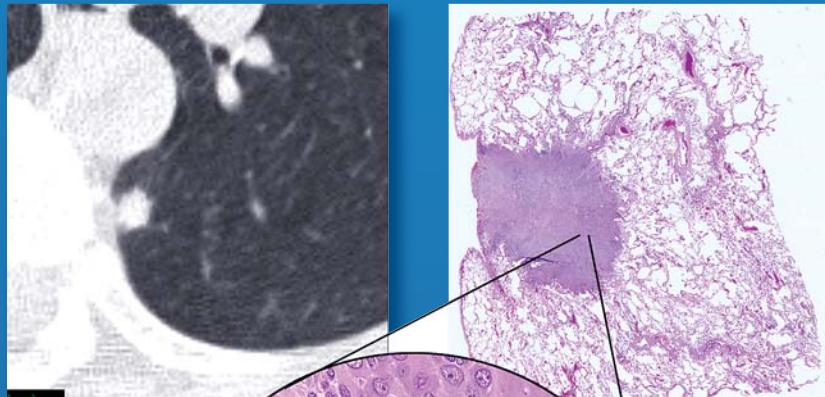


# RSNA News



Images courtesy of Claudia I. Henischke, Ph.D., M.D.

## Lung Cancer Revolution Imminent, Researcher Says

### Also Inside:

- Study Shows Small MR-Detected Breast Lesions Do Not Require Biopsy
- Radiographer Shortage Continues as Programs Turn Away Qualified Candidates
- Imaging Reimbursement Cuts May Harm Rural Practices, Patients
- RSNA Grant Leads to Novel Molecular Imaging Agents

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# RSNA News

- 1 Announcements**
- 2 People in the News**
- 4 Board of Directors Report**
  
- Feature Articles**
- 6 Lung Cancer Revolution Imminent, Researcher Says**
- 8 Study Shows Small MR-Detected Breast Lesions Do Not Require Biopsy**
- 10 Imaging Reimbursement Cuts May Harm Rural Practices, Patients**
- 12 Radiographer Shortage Continues as Programs Turn Away Qualified Candidates**
  
- Funding Radiology's Future®**
- 19 RSNA Grant Leads to Novel Molecular Imaging Agents**
- 20 R&E Foundation Donors**
  
- 14 Journal Highlights**
- 16 Radiology in Public Focus**
- 17 RSNA: Working for You**
- 18 Program and Grant Announcements**
- 21 Meeting Watch**
- 22 Exhibitor News**
- 23 Product News**
- 25 RSNA.org**

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# RadiologyInfo™ Users Satisfied

**N**INETY-THREE percent of respondents to a short survey about their experiences with RadiologyInfo.org indicated they had found the information they sought. Nearly 50,000 visitors responded to the survey between December 20, 2004 and December 31, 2005.

*RadiologyInfo.org* is the public information Web site developed and funded by RSNA and the American College of Radiology (ACR).

More than 14,000 visitors in that same time period also participated in a more detailed evaluation of the material on the Web site with more than 80 percent indicating that the amount of information was "just right."

About 55 percent said the same about the amount of graphic art and photos. An overwhelming majority of visitors—almost 82 percent—said they found the site through an Internet search engine.

About two-thirds of survey respondents



were female and over age 46. Most respondents were patients (57 percent) or a patient's friend or family member (16 percent). More than 80 percent of respondents had some college education.

*RadiologyInfo™* provides simple, yet thorough, descriptions of diagnostic imaging, interventional radiology and radiation therapy procedures and treatments. In September 2005, a Spanish version of the site was added.

## Three UK Radiology Academies Open

THE Royal College of Radiologists, in collaboration with the UK Department of Health and National Health Service, has established the Leeds and West Yorkshire, Norfolk & Norwich

and Peninsula radiology academies. The academies are part of the Radiology-Integrated Training Initiative, a new national program to increase the number of radiologists in training.

## VIEWING TECHNOLOGY

### Tip of the Month

**Normal office light levels are too high for reading digital mammograms. Reflections and glare reduce the eye's ability to detect low-contrast lesions.**



American Association of Physicists in Medicine

## Top 10 Procedures Visited on RadiologyInfo™

### English language (January–December 2005)

- PET
- CT Body
- Chest Radiography
- MR Angiography
- Mammography
- Ultrasound Abdomen
- Ultrasound Pelvic
- General Ultrasound
- CT Head
- CT Abdomen

### Spanish language (September–December 2005)

- Chest Radiography
- Bone Radiography
- Hysterosalpingography
- Head CT
- Lung Cancer
- Ultrasound Scrotal
- Mammography
- Functional MR Imaging (fMRI)
- Ultrasound Obstetric
- Head & Neck Cancer

## MEDICAL IMAGING COMPANY NEWS:

### IBA to Build Center in Vietnam

■ Ion Beam Applications (IBA), of Louvain-La-Neuve, Belgium, has announced a contract with several Vietnamese agencies to develop and supply equipment for an integrated National Cyclotron Center in Hanoi, Vietnam. The center will produce SPECT and PET radioisotopes for medical imaging purposes and serve as a scientific research and education center. Tran Hung Dao Hospital will operate the center jointly with the Vietnam Atomic Energy Commission (VAEC), the Vietnam Academy of Science and Technology, Hanoi University of Technology and Hanoi University of Natural Science.

### ART Buys Alerion

■ ART Advanced Research Technologies Inc. (ART), of Saint-Laurent, Quebec, has acquired Alerion Biomedical, Inc., of San Diego. ART provides optical molecular imaging products for the healthcare and pharmaceutical industries. Alerion developed and manufactured biomarkers and contrast media, including the Fenestra™ line, for preclinical and clinical imaging devices.

## AUR Presents Awards

The Association of University Radiologists (AUR) has awarded gold medals to **Wilbur L. Smith Jr., M.D.**, and **Kay H. Vydareny, M.D.** Dr. Smith is chair of the Department of Radiology at Wayne State University and Detroit Medical Center. Dr. Vydareny is a professor of radiology at Emory University.

Also at the AUR annual meeting last month in Austin, Texas, the Association of Program Directors in Radiology (APDR) presented its achievement award to **Vijay M. Rao, M.D.** Dr. Rao is chair of the Department of Radiology at Thomas Jefferson University.



**Wilbur L. Smith Jr., M.D.**



**Kay H. Vydareny, M.D.**



**Vijay M. Rao, M.D.**

## Lee Named to "40 Under Forty"

**Vivian Lee, M.D., Ph.D.**, professor and vice-chair of research in the Department of Radiology at the New York University School of Medicine, has been named to *Crain's New York Business* "40 Under Forty" list. The list is billed as an annual compilation of "rising stars" in medicine, business, entertainment, sports and the arts.

Hailed by *Crain's* as a "multitasker in medicine," Lee has developed new MR imaging techniques. Her focus has been using MR imaging to identify causes of kidney dysfunction in transplant recipients, as well as to understand the connection between high blood pressure and renal artery stenosis.



**Vivian Lee, M.D., Ph.D.**

## CIR Names Honorary Member

**César Sánchez Pedrosa, M.D.**, will be named an honorary member of the InterAmerican Congress of Radiology (CIR) for outstanding work in promoting radiology and continuing education.

Also at the CIR Congress this month in Spain, CIR will award gold medals posthumously to **Luis Karpovas**, of Brazil, CIR president from 2004–2006, and **Luis Romero**, of Argentina, CIR President from 1992–1994.

## Emageon Has New COO

Emageon Inc. has announced that **Grady Floyd** has joined the company as Chief Operating Officer. Floyd has 20 years of leadership experience in companies specializing in visual medical imaging. Most recently, he was co-founder and COO of Vasant, L.L.C., a consulting firm specializing in healthcare technology business development.

### IN MEMORIAM:

#### **Frederic N. Silverman, M.D.**

**F**rederic N. Silverman, M.D., considered a founding father of pediatric radiology, died March 15 in Palo Alto, Calif., at the age of 91.

Dr. Silverman was a pioneer in alerting the medical community and public to the use of radiology to detect child abuse. He graduated from Syracuse University School of Medicine in 1939 and, after complet-

ing internships at Yale and Johns Hopkins, served a tour in the South Pacific with the U.S. Army Medical Corps.

In 1947, Dr. Silverman became the first full-time director of the Division of Roentgenology at the Cincinnati Children's Hospital Medical Center (CCHMC), a position he held until 1975. He was a charter member of the Soci-

ety for Pediatric Radiology (SPR) and served as its second president.

Dr. Silverman's 1953 landmark article, "The Roentgen Manifestations of Unrecognized Skeletal Trauma in Infants," published in the *American Journal of Roentgenology*, defined inflicted trauma as the etiology of what is now known as child abuse.



**Frederic N. Silverman, M.D.**

# ACR Gold Medalists

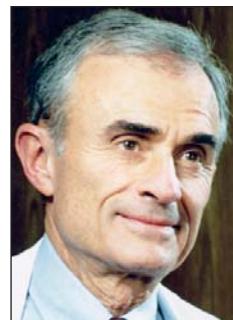
DURING ITS annual meeting last month in Washington, the American College of Radiology (ACR) awarded gold medals to the following:

- **Robert E. Campbell, M.D.**, clinical professor of radiology at the University of Pennsylvania School of Medicine. Dr. Campbell was 1989 RSNA president and is a contributing editor of *RSNA News*.
- **David C. Levin, M.D.**, professor emeritus of radiology at Thomas Jefferson University
- **J. Frank Wilson, M.D.**, professor of radiation oncology, chair of the Department of Radiation Oncology at Medical College of Wisconsin (MCW) and director emeritus of the MCW Cancer Center

ACR also named **Ann Barrett, M.D.**, **Guo-Liang Jiang, M.D.**, and **Man Chung Han, M.D.**, as honorary members.



