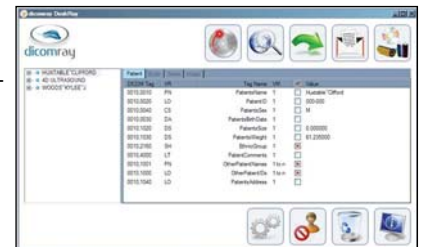
For sites without a PACS, the new solution delivers a dramatic workflow enhancement by eliminating the need for time-consuming prior exam pre-fetching. For all imaging sites, including those with a PACS, the solution offers CoActiv's sophisticated, scalable and secure EXAM-VAULT® Quad-Redundant storage, updated with a range of new FFDM workflow features.

## NEW PRODUCT

### Small-scale DICOM CD/DVD Writer

Nautilus Medical ([www.nautilusmedical.com](http://www.nautilusmedical.com)) has announced the release of DeskRay™ and DeskRaySR+™, a desktop version of its DICOM Ray™ CD/DVD writer. This easy-to-configure personal version was designed to meet the demands of small medical offices, emergency rooms, clinics and anywhere else clinicians need to burn a DICOM-compliant CD retrieved from PACS or a DICOM node with no additional hardware.

Utilizing the CD/DVD burner in the tower or laptop, the DeskRay burns DICOM Part 10 discs with or without a viewer for use in a review, exchange or sneaker-net environment. DICOM Ray may be utilized for automated production with Rimage, Epson, and Primera disc producers.



## FDA CLEARANCE

### Wide-bore MR System

GE Healthcare ([www.gehealthcare.com](http://www.gehealthcare.com)) has received FDA clearance for Optima MR450w, a 70 cm 1.5T MR system. The system incorporates a wider bore as well as a spacious 70 cm platform.

Optima MR450w enables two-station spine imaging with multiple contrasts. In addition, the system is clinically optimized for specific anatomies, including breast imaging abilities, helping to yield fewer patient scans and more predictable scheduling.

The Optima MR450w features a redesigned 145 cm magnet designed to ensure uniform tissue contrast, strong whole-body gradients, OpTix RF digital receiver, anatomy-optimized RF coils and a fully removable table.



# RSNA.org

## Radiology, RadioGraphics offer New Features

VISITORS TO THE newly redesigned *RadioGraphics* home page ([RSNA.org/RadioGraphics](http://RSNA.org/RadioGraphics)) can also access new user interface features recently launched on both the *RadioGraphics* and *Radiology* ([RSNA.org/radiology](http://RSNA.org/radiology)) Web sites.

The new look and layout of the *RadioGraphics* home page includes reorganized links, a streamlined and consolidated services section (including a separate category for CME Resources) and new features including, "In This Issue," which spotlights selected articles from the journal's Quality Initiatives, Informatics and Education Exhibits sections.

Along with newly designed Tables of Contents and a flexible, three-column design, *RadioGraphics* and *Radiology* share other new features designed to improve viewing of online contents and facilitate article searches. They are:

**1 Social bookworking/sharing sites:** Journal articles now include links to a number of sites including [myRSNA.org](http://myRSNA.org), [comprore.com](http://comprore.com), [citeulike.org](http://citeulike.org), [facebook.com](http://facebook.com), [digg.com](http://digg.com) and [delicious.com](http://delicious.com). Links are located at the bottom of an article.