**Robert E. Campbell, M.D.**



**David C. Levin, M.D.**



**J. Frank Wilson, M.D.**

## Chicago Radiological Society Honors Moss

The Chicago Radiological Society has presented its Distinguished Service Award to **Gregory D. Moss, M.D.**, chair of the Department of Radiology and Imaging at Resurrection Medical Center in Chicago. Affiliated with Resurrection Medical Center since 1984, Dr. Moss was named to his current position in 1995.

Dr. Moss has been a leader in many radiology organizations, including the Chicago Radiological Society, the Illinois Radiological Society, the Society of Interventional Radiology and the American College of Radiology.



**Gregory D. Moss, M.D.**

## New ECR President

**Christian J. Herold, M.D.**, is the first Austrian president of the European Congress of Radiology (ECR). Dr. Herold is a professor and director of the Department of Diagnostic Radiology at the Medical University of Vienna and its University Hospital, Allgemeines Krankenhaus. Dr. Herold also is a part-time faculty member in the Department of Radiology at the Johns Hopkins Medical Institutions.



**Christian J. Herold, M.D.**

Dr. Herold served as a *Radiology* associate editor from 1995 to 1999, has been a *Radiology* reviewer since 1993, and was presented the *Radiology* Editor's Award for Distinction in Reviewing in 1994.

## RSNA Scholar Receives Komen Grant

RSNA Research & Education Foundation Bracco Diagnostics Research Scholar Jingfei Ma, Ph.D., has received a \$225,000 grant from the Susan G. Komen Breast Cancer Foundation for "Whole Body MRI for Detecting Breast Cancer Metastases."

Dr. Ma, of the University of

Texas M.D. Anderson Cancer Center, received the RSNA grant in 2004 for "Differentiation between Benign and Malignant Vertebral Compression Fractures with Quantitative Diffusion and Fat MR Imaging."



**Jingfei Ma, Ph.D.**

More information about the RSNA Research & Education Foundation (R&E) Research Resident/Fellow and Research Scholar grants, as well as other R&E grant and award programs, can be accessed at [RSNA.org/Foundation/programs.cfm](http://RSNA.org/Foundation/programs.cfm).

# RSNA Board of Directors Report

**T**HE RSNA Board of Directors met in Chicago in late March, approving the 2006-2009 Strategic Plan and several proposals in the areas of continuous quality improvement, enhancing the educational experience at the RSNA annual meeting, increasing international outreach and raising awareness about the RSNA Research & Education Foundation.

## Meeting with Leadership

Prior to the Board meeting, Board members met with the chairs and vice-chairs of RSNA committees and the editors of RSNA journals.

Committee leadership heard updates from the Board on the RSNA Strategic Plan, five-year vision and new initiatives such as the RSNA Highlights conference and the Continuous Quality Improvement Initiative (CQI<sup>2</sup>). The core of the meeting featured discussion about the committee appointments process, new member and chair orientations, communication with the Board and among committees, meeting schedules and the committees' role in RSNA strategic planning.

The assembled leadership also offered ideas on involving residents, junior faculty and corresponding members in RSNA activities and governance.

## Strategic Plan

The Board approved a revised strategic plan that includes updated objectives and strategies to support the Society's mission to be the "premier professional association dedicated to science and education in radiology." The Board also refined its five-year vision, concentrating on topics including radiologic education, maintenance of certification, a virtual annual meeting, electronic

educational materials and molecular imaging.

## Continuous Quality Improvement

The Board approved a 12-month action plan under the new CQI<sup>2</sup>. An RSNA committee, chaired by Steven J. Swensen, M.D., developed the action plan, which includes:

- Opening session and focus sessions on quality at RSNA 2006
- Refresher course series on quality at RSNA 2007, focusing on hot topics such as pay per performance and practice metrics
- Section on quality in *RadioGraphics* beginning in 2007

The CQI<sup>2</sup> committee is also developing a model for a longitudinal workshop on continuous quality improvement (CQI) that will train participants to design and implement CQI projects in their own practices or departments.

A content code for Quality Assurance/Quality Improvement (including radiation and general safety issues) was approved at the September Board meeting. For those of you looking to quickly find these course offerings at RSNA 2006, look for the QA symbol on [rsna2006.rsna.org](http://rsna2006.rsna.org) when the meeting program becomes available in October. Click on the subspecialty content tab at the top of the page.

## RSNA 2006

One of the most noticeable changes at the upcoming annual meeting will be reconfiguration of the hall in the Lakeside Center of McCormick Place that houses scientific posters, education exhibits, *infoRAD*<sup>®</sup>



**Theresa C. McLoud, M.D.**  
Chair, 2006 RSNA Board of Directors

exhibits, informatics demonstrations, company-sponsored hands-on workshops, and the RSNA journal editorial offices.

Beginning at RSNA 2006, the hall will be called **Lakeside Learning**. While it will still contain the traditional displays, the big difference will be total content integration by subspecialty in a new hub-and-spoke format.

For example, those interested in cardiac imaging will find all of the scientific posters and education exhibits in cardiac imaging grouped together as a spoke with a gathering area at the outermost edge of the spoke. The gathering area—called a community—will feature lounge seating and 42-inch plasma monitors

on which some of the cardiac education exhibits and scientific posters will be shown. The community will also be the place where lunchtime poster and exhibit discussion with authors will



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November 26–December 1, 2006  
McCormick Place, Chicago

occur. Seventeen subspecialties will be represented, including informatics (formerly known as *infoRAD*) applications.

The Board believes attendees with similar practices will have an increased opportunity for social interaction and vigorous discussion with colleagues in the communities. A feature article on the new Lakeside Learning hall will be included in the June issue of *RSNA News*.

International attendees of RSNA 2006 may have an easier time navigating the McCormick Place convention center by taking advantage of **interpretation services**. In addition to Chinese, French, German, Japanese, Korean and Spanish, Dutch translation services will be available this year at the Help Centers.

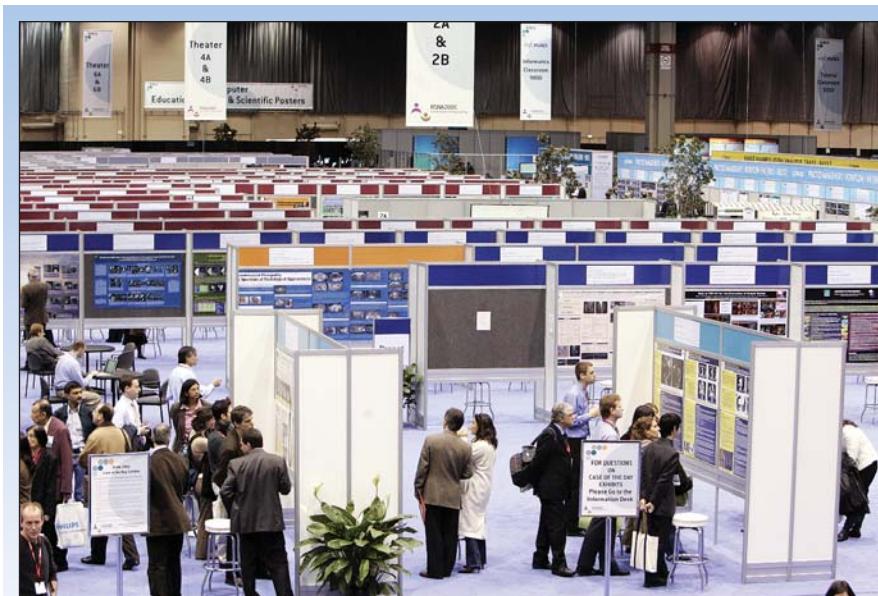
The recipients of **2006 special honors** have been notified. The names of the RSNA Gold Medalists, Honorary Members, Special Presidential Award recipient and honored lecturers will be announced in the June issue of *RSNA News*.

#### Educational Courses at RSNA HQ

If you are among the members who have participated in committee meetings and educational courses offered at RSNA Headquarters in Oak Brook, Ill., you may have noticed that the first-floor conference room is not always conducive to holding large meetings, particularly when breakout sessions are needed.

In an effort to accommodate larger gatherings and to host more interactive courses, the Board has approved a plan to revamp the conference center. Construction should be completed by fall 2006.

Similarly, the annual Integrating the Healthcare Enterprise (IHE<sup>®</sup>) Connectathon has outgrown its meeting space on the lower level of RSNA Headquarters. Beginning next year, the Connectathon will be held at a hotel conference center, and, for the first time, will include educational sessions in addition to the opportunity for manufacturers to test equipment for interoperability with other systems. Nearly 400 systems engineers from about 60 healthcare



The hall in Lakeside Center of McCormick Place housing scientific posters, educational exhibits, informatics demonstrations and other exhibits has been redesigned and renamed Lakeside Learning. This photo shows the previous arrangement.

information technology companies from around the world participated in the 2006 Connectathon.

Course content is still in development, but will include topics such as the electronic health record.

#### Oncologic Imaging and Therapies

The Board approved the formation of a new Taskforce on Oncologic Imaging and Therapies that will help formulate programs and initiatives of interest to both diagnostic radiologists, interventional radiologists and radiation oncologists.

An RSNA staff taskforce has also been formed to investigate ways to increase the number of radiation oncologists who are RSNA members and who participate in the RSNA annual meeting.

#### Imaging as a Biomarker

RSNA will cosponsor the U.S. Measurement System Workshop, Imaging as a Biomarker: Standards for Change Measurements in Therapy, that will be held September 14–15, 2006, in Gaithersburg, Maryland. The major sponsors are the National Institutes of Health, National Cancer Institute, National Institute of Standards Technology and the Food and Drug Administration.

#### RSNA Research & Education Foundation

As the RSNA Research & Education Foundation continues its Silver Anniversary Campaign to raise \$15 million by its 25th anniversary in 2009, the RSNA Board has approved new benefits for Foundation donors. These benefits will be outlined over the next few months in *RSNA News* and will be listed on the Foundation's Web site ([RSNA.org/foundation](http://RSNA.org/foundation)).



By raising the additional \$15 million, it is estimated that the Foundation will be able to fund 25 percent of the worthy grant applications submitted each year.

**THERESA C. MCLOUD, M.D.**  
*CHAIR, 2006 RSNA BOARD OF DIRECTORS*

**Note:** In our continuing efforts to keep RSNA members informed, the chair of the RSNA Board of Directors will provide a brief report in *RSNA News* following each board meeting. The next RSNA Board meeting is in June 2006.

# Lung Cancer Revolution Imminent, Researcher Says

**F**OR AN idea of how lung cancer diagnosis and treatment are being transformed, look at the dramatic changes in approaches to breast cancer over the last several years, said the author of a recently released study on early lung cancer screening.

"A whole revolution will happen in lung cancer," said Claudia I. Henschke, Ph.D., M.D. "There was a time when radical mastectomy was the standard therapy for breast cancer. Now, it's much less common. Women now have much less extensive surgery such as a lumpectomy. The same thing will happen with lung cancer."

Dr. Henschke, along with colleagues from the International Early Lung Cancer Action Program (I-ELCAP), recently released a study suggesting that early screening may be useful in detecting lung cancers that are still curable. "Why should I take a whole lobe of the lung for something that is 5 or 6 mm?"

Dr. Henschke, of New York Presbyterian Hospital-Weill Cornell Medical Center, and colleagues published their article, "Computed Tomographic Screening for Lung Cancer: The Relationship of Disease Stage to Tumor Size," in the February 13 issue of the *Archives of Internal Medicine*. It is well known, Dr. Henschke said, that lung cancers without evidence of lymph node metastases are more curable, with the curability rate being higher with smaller sizes.

The team noted that tumor size has, in the past, been identified as a prognostic indicator for stage I lung cancer as it was used to divide stage I into stages IA and IB. Their study, the authors wrote, provides direct evidence



Claudia I. Henschke, Ph.D., M.D.



Stephen J. Swensen, M.D.

of a stage-size relationship in screening cases.

"The smaller they are, the more likely it is that they're early and the more likely they can be cured," added Dr. Henschke.

## Screened Population Versus Registry Data

Lung cancer remains a leading cause

of cancer death worldwide. In the U.S., it causes more deaths than breast, prostate, cervical and colon cancers combined. In spite of recent advances in surgical techniques, as well as in chemotherapy and radiation therapy, the overall survival rate

has not improved appreciably in the past 40 years. The overall 5-year survival rate in the U.S. is only 14 percent and worldwide it is

even lower.

In the *Archives of Internal Medicine*, Dr. Henschke and colleagues reported studying 28,689 asymptomatic men and women who underwent baseline CT screening, with 22,991 receiving repeat screening. The median age of enrollees was 61 and men made up 58 percent of the study participants.

The median pack-years of smoking was 30.

A total of 464 lung cancer cases were diagnosed, 376 on initial screening and 88 on repeat screening. Grouping the 436 non-small cell carcinoma cases according to tumor diameter, the team found that 91 percent of tumors 15 mm or less had no metastases. Eighty-three percent of tumors 16 to 25 mm had no metastases, while 68 percent of tumors 26 to 35 mm had

*It is frustrating that the high percentage of stage I cases is not given sufficient recognition in terms of the number of lives that could be saved, because people are dying everyday.*

Claudia I. Henschke, Ph.D., M.D.

no metastases. Of tumors 36 mm or greater, 55 percent had no metastases.

"The percentages of N0 M0 (no metastases) cases in screen-diagnosed lung cancers are much higher than previously reported in the Surveillance, Epidemiology and End Results (SEER) registry," the authors wrote. "These results provide direct evidence of a stage-size relationship in a screened population."

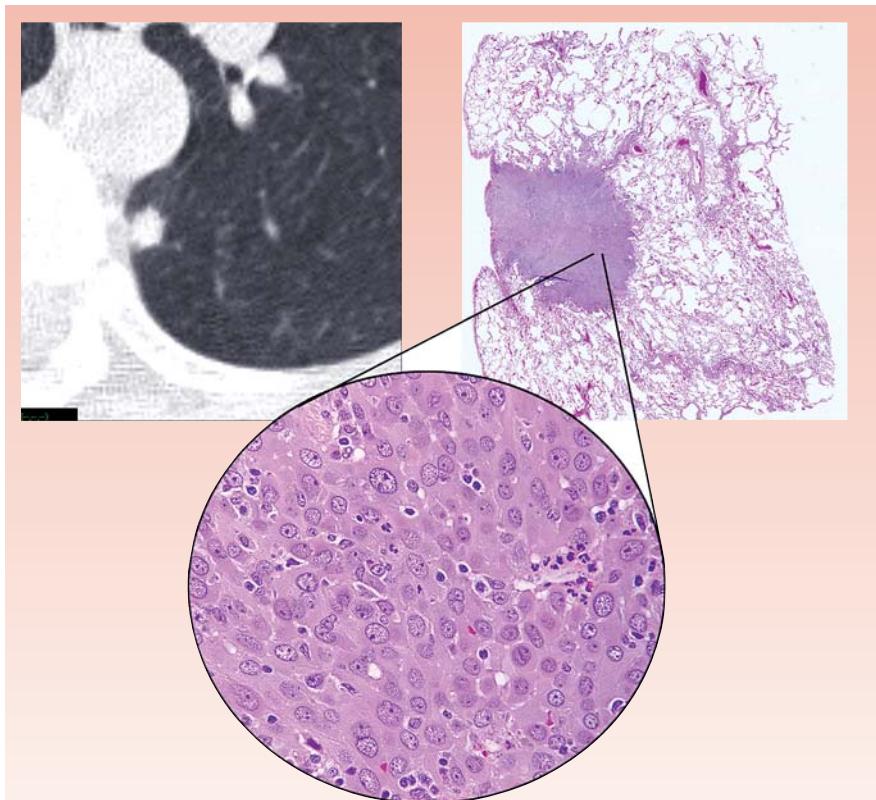
### Debate Continues Over Benefit of Early Screening

Dr. Henschke said the results justify the benefit of early screening among populations at risk for developing lung cancer. Early stage I lung cancer has a curability rate of almost 70 percent, she explained, with some studies reporting much higher rates for smaller cancers. However, most cancers are not identified until the disease has progressed and symptoms become more pronounced. Lung cancer has no symptoms in its early stages, she added, which is another argument for the necessity of early screening. A person's risk, she said, depends on how much he or she smoked, the person's age and, if the person has quit, how long it has been.

Stephen J. Swensen, M.D., professor of radiology at the Mayo Clinic in Rochester, Minn., disagreed that the study conclusions constitute a call for early screening. The results are interesting, he said, but they won't change radiologists' day-to-day practices. "There's no clear evidence that screening will save lives when you look at all populations with lung cancer," he said.

The study is another small step in the accumulation of data and opinion regarding the utility and feasibility of lung cancer screening, said Eric J. Stern, M.D., professor of radiology and medicine at the University of Washington Harborview Medical Center in Seattle.

"At this time, I do not think there will be a great immediate clinical



**A small adenocarcinoma presenting as a solid nodule. Just behind the descending thoracic aorta, it would be obscured on the chest x-ray. The radiologic-pathologic correlation is good as it shows the tumor abutting the pleura and the high-powered view shows that it is an adenocarcinoma.**

Images courtesy of Claudia I. Henschke, Ph.D., M.D.

impact, as the screening trials are still under way," said Dr. Stern, a chest radiologist. "This is not to say the conclusions of the study might not have an impact in the future, as they could lead to continued refinement of the international system for staging lung cancer classification."

Dr. Henschke said she anticipates just such a stage shift, pointing again to recent changes in the staging of breast cancer as an example. However, because staging recommendations are just being considered by the International Association for the Study of Lung Cancer (IASLC) Staging Committee, changes could be three to four years away, she said.

"It is frustrating that the high percentage of stage I cases is not given sufficient recognition in terms of the number of lives that could be saved,

because people are dying everyday," she said.

### Other Studies Continue

Dr. Swensen added that while "interesting and worthwhile" lung cancer studies are being conducted, "all will be overshadowed" when results are released from the National Lung Screening Trial (NLST), for which he is a principal investigator at Mayo. The NLST, sponsored by the National Cancer Institute (NCI), is a longitudinal randomized trial of subjects at high risk of developing lung cancer. Results are expected as soon as 2008.

"No one knows right now if we're doing more harm than good by performing screenings," Dr. Swensen said.

Dr. Henschke disagreed. She said

*Continued on page 11*

# Study Shows Small MR-Detected Breast Lesions Do Not Require Biopsy

**L**ARGER MR imaging-detected breast lesions are more likely to be malignant than small lesions of 5 mm or less, according to a recently published study.

In the February 2006 issue of the *American Journal of Roentgenology* (*AJR*), Laura Liberman, M.D., and colleagues from Memorial Sloan-Kettering Cancer Center reported that the positive predictive value for lesions identified with MR imaging using a 1.5 Tesla magnet rose significantly with increasing lesion size.

“Biopsy is rarely necessary for lesions smaller than 5 mm because of their low—3 percent—likelihood of cancer,” the team wrote in their study, “Does Size Matter? Positive Predictive Value of MRI-Detected Breast Lesions as a Function of Lesion Size.”