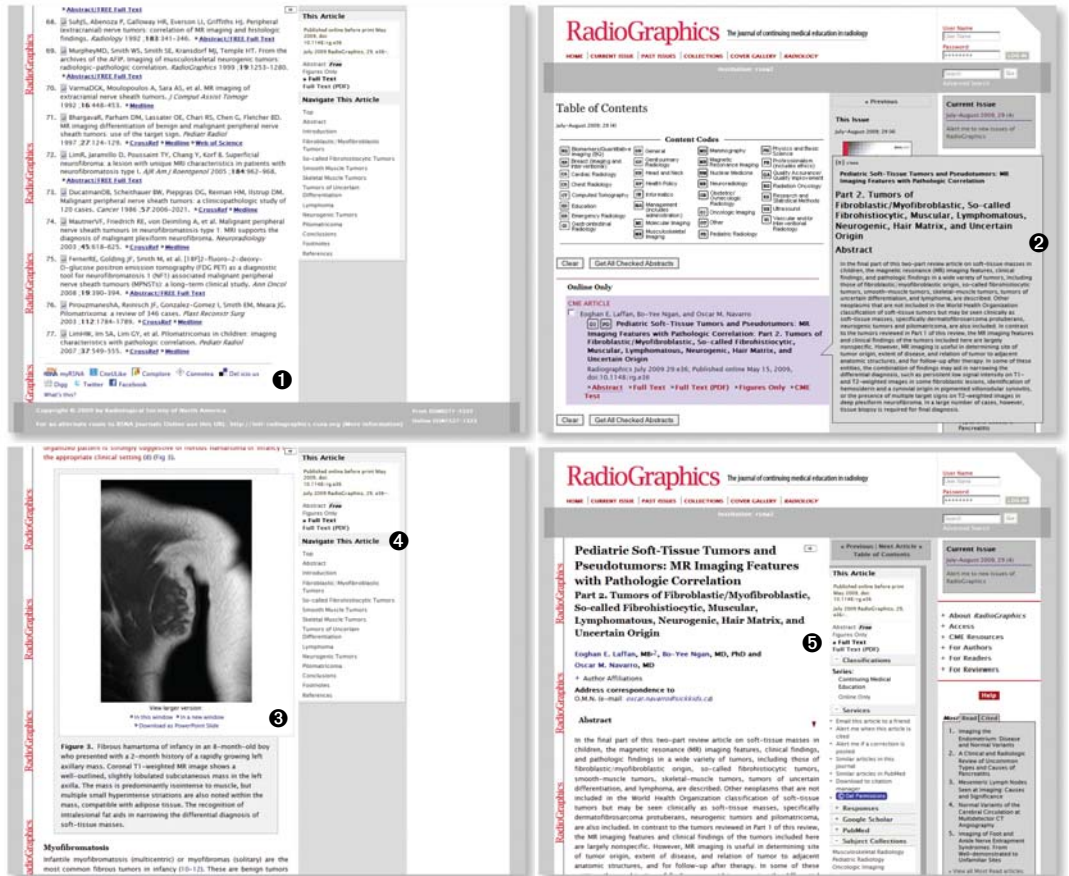
**2 Abstract preview:** Users can move their mouse over the Table of Contents and search results to get instant pop-up previews of article abstracts without leaving the page.

**3 Figure expansion:** Figure and table

thumbnails can now be enlarged from within an article.

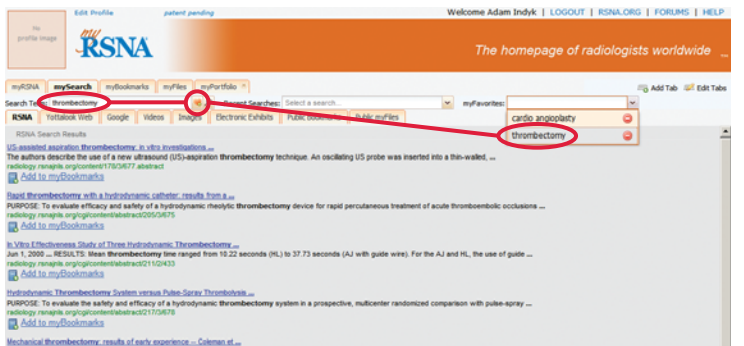
**4 Tag-along navigation:** The navigation box follows along as the user scrolls down the article page.

**5 Easier scanning and reading:** Better positioning of the title and abstract, along with quick previous/next links, make it faster to scan an article online.



### Save Your Favorite Searches

Is there an Internet search you regularly use or want to remember in the future? Add it to [myRSNA.org](http://myRSNA.org) as a favorite search. After logging on, click on mySearch, enter the search you want to remember and click the heart icon next to the search field. Your search will be added to the myFavorites drop-down menu. To remove a search from myFavorites, click the red delete icon next to it.