Co-author D. David Dershaw, M.D., offered two explanations for the study findings. “It is not uncommon to see small areas of enhancement in a normal breast with MR,” said Dr. Dershaw, director of the breast imaging section in the Department of Radiology at Memorial Sloan-Kettering and a presenter at the RSNA 2005 Categorical Course in Diagnostic Radiology: Breast Imaging.

“The smallest of these small areas of enhancement is a single pixel,” Dr. Dershaw said. “In the Breast Imaging Reporting and Data System (BI-RADS®) lexicon for MR, radiologists are supposed to ignore them because they are common and of no importance. The single pixel enhancement is another manifestation of the fact that



D. David Dershaw, M.D.



Stephen A. Feig, M.D.

small enhancements in the breast are rarely of importance.”

Another explanation, he said, is that small findings frequently represent a physiologic pattern in the breast. He added that MR resolution makes it almost impossible to determine the true configuration of those small findings. Unlike larger areas of enhancement, he said, where inhomogeneity or spiculation in the pattern of the lesion or nonenhancing fibrous bands may be evident, small areas do not allow the luxury of resolution for such identifications.

“We are a little more blind with smaller things than we are with larger things, so I think we tend to biopsy them more often,” explained Dr. Dershaw.

## Findings Clinically Significant

For the study, researchers reviewed

records for 666 consecutive nonpalpable, mammographically occult lesions that had MRI-guided localization. The median MR-detected lesion size was 1 cm. Twenty-two percent of the lesions were malignant. Fifty-four percent of the malignancies were ductal carcinoma in situ (DCIS), 44 percent were invasive cancers and 2 percent were lymphoma. The frequency of malignancy increased significantly with lesion size. Malignancies were found in 3 percent of lesions less than 5 mm, 17 percent of lesions 5 to 9 mm, 25 percent of lesions 10 to 14 mm, 28 percent of lesions 15 to 19 mm and 31 percent of lesions 20 mm or larger.

Among lesions less than 10 mm, the likelihood of cancer was highest in postmenopausal women. The likelihood of cancer was lowest in premenopausal women and in the high-risk screening setting.

The conclusion that MR-detected breast lesions of 5 mm or less do not require biopsy is clinically significant, said Stephen A. Feig, M.D., professor of radiologic sciences at the University of California Irvine (UCI) School of Medicine and director of breast imaging at UCI Medical Center.

"Obviously, the findings will have to be confirmed by additional studies to see if the results hold," said Dr. Feig, director of the RSNA 2005 breast imaging categorical course in which Dr. Dershaw was a presenter. "We need to know if the results can be generalized."

Dr. Feig said the study's positive predictive value for MR imaging-detected lesions was lower than the predictive value of mammography in large academic centers, even though many patients studied with MR imaging were high-risk and a number of exams were performed to determine the disease extent. In a normal population, he speculated, the likelihood of malignancy for MR imaging-detected lesions of similar size and appearance would be much lower than reported in the Memorial Sloan-Kettering study.

In this context, the detailed information about lesion size and characteristics of patients in this study is very helpful, Dr. Feig said. He noted that in lesions of less than 5 mm, about 12 percent of study lesions biopsied, the likelihood of malignancy was only 3 percent.

A mammographic lesion having a 2–3 percent likelihood of malignancy, he said, is usually classified as BI-RADS 3, or probably benign. "The lesion would be recommended for short-term follow-up rather than biopsy," he said.

Noting that the study detected DCIS in more than half of the lesions, Dr. Feig said reports on MR detection

of DCIS have been mixed. "The more recent reports suggest MR may be more effective than previous studies reported, and the *AJR* article is encouraging because it backs up MR's ability to detect DCIS lesions," he said.

### MR Versus Mammography and Sonography

Radiologists reading breast MR images need to understand they are not seeing the same phenomena they see on mammography and sonography, said Dr. Dershaw.

"Sometimes it is more difficult to interpret MR examinations," he said. "MR shows an active process blood-flow pattern, rather than a lump or a bump or calcifications."

MR resolution also does not allow discrimination based on criteria used in mammography and sonography, he added. "We have to think about what it is that we are seeing on MR from a somewhat different perspective than the way we think about what we are seeing on sonography and mammography," he said.

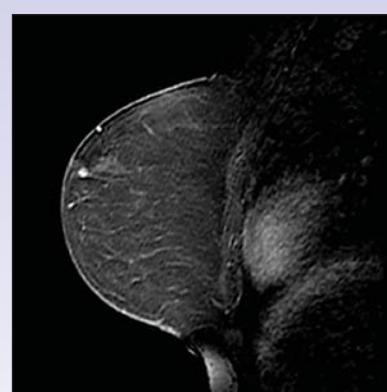
Dr. Feig noted that extremely

high-risk women, such as those with BRCA-1 and BRCA-2 mutations, should consider having breast MR as a supplementary screening modality to mammography.

"The research that we have been doing in MR is part of our learning curve in reading MR studies of the breast. I expect that our research has impacted the way we read our examinations at Sloan Kettering," Dr. Dershaw concluded.

### AHRQ Report Challenges Effectiveness of Tests

The same month the *AJR* study was released, the Agency for Healthcare Research and Quality (AHRQ) released a study concluding that MR imaging, positron emission tomogra-



Though not from the Liberman et. al. study, this image is similar to records reviewed for the study. It shows a small enhancing mass in the subareolar region of the breast. It turned out to be fat necrosis.

Image courtesy of D. David Dershaw, M.D.

phy (PET), scintimammography and ultrasound are not sufficiently accurate to replace biopsy of suspicious breast abnormalities.

Dr. Feig disputed the report. He said some of the modalities, such as scintimammography and PET, are not currently used to exclude the need to biopsy a suspicious mammographic lesion. Ultrasound, on the other hand, can virtually always rule out the need to aspirate simple cysts, he said.

In its report, "Effectiveness of Noninvasive Diagnostic Tests for Breast Abnormalities," AHRQ stated that its goal was to "help patients, policy makers, and clinicians determine whether these noninvasive tests are sufficiently accurate to be appropriate for evaluation of average risk women with an abnormal mammogram or exam finding." One of the 12 agencies within the Department of Health and Human Services, AHRQ supports health services research with the goal of improving healthcare quality and promoting evidence-based decision-making.

AHRQ reached its conclusions after reviewing 69 publications to evaluate sensitivity, specificity, and positive and negative predictive value of

*Continued on page 11*

# Imaging Reimbursement Cuts May Harm Rural Practices, Patients

**R**ECENT reductions in Medicare reimbursement rates for outpatient imaging procedures will jeopardize patient care, warn some private practice radiologists and industry advocates.

"If you look at what happened in home health and diabetes and other areas that have had cuts like this, it's been a disaster," said Cherrill Farnsworth, executive director of the National Coalition for Quality Diagnostic Imaging Services (NCQDIS), an advocacy group representing outpatient diagnostic imaging centers. She said she believes many facilities will close their doors in the face of cuts as high as 25 to 30 percent.

Totaling \$2.8 billion over the next five years, the imaging cuts are part of the Deficit Reduction Act (DRA) of 2005. The DRA was signed into law by President Bush in February 2006 and is intended to cut \$39 billion in federal spending. Effectively equalizing

Medicare reimbursement rates for outpatient and hospital imaging procedures, the DRA provision capped reimbursement for the technical component of physician office imaging to the lesser of the Hospital Outpatient Prospective Payment System (HOPPS) or Medicare Fee Schedule (MPFS) payment.

The provision also cuts reimbursement for the technical portion of MR imaging, CT and ultrasound exams on contiguous body parts by 25 percent in 2006 and an additional 25 percent in 2007.

## Rural Practitioners Particularly Concerned

The American College of Radiology

(ACR) has joined more than 30 other medical organizations, patient advocacy groups and manufacturers in lobbying Congress to oppose the law, claiming it will restrict patient access and care, discourage research and lead to higher costs for Medicare beneficiaries.

ACR Senior Director of Government Relations Josh Cooper said his organization worries the cuts will force physicians in outpatient facilities to stop offering needed radiologic services and limit the number of Medicare patients they accept. Most vulnerable, said Cooper, will be centers in rural areas that have less volume to offset the cuts. "A lot of facilities are set up to be a community service and if their technical fees are cut, it's going to be harder to maintain that type of service," Cooper said.

Geoffrey G. Smith, M.D., operates one such rural outpatient imaging center in Casper, Wyo. He said he feels the

*Congress needed to chop off some amount of money and imaging was where they placed the knife.*

**Geoffrey G. Smith, M.D.**

cuts were made without proper consideration for the impact they will have. "Congress needed to chop off some amount of money and imaging was where they placed the knife," he said.

Farnsworth and Cooper said they envision other consequences for patient care as well, including less frequent equipment upgrades, reductions in staff and increased demand, which could result in longer wait-times for patients. But most troubling, they said, are the difficult economic decisions outpatient practices will have to make regarding the procedures they offer.

"It's well known in the radiology



**Cherrill Farnsworth**

community that mammography—although an extremely valuable service—is not profitable, and we've been told by our members that mammography may be one of the first things to go," Cooper said. He noted that the majority of mammograms are performed in private offices as opposed to hospitals.

## Self-Referrals Still An Issue

Many imaging organizations agree that some cuts were necessary, particularly to curb skyrocketing utilization. However, leaders say the cuts included in the DRA fail to address physician self-referral, which they consider the root cause of increased Medicare imaging expenditures.

Self-referral, said Dr. Smith, is "the elephant in the room" ignored by Congress. He said loopholes in the Stark law, which governs physician self-referral for Medicare and Medicaid recipients, actually encourage utilization and self-referral. He said that while the cuts included in the DRA may thwart some self-referrals by making it

more difficult for physicians to buy imaging equipment for use in their offices, they also unfairly penalize people like him.

"The cuts hit the knuckles of people like me and our group and our hospital and the people we serve here," said Dr. Smith. "I'm basically lumped in with the exact same group of folks that I feel had a great responsibility in creating the problem." He added that physicians who self-refer also can evade the regulations and make up what they might lose in volume because they control the patients and their ordering patterns.

#### Cuts Face Legal Challenges

ACR leadership and others predict that the cuts ultimately will cost rather than save money. Quality will deteriorate as remaining hospitals and remaining out-

patient centers are forced do more scans quickly, they said.

Industry leaders also decry that they were not consulted on the cuts, which were drafted late at night by a small group of legislators who did not solicit outside input. The cuts were not included in either the Senate- or House-passed versions of the DRA and were neither the subject of a Congressional committee hearing nor recommended by the Medicare Payment Advisory Commission (MedPAC).

Others have challenged the law on legal grounds. A lawsuit filed by an Alabama attorney and another by the public interest group Public Citizen claim the bill is unconstitutional. The constitution requires that the Senate and House pass identical versions of a

■ For more information on the Deficit Reduction Act of 2005, go to [www.whitehouse.gov/news/releases/2006/02/20060208-9.html](http://www.whitehouse.gov/news/releases/2006/02/20060208-9.html).

bill before it can become law; however, Senate and House versions of the DRA differ regarding durable medical equipment reimbursement under Medicare.

Dr. Smith admitted he'd like to see the law overturned but added he isn't optimistic. He is doing next year's financial planning assuming the law will be in place. Whether or not the law is overturned, Smith said he doubts much will change.

"After 2007, spending will level off for a few months and then all of a sudden it will start going up again. It's a complex topic, and I think this solution will be a transient blip that will make life more difficult for a whole group of people I don't think they intended to make life difficult for," he said. □

## Lung Cancer Revolution Imminent, Researcher Says

*Continued from page 7*

that by following requisite screening and workup guidelines, radiologists can do more good than harm with early screening of high risk populations. As for NLST, she said a key drawback is that results will not be reported for several years.

"We report semi-annually, and we're already reporting that if the cancer is found early and it's small you have a high rate of cure—90 percent or better," she said.

The effect of early screening will be

very slow to show up in national survival rates, Dr. Henschke added, "A majority of people still are not getting screened because they have to pay for it."

Dr. Henschke said she and her colleagues will publish in the next year a 10-year follow-up of cases in I-ELCAP. Other upcoming studies will look at combination lung/heart scans and the "rational recommendations" for early

screening of people who never have smoked, she said. Trials of the treatment of lung cancer with radiofrequency ablation (RFA) and radiosurgery are also planned.

I-ELCAP is an international collaborative group created by a group of lung cancer experts. Screening sites for collaborative I-ELCAP projects are located worldwide. □

■ To read the abstract for "Computed Tomographic Screening for Lung Cancer: The Relationship of Disease Stage to Tumor Size," go to: [archinte.ama-assn.org/cgi/content/abstract/166/3/321](http://archinte.ama-assn.org/cgi/content/abstract/166/3/321).

## Study Shows Small MR-Detected Breast Lesions Do Not Require Biopsy

*Continued from page 9*

the various diagnostic tests.

In a news release, the American College of Radiology (ACR) stated it was not consulted on the AHRQ study. "Without adequate input by those actually involved in the field being studied, reports such as this are vulnerable to errors of methodology, emphasis, and

conclusions, all of which reduce the clinical relevance and have the potential of being misleading, counterpro-

ductive, and ultimately to waste valuable resources." ACR stated. □

■ To view the abstract for "Does Size Matter? Positive Predictive Value of MRI-Detected Breast Lesions as a Function of Lesion Size," go to [www.ajronline.org/cgi/content/abstract/186/2/426](http://www.ajronline.org/cgi/content/abstract/186/2/426).

■ To read the AHRQ report "Effectiveness of Noninvasive Diagnostic Tests for Breast Abnormalities," go to [effectivehealthcare.ahrq.gov/repFiles/BrCADx%20Final%20Report.pdf](http://effectivehealthcare.ahrq.gov/repFiles/BrCADx%20Final%20Report.pdf).

# Radiographer Shortage Continues as Programs Turn Away Qualified Candidates

**R**ADIOLOGISTS looking to hire more radiographers into their practices may see fewer qualified candidates and be forced to pay higher salaries, because of a continued shortage due to lack of space in training programs.

A study recently released by the American Society of Radiologic Technologists (ASRT) shows almost 32,000 qualified students were unable to enroll in educational programs in the radiologic sciences in 2005.

While the market doesn't demand that every would-be radiologic technologist (R.T.) be accepted into a program, ASRT Research Director Richard Harris, Ph.D., said that if the current trends in enrollment and graduation and retention rates continue, there will be almost 7 percent fewer radiographers than the government-projected demand of 76,000 additional through 2014. "While the figure is down from our 2002-2012 projections showing a 14 percent shortage, and a 30 percent deficit

the year before, we still need to figure out how to fix the shortage," Dr. Harris said.

The news from the study, "2005 Enrollment Snapshot of Radiography, Radiation Therapy and Nuclear Medicine Programs," is not all negative. While radiographers may be in somewhat short supply, ASRT did find radiation therapy programs are producing new technologists at a rate much higher than the Bureau of Labor Statistics (BLS) estimated demand and the number of nuclear medicine technology graduates will be more than double the estimated need.

*Two years ago, we couldn't get people to apply to radiologic technologist programs.*

**Stephen R. Baker, M.D.**

However, even with differences in application volumes—and the fact that some of the 32,000 candidates rejected last year were in fact students ultimately accepted to a program after being turned away from others—Dr. Harris said more spaces still need to be created if the BLS-estimated need is to be met.

According to the ASRT survey, part of the training space deficit stems from too few clinical sites and too few medical professionals to staff those pro-

## Applicants Not Evenly Distributed

Part of the reason R.T. programs end up turning away qualified students, said Dr. Harris, is an uneven geographic distribution of applicants. In the recent study, for example, some programs turned away a total of 31,800 qualified students, while

1,419 positions were available at other institutions. Almost 33,000 qualified students were turned down from some programs in 2004, yet nearly 1,600 openings remained elsewhere.

By making application data available annually, Dr. Harris said, ASRT hopes program directors will alert each other—and the qualified applicants they have to turn away—when there is

space available.

grams. ASRT leaders said increasing the number of sites will be difficult, because a facility serving as a clinical site must commit significant equipment and staff time. Dr. Harris noted that this is somewhat of a Catch-22—with radiographers in short supply, it's all the more difficult for those in the workforce to allocate time to education.

## Faculty Recruitment and Student Retention

Survey results also indicated that R.T. training programs need more funding and equipment and have difficulty recruiting faculty and retaining students. Recruiting faculty is indeed challenging, Dr. Harris said, as salaries for radiologic technology faculty are lower than those available in clinical practice.

"This issue is endemic to higher education rather than being unique to radiologic technology," Dr. Harris added.

Now that unmet capacity has reached such high levels, he said, ASRT plans to ask program directors in next fall's enrollment survey to share



**Richard Harris, Ph.D.**



**Stephen R. Baker, M.D.**

approaches they have used to successfully address funding and faculty recruitment issues.

As for retaining students in programs—and graduates in the workforce—Dr. Harris said ASRT hopes the creation of radiologist assistant (R.A.) programs (see *RSNA News*, May 2005) will encourage R.T.s to stay in the field and move ahead. R.A.s receive higher pay, have more responsibilities and garner greater professional recognition.

Stephen R. Baker, M.D., chair of the Department of Radiology and associate dean at the University of Medicine and Dentistry of New Jersey, said he's surprised by the results of the ASRT survey. "Two years ago, we couldn't get people to apply to radiologic technologist programs," he said.

Dr. Baker said a radiographer shortage means private practice radiologists may see less qualified candidates down the road. Those who are well qualified, especially those working in high-end CT and MR imaging, will be able to bid

### Issues Limiting Enrollment in Radiography Programs

FACTOR	% OF RESPONDENTS WHO MENTIONED	MEAN RANK (1-5, 5 MOST IMPORTANT)
Funding	56%	3.17
Space	68%	2.59
Equipment	51%	3.68
Number of qualified applicants	41%	4.55
Availability of faculty	64%	2.74
Number, staffing of clinical sites	80%	1.71

Source: American Society of Radiologic Technologists

up the price of their services, he said.

Dr. Baker added that he does not see the R.A. program as a solution. In an April 2005 *Emergency Radiology* editorial, he and Alex Merkulov, M.D., raised doubts about the value R.A.s can bring to radiology practices and speculated about longterm encroachment issues.

In late 2005, RSNA began accept-

- To view "2005 Enrollment Snapshot of Radiography, Radiation Therapy and Nuclear Medicine Programs," go to [www.asrt.org/media/pdf/research/enrollmentsurvey05.pdf](http://www.asrt.org/media/pdf/research/enrollmentsurvey05.pdf).
- A March 2006 update to the study can be accessed at [www.asrt.org/media/pdf/research/EnrollmentGapUpdate.pdf](http://www.asrt.org/media/pdf/research/EnrollmentGapUpdate.pdf).

ing R.A.s as members. At RSNA 2006, a new educational track for R.A.s will be offered. For more information, go to [rsna2006.rsna.org](http://rsna2006.rsna.org). □

## Some Radiologists Wouldn't Choose Medicine Again, Survey Shows

A VETERAN RADIOLOGIST and another at the beginning of his career were both surprised by a recent survey showing more than a quarter of responding radiologists wouldn't choose medicine as a career if they had the choice to make over again.

Physician recruiter *LocumTenens.com* surveyed 1,400 radiologists late last year. While 49 percent of radiologists said they had no plans to change jobs, the other half said they'd like to change jobs within the next three years. About 23 percent said they plan to make a job change within the next six months. Those considering a job search said they're looking for a better community for themselves and their families or a better work environment.

The survey results came as a shock to 2001 RSNA President Jerry Petasnich, M.D., who began working as a radiologist in 1967. "No one in radiology is lamenting a lack of money," said Dr. Petasnich, director of the radiology resident program at Rush Univer-

sity Medical Center in Chicago. "But the job dissatisfaction expressed by those surveyed is not the case with respect to friends of mine in radiology."

Dr. Petasnich noted that, unlike others in volatile fields, most physicians are secure in their work. "Unlike 50-year-olds in middle management in U.S. corporations, my friends are not finding themselves suddenly unemployed at the age of 50," Dr. Petasnich said. "Some of my colleagues have retired, but 65- and 70-year-old physicians, particularly radiologists, can still work today."

Now is an exciting time for young radiologists just entering the field, Dr. Petasnich added. "There are multiple career choices for today's new radiologists," he said. "Most residents finishing their programs have a lot of job opportunities. They usually can get their first choice," he said.

Newly practicing radiologist Filip Banovac, M.D., also was surprised by the survey results. Like Dr. Petasnich, he noted that compensation is likely not the root of

dissatisfaction. He said he suspects unhappiness with career choice has to do with increasing demand for imaging, combined with the recent radiologist shortage.

Dr. Banovac, an assistant professor in the Division of Interventional Radiology at Georgetown University Hospital, said his job satisfaction is enhanced by the mission inherent in an academic setting. He said he could see how young radiologists who haven't made partnership yet and are working long hours might express dissatisfaction with their work. Those working in small radiology groups and interpreting an overwhelming and ever-increasing variety of imaging studies might be unhappy too, he added. □

- To read portions of the *LocumTenens.com* "2005 Annual Physician Compensation and Employment Survey" pertaining to radiologists, go to [www.locumtenens.com/radiology-careers/2005-radiology-salary-survey-report.pdf](http://www.locumtenens.com/radiology-careers/2005-radiology-salary-survey-report.pdf).

# Journal Highlights

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

## Thin-Section CT of the Secondary Pulmonary Lobule: Anatomy and the Image—The 2004 Fleischner Lecture

**T**HE secondary pulmonary lobule is a fundamental unit of lung structure and reproduces the lung in miniature. Airways, pulmonary arteries, veins, lymphatics

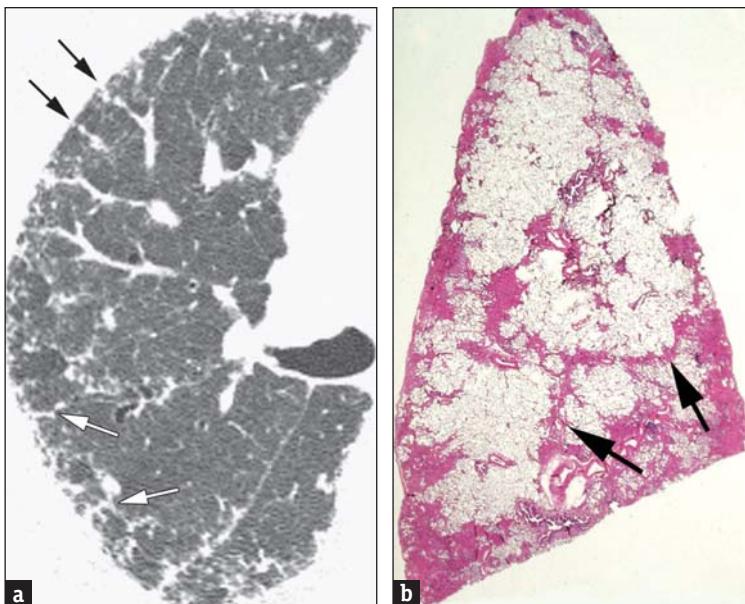
**Radiology**

and the lung interstitium are all represented at the secondary lobule level. Several components of the secondary lobule are normally visible on thin-section CT lung scans.

In an article in the Reviews section of the May issue of *Radiology* ([RSNA.org/radiologyjnl](http://RSNA.org/radiologyjnl)), W. Richard Webb, M.D., of the Department of Radiology at the University of California San Francisco, discusses how recognizing lung abnormalities relative to secondary lobule structures is fundamental to interpreting thin-section CT scans. Pathologic alterations in secondary lobular anatomy visible on thin-section CT scans include interlobular septal thickening and diseases with peripheral lobular distribution and centrilobular and panlobular abnormalities. The differential diagnosis of lobular abnormalities is based on comparisons between lobular anatomy and lung pathology.

Dr. Webb emphasizes:

- Pulmonary disease occurring predominantly in relation to interlobular septa and the periphery of lobules is termed “perilobular;” this disease distribution may reflect abnormalities of the interlobular septa or peripheral alveoli.
- Centrilobular abnormalities visible on thin-section CT scans may consist of



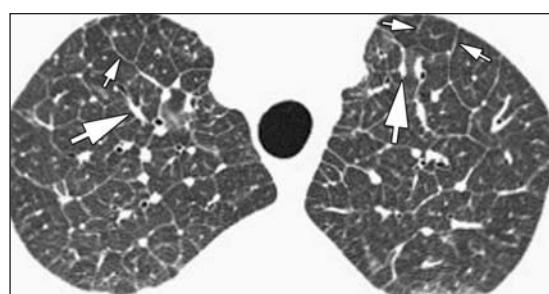
### Peripheral lobular fibrosis in idiopathic pulmonary fibrosis.

(a) Transverse thin-section CT scan through right upper lobe in a patient with idiopathic pulmonary fibrosis shows irregular reticular opacities (arrows). (b) Histologic specimen from open lung biopsy in a different patient with idiopathic pulmonary fibrosis shows irregular fibrosis (arrows) in periphery of secondary pulmonary lobules.

(*Radiology* 2006;239:322–338) © RSNA, 2006. All rights reserved. Printed with permission.

### Interlobular septal thickening in pulmonary edema.

Transverse thin-section CT scan shows thickened septa (small arrows) in upper lobes. Smooth thickening of interlobular septa outline a number of secondary pulmonary lobules. Pulmonary veins



(large arrows) in septa are visible as small rounded dots or linear or branching opacities. Septa are well developed in the apices, and septal thickening is often well depicted in this region.

nodular opacities; the tree-in-bud appearance, which usually indicates a small-airways abnormality; increased visibility of centrilobular structures due to thickening or infiltration of the surrounding interstitium; or abnormal low-attenuation areas related to bron-

chiolar dilatation or emphysema.

“Thin-section CT can show many features of the secondary pulmonary lobule in both normal and abnormal lungs, and many lung diseases produce characteristic abnormalities of lobular anatomy,” Dr. Webb states.

## CT Enterography as a Diagnostic Tool in Evaluating Small Bowel Disorders: Review of Clinical Experience with Over 700 Cases

INCREASED SPEED and resolution have made multi-detector row CT a first-line modality for examining small bowel disease and an important alternative to traditional fluoroscopy in assessing other small bowel disorders such as celiac sprue and small bowel neoplasms.

In an article in the May-June issue of *RadioGraphics* ([RSNA.org/radiographics](http://RSNA.org/radiographics)), Scott R. Paulsen, B.S., of the Mayo Clinic College of Medicine in Rochester, Minn., and colleagues:

- Describe methods for performing CT enterography
- Discuss various considerations in achieving small bowel distention
- Discuss and illustrate CT enterographic findings in common diseases, including Crohn disease, ulcerative colitis, small bowel tumors and celiac disease, and incidental findings

Paulsen and colleagues reviewed records for 756 patients who underwent CT enterography at the Mayo Clinic from March 2001 and March 2004. The team notes that the number of CT enterography examinations performed at the institution increased from 99 in 2001 to more than 900 in 2004, as referring clinicians gained confidence in the examination.

The researchers note that CT enterography has several advantages over traditional small bowel follow-through examination, including how it displays the entire thickness of the bowel wall. CT enterography also allows assessment of solid organs and provides a global overview of the abdomen, they said.

"CT enterography is a powerful tool in the evaluation of small bowel disease," Paulsen and colleagues conclude. "Adequate luminal distention can usually be achieved with oral ingestion of a large volume of neutral enteric contrast material in the evaluation of diseases affecting the mucosa and bowel wall, thereby obviating nasogastric intubation and making CT enterography a useful, well-tolerated study in this setting."



**Spectrum of segmental mural hyperenhancement indicating active inflammatory Crohn disease.**

(a) Active jejunal Crohn disease in a 19-year-old woman. CT enterogram shows mural hyperenhancement (arrows). Compare the normal enhancement of the unaffected small bowel (arrowhead). (b) Active ileal Crohn disease in an asymptomatic 38-year-old man. CT enterogram depicts mural hyperenhancement (arrows) with mural stratification within the thickened bowel wall. (c) Duodenal Crohn disease in a 42-year-old woman. CT enterogram demonstrates mucosal hyperenhancement (arrows) and stratification (arrowhead). The diagnosis was confirmed at endoscopy.



**Active Crohn disease in a 14-year-old patient.**  
The patient had been treated medically since undergoing ileal resection one year earlier. Follow-up CT enterogram shows engorged vasa recta producing the comb sign (arrows) involving two ileal loops with asymmetric enhancement and wall thickening.

(RadioGraphics 2006;26:641-657) © RSNA, 2006. All rights reserved. Printed with permission.

# Radiology in Public Focus

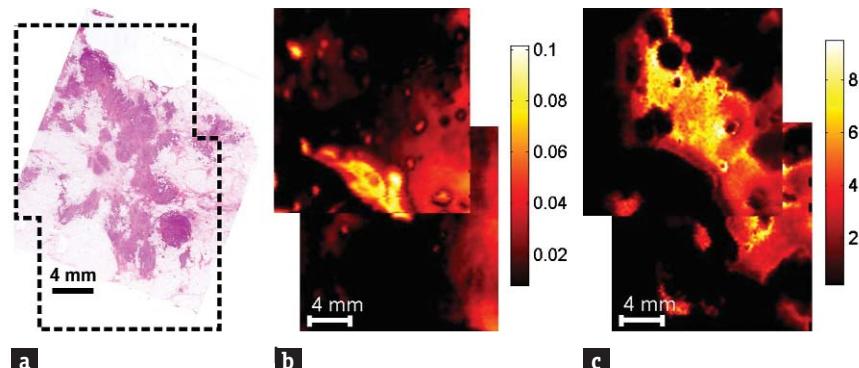
A press release has been sent to the medical news media for the following article appearing in the May issue of *Radiology* ([RSNA.org/radiologyjnl](http://RSNA.org/radiologyjnl)):

## Terahertz Pulsed Imaging of Human Breast Tumors

**U**SING A new region of the electromagnetic spectrum, terahertz pulsed imaging could improve overall sensitivity in identifying cancer in exposed breast tissue, according to researchers in Cambridge, England.

Anthony J. Fitzgerald, Ph.D., and colleagues report that terahertz pulsed imaging provides information complementary to other imaging modalities and techniques—such as infrared and optical imaging, thermography, electrical impedance and MR imaging—being investigated as adjuncts to mammography. Dr. Fitzgerald works for TeraView, a company that develops commercial uses for terahertz radiation.

The terahertz region of the electromagnetic spectrum lies between the microwave and infrared regions. Because terahertz wavelengths are longer than infrared and optical radiation, scattering in biologic tissue is comparatively small, according to the researchers.



(a) Photomicrograph of specimen with invasive ductal carcinoma with lobular features. Dashed area indicates region of tissue that was imaged with terahertz imaging. (b) Terahertz image of Emin and (c) Emin/Emax. Two terahertz images of overlapping regions were imaged and have been tiled together. Bright region dominating b was caused by an air gap.

(*Radiology* 2006;239:533-540) © RSNA, 2006. All rights reserved. Printed with permission.

For their study, Dr. Fitzgerald and colleagues imaged 22 human breast tissue specimens with carcinoma excised from 22 women. Comparing the size and shape of tumor regions on terahertz images with those identified at histopathologic examination, the team found significant correlation.

"Findings of this study demonstrate

the potential of terahertz pulsed imaging to depict both invasive breast carcinoma and ductal carcinoma in situ under controlled conditions and encourage further studies to determine the sensitivity and specificity of the technique," Dr. Fitzgerald and colleagues wrote.

## Media Coverage of Radiology

March *Radiology* press releases reached almost 150 million people worldwide.

A study on the dangers of benign breast lesions (*Radiology* 2006;238:801-808) was picked up by the *Los Angeles Times* and *Chicago Tribune*, as well as wire services Reuters Health, United Press International (UPI) and HealthDay News. The study also appeared online in such outlets as Yahoo! News, CNN.com, Forbes.com

and DrKoop.com.

Another study on using MR imaging to rule out appendicitis during pregnancy (*Radiology* 2006;238:891-899) was circulated by the Reuters and UPI wire services. The study also was featured on online medical outlets including Medical News Today and Medscape, as well as on Red-



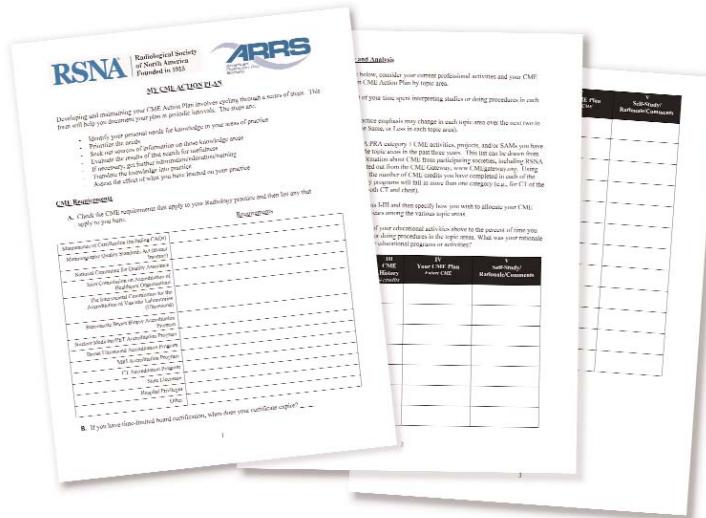
Orbit.com, an Internet forum for space, science, health and technology enthusiasts.

Two additional articles from the March issue, one on screening mammography (*Radiology* 2006;238:793-800) and a second on bone marrow edema (*Radiology* 2006;238:943-949), were featured by Reuters, Medscape and RedOrbit.com.

# Working For You

## My CME Action Plan

Join the more than 200 RSNA members who have downloaded My CME Action Plan, RSNA's new Web-based document that helps you identify your personal CME needs. To access My CME Action Plan, go to [RSNA.org/education/moc](http://RSNA.org/education/moc) and click on My CME Action Plan. The plan will guide you in listing your CME requirements, prioritizing your educational needs, planning future CME activities and keeping a record of what you've done.



# RSNA Research Department

**T**HE Research Department implements a diverse range of programs and activities. Under the leadership of Tracy Schmidt, M.S., the department is responsible for organizing courses and programs to support radiologists and radiologic scientists in many aspects of research development, such as grant writing and protocol development. The department also oversees RSNA's involvement in the fields of molecular imaging, biomedical engineering and, most recently, continuous quality improvement.

RSNA's international radiology education programs also fall under the purview of the Research Department. These programs provide research training and education for young international radiologists and radiologists in developing countries.

The Research Department reports to Assistant Executive Director for Research and Education Linda B. Bresolin, Ph.D., M.B.A., C.A.E.

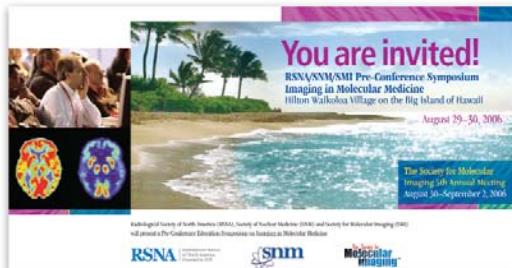
*Working  
for you*  
**DEPARTMENT PROFILE**



(from left)  
**Fiona Miller**  
**Dianna Beresoff**  
**Tracy Schmidt, M.S.**  
*Managing Director*

If you have a colleague who would like to become an RSNA member, you can download an application at [RSNA.org/mbrapp](http://RSNA.org/mbrapp) or contact the RSNA Membership and Subscriptions Department at 1-877-RSNA-MEM [776-2636] (U.S. and Canada), 1-630-571-7873 or [membership@rsna.org](mailto:membership@rsna.org).

# Program and Grant Announcements



## Molecular Imaging in Medicine

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

HELD BEFORE the annual meeting of the Society of Molecular Imaging (SMI), this symposium will provide an overview of molecular imaging for radiologists, nuclear medicine physicians, neuroradiologists and other physicians. Topics include advances in PET imaging technology and new PET imaging agents, as well as the molecular basis of cancer, cardiovascular disease and neurological disorders.

The symposium is sponsored by RSNA, Society of Nuclear Medicine and SMI. More information is available at [www.molecularimaging.org/preconferencesymp06.php](http://www.molecularimaging.org/preconferencesymp06.php).

## RSNA Derek Harwood-Nash International Fellowship

**Application deadline—July 1**

International radiologists 3–10 years beyond training are invited to apply for a 3-month fellowship at a North American institution. Candidates must demonstrate how the fellowship meets their specific educational goals and how the knowledge and experience gained will benefit and improve radiology practice in their home institutions and the radiology community. English proficiency required.

RSNA will provide up to \$10,000 to cover travel, 6–12 weeks of modest living expenses and education materials. In addition, each fellow will receive a one-year complimentary subscriptions to *Radiology* and *RadioGraphics*. One or two fellows will be selected.

Details are available at [RSNA.org/International/CIRE/dhnash.cfm](http://RSNA.org/International/CIRE/dhnash.cfm) or by calling 1-630-590-7741.

## World Conference on Interventional Oncology<sup>SM</sup> (WCIO)

**June 12–16, Cernobbio, Italy**

Sponsored in part by RSNA, the World Conference on Interventional Oncology<sup>SM</sup> will focus on image-guided interventional oncologic therapies and their relationship to other existing and emerging treatments. The meeting will include presentations of basic, translational and clinical research as well as discussions on available and emerging therapies. For more information, go to [www.wcio2006.com](http://www.wcio2006.com).

## RSNA Outstanding Researcher, Educator Awards

**Nomination deadline—June 15**

The 2006 RSNA Outstanding Researcher and Outstanding Educator awards will recognize and honor senior physicians or scientists who have made a career of significant contributions to the field of radiology or radiologic sciences through research and/or education. Awardees will be announced during the RSNA 2006 opening session. More information is available at [RSNA.org/Foundation/programs.cfm](http://RSNA.org/Foundation/programs.cfm).

## NIH Roadmap Inventory and Evaluation of IECRN National Leadership Forum

**May 31 and June 1, Rockville, Maryland**

The National Leadership Forum will present findings from the NIH-sponsored Inventory and Evaluation of Clinical Research Networks (IECRN). The forum also will support cross-network exchange and facilitate ongoing dissemination of information and practice models. There is no registration fee and a free Web cast is available. For more information, go to [www.clinicalresearchnetworks.org/forum.asp](http://www.clinicalresearchnetworks.org/forum.asp).

## Introduction to Research Program

**RSNA/AUR/ARRS • Application deadline—July 15**

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

The program encourages young radiologists to pursue research careers by demonstrating the importance of research to the practice and future of radiology and introducing residents to successful radiology researchers, future colleagues and potential mentors.

More information is available at [RSNA.org/i2rapp](http://RSNA.org/i2rapp) or by calling 1-630-590-7741.



# RSNA Grant Leads to Novel Molecular Imaging Agents

**W**ITH AN innovative approach to developing novel molecular imaging agents, RSNA Research Fellow Martin Pomper, M.D., Ph.D., is a “radiologist-scientist of the future,” according to a colleague.

“Through his team-oriented research style, emphasis on collaboration and creativity, and his enthusiasm, Marty is making great strides in moving the whole field forward,” said Jonathan Lewin, M.D., Martin W. Donner professor and chair of the Department of Radiology and Radiological Science at Johns Hopkins School of Medicine and radiologist-in-chief at Johns Hopkins Hospital.

Dr. Pomper, a research fellow from 1996–1998, is now an associate professor of radiology, pharmacology and oncology and an associate director of the Molecular Imaging Center at the Johns Hopkins Medical Institutions.

“As we begin to understand disease more in a molecular sense and begin to uncover the cellular networks in diseased cells and tissues, we are going to need more specific ways to look at these networks as they operate in vivo under physiologic conditions, said Dr. Pomper. “I think the only way to do that is through in vivo molecular imaging.”

Dr. Pomper’s RSNA-funded project, “The Role of Nitric Oxide in Cerebrovascular Regulation: In Vivo Assessment with Positron Emission Tomography,” sought to identify the location of the neuronal isoform of the enzyme nitric oxide synthase (nNOS) within the



**Martin Pomper, M.D., Ph.D.**

brain. He then hoped to correlate the location of nNOS with changes in regional cerebral blood flow upon brain activation to show whether nNOS could underlie those blood flow changes.

While he was able to identify and synthesize a positron-emitting nNOS-selective inhibitor, Dr. Pomper said it turned out not to be sufficiently specific in vivo to quantify enzyme activity. “We published the work in the *Journal of Nuclear Medicine* because it was novel to have developed an isoform-selective NOS inhibitor for

*As we begin to uncover the cellular networks in diseased cells and tissues, we are going to need more specific ways to look at these networks as they operate in vivo under physiologic conditions.*

**Martin Pomper, M.D., Ph.D.**

imaging,” he said. “But in vivo studies only hinted at selectivity, so an alternative class of probes had to be developed to provide truly useful imaging agents for nNOS.”

## Studying Schizophrenia

Dr. Pomper took what he had learned from his RSNA-sponsored project and combined it with some preliminary data indicating there might be a difference in nNOS between healthy controls and patients with schizophrenia. This resulted in a grant from the National Alliance for Research of Schizophrenia and Depression (NARSAD). Persisting in the development of new imaging agents for schizophrenia, Dr. Pomper has gone on to develop other radiopharmaceuticals that he hopes will eventually be used to study the illness in vivo. He continues to focus on developing new imaging agents, primarily radiopharmaceuticals, for cancer and applications within the central nervous system.

Using molecular imaging techniques to explore pathways by which drugs are supposed to work is an example of how molecular imaging is the future of radiology, Dr. Pomper said.

“We need to follow new therapies very specifically in the body to see how

*Continued on next page*



# Research & Education Foundation Donors

**T**HE BOARD OF TRUSTEES of the RSNA Research & Education Foundation and its recipients of research and education grant support gratefully acknowledge the contributions made to the Foundation between **February 18 – March 16, 2006**.

For more information on Foundation activities, go to [RSNA.org/foundation](http://RSNA.org/foundation).

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Main Yee, M.D.

*Continued from previous page*

they work," he said. "It's more than just looking for anatomic changes like watching a tumor shrink because some drugs don't shrink tumors, they just keep them in check. So how then do you know if your therapy is working if you just take an x-ray? You don't."

Dr. Pomper now spends one day a week in the neuroradiology clinic and four days running his research group. He said he knew from the moment he started medical school that he wanted to pursue translational research, which has allowed him to bring important discoveries into the clinic.

## RSNA Fellowship an Important First Step

The RSNA Research Fellowship program is an important first step in a junior person's career, he added. "The most important way aspiring physician researchers can actually get into radiology research in a meaningful way is by having protected and uninterrupted time away from the clinic to focus and pursue their work," he said.

Dr. Lewin agreed. "The entrée into independent research enabled by the RSNA grant clearly helped Marty gain momentum, and we now see the results as he has matured into a tremendously successful senior scientist," he said. "It

is evident we need to bring more young radiologists into cutting-edge research like Marty's, and the RSNA grants are important and effective ways to achieve this goal."

Dr. Pomper received his bachelor's degree with a double major in chemistry and biochemistry from the University of Illinois, where he also received his M.D. and a Ph.D. in organic chemistry. He completed his internship, residency and fellowships in nuclear medicine and neuroradiology at Johns Hopkins University before joining the staff in 1996. □

# News about RSNA 2006

## Advance Registration for RSNA 2006

RSNA and AAPM members can register now for RSNA 2006. General registration and housing opens May 22.

### How to Register

There are four ways to register for RSNA 2006:

#### ① Internet

Go to [RSNA.org/register](http://RSNA.org/register)

Use your member ID# from the **Fastest way to register!**

RSNA News label or meeting flyer sent to you. If you have questions, send an e-mail to [rsna@itsmeetings.com](mailto:rsna@itsmeetings.com).

#### ② Fax (24 hours)

1-800-521-6017

1-847-940-2386

#### ③ Telephone

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

1-800-650-7018

1-847-940-2155

#### ④ Mail

ITS/RSNA 2006

108 Wilmot Rd.,

Suite 400

Deerfield, IL 60015-0825

USA

## Important Dates for RSNA 2006

<b>May 22</b>	Non-member registration and housing opens
<b>June 19</b>	Course enrollment opens
<b>Nov. 10</b>	Advance registration deadline
<b>Nov. 26–Dec. 1</b>	RSNA 92nd Scientific Assembly and Annual Meeting

## International Delegates

### Invitation Letters

Personalized invitation letters are available at [www2.rsna.org/visa\\_form/invitation\\_letter.cfm](http://www2.rsna.org/visa_form/invitation_letter.cfm).

### Apply Early for Your Visa!

Visa applicants are advised to apply as soon as they decide to travel to the United States and at least **three to four months** in

advance of their travel date. That means international attendees should start the visa process by July or August.

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

- [www.unitedstatesvisas.gov](http://www.unitedstatesvisas.gov)
- [travel.state.gov/visa](http://travel.state.gov/visa)
- [nationalacademies.org/visas](http://nationalacademies.org/visas)



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

## Refresher Course Enrollment

### Begins June 19

Course enrollment information will be mailed in mid-June and will also be available online at [RSNA.org/register](http://RSNA.org/register).

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

For more information about registering for RSNA 2006, visit [rsna2006.rsna.org](http://rsna2006.rsna.org), e-mail [reginfo@rsna.org](mailto:reginfo@rsna.org) or call 1-800-381-6660 x7862.

## Registration Fees

### BY 11/10 ONSITE

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

# RSNA Highlights: Clinical Issues for 2007

**T**HOSE unable to attend RSNA 2006 or who want to attend additional education sessions are encouraged to check out RSNA's new educational conference, RSNA Highlights: Clinical Issues for 2007. The conference will be held February 26–28, 2007, at the J.W. Marriott Desert Ridge Resort & Spa in Phoenix, Ariz.

The conference will include selected refresher courses and elec-

tronic education exhibits from RSNA 2006, with special emphasis on cardiac imaging, PET/CT, breast imaging and sports injuries. All courses will be taught in an interactive format, using audience response technology.

## Important Dates for RSNA Highlights

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

[RSNA.org/highlightsconference](http://RSNA.org/highlightsconference). For more information, contact RSNA Program Services at [programs@rsna.org](mailto:programs@rsna.org).

Registration begins September 5. Up-to-date information is available at



## EXHIBITOR NEWS RSNA 2006

# RSNA 2006 Exhibitor News

## Advertising at RSNA 2006

RSNA offers many opportunities for companies to promote their RSNA 2006 exhibits. For more information, go to [RSNA.org/Advertising/upload/meeting-3.pdf](http://RSNA.org/Advertising/upload/meeting-3.pdf) or contact:

- |   |  |
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| • Jim Drew<br>Director of Advertising<br>1-630-571-7819<br><a href="mailto:jdrew@rsna.org">jdrew@rsna.org</a> | • Judy Kapicak<br>Senior Advertising Manager<br>1-630-571-7818<br><a href="mailto:jkapicak@rsna.org">jkapicak@rsna.org</a> |
|---|--|

## Exhibitor Housing

RSNA will send exhibitors a letter this month explaining block and individual housing. The housing formula (three rooms per 100 square feet of purchased exhibit space) determines which one to use.

Exhibitors requiring 25 rooms or more must submit a block housing form. Block housing assignments are based on the same priority point system used for exhibit space assignments. Maximum points will be awarded to block housing forms submitted on or before June 5.

Exhibitors requiring fewer than 25 rooms may access the housing bureau's Web site to reserve hotel rooms beginning June 5. Please note individual housing is reserved on a first-come, first-served basis.

## June Exhibitor Planning