**CALENDAR**

# Medical Meetings September 2009 – March 2010

**SEPTEMBER 30–OCTOBER 3**

American Society of Emergency Radiology (ASER), Annual Meeting, Loews Royal Pacific Resort, Orlando, Fla. • [www.erad.org](http://www.erad.org)

**OCTOBER 1–3**

European Society for Magnetic Resonance in Medicine and Biology (ESMRMB), 26th Annual Meeting, Maritim Pine Beach Resort, Antalya, Turkey • [www.esmrm.org](http://www.esmrm.org)

**OCTOBER 1–3**

International Cancer Imaging Society (ICIS), Society Meeting and 9th Annual Teaching Course, Salzberg Congress Centre, Austria • [www.icimatingsociety.org.uk](http://www.icimatingsociety.org.uk)

**OCTOBER 2–6**

North American Society for Cardiac Imaging (NASCI), 37th Annual Meeting, Omni Orlando Resort at ChampionsGate, Florida • [www.nasci.org](http://www.nasci.org)

**OCTOBER 3–4**

Society for the Advancement of Women's Imaging (SAWI), 2009 Symposium, Westin Chicago River North • [www.sawi.org](http://www.sawi.org)

**OCTOBER 7–11**

American Society of Head and Neck Radiology (ASHNR), 43rd Annual Meeting, Sheraton New Orleans Hotel • [www.ashnr.org](http://www.ashnr.org)

**OCTOBER 8–10**

American Society for Clinical Oncology (ASCO), Breast Cancer Symposium: Integrating Emerging Science into Clinical Practice, San Francisco Marriott • [www.breastcancersymposium.org](http://www.breastcancersymposium.org)

**OCTOBER 10–14**

European Association of Nuclear Medicine (EANM), Annual Congress, Barcelona International Convention Center, Spain • [eanm09.eanm.org](http://eanm09.eanm.org)

**OCTOBER 11–13**

Radiology Business Management Association (RBMA), Fall Educational Conference, Sheraton Wild Horse Pass, Chandler, Ariz. • [www.rbma.org](http://www.rbma.org)

**OCTOBER 15–17**

Society of Chairs of Academic Radiology Departments (SCARD), Annual Meeting, Fairmont Orchid Hawaii, Kohala Coast • [www.scardweb.org](http://www.scardweb.org)

**OCTOBER 16–20 VISIT THE RSNA BOOTH**

Société Française de Radiologie (SFR), Les Journées Françaises de Radiologie (JFR) 2009, Palais des Congrès de Paris • [www.jfrexpo.com](http://www.jfrexpo.com)

**OCTOBER 22–25**

RANZCR/Faculty of Radiation Oncology (FRO)/Australian Institute of Radiography (AIR)/Australasian College of Physical Scientists & Engineers in Medicine (ACPSEM), Combined Scientific Meeting, Brisbane Convention and Exhibition Centre, Australia • [www.csm2009.com](http://www.csm2009.com)

**OCTOBER 30–NOVEMBER 1**

Society of Radiologists in Ultrasound (SRU), 19th Annual Meeting, The Fairmont Chicago • [www.sru.org](http://www.sru.org)

**OCTOBER 31–NOVEMBER 1**

The Royal College of Radiologists (RCR) & Hong Kong College of Radiologists (HKCR), 3rd Joint Scientific Meeting, Hong Kong College of Radiologists (HKCR), 17th Annual Scientific Meeting, Hong Kong Academy of Medicine, Aberdeen • [www.hkcr.org](http://www.hkcr.org)

**NOVEMBER 1–5**

American Society for Radiology Oncology (ASTRO), 51st Annual Meeting, McCormick Place West, Chicago • [www.astro.org](http://www.astro.org)

**NOVEMBER 29–DECEMBER 4**

**RSNA 2009, 95th Scientific Assembly and Annual Meeting, McCormick Place, Chicago • [RSNA2009.RSNA.org](http://RSNA2009.RSNA.org)**

**JANUARY 11–15, 2010**

Integrating the Healthcare Enterprise (IHE®) North American Connectathon, Hyatt Regency Chicago • [www.ihe.net/Connectathon/](http://www.ihe.net/Connectathon/)

**JANUARY 23–26, 2010**

Indian Radiological & Imaging Association (IRIA), 63rd Annual Congress, Karnavati Club, Ahmedabad • [www.iria.in/](http://www.iria.in/)

**FEBRUARY 13–18, 2010**

International Society for Optics and Photonics, (SPIE), Medical Imaging 2010, Town and Country Resort and Convention Center, San Diego • [www.spie.org/medical-imaging.xml](http://www.spie.org/medical-imaging.xml)

**MARCH 1–4, 2010**

Healthcare Information and Management Systems Society (HIMSS), Annual Conference and Exhibition, Atlanta • [www.himssconference.org/](http://www.himssconference.org/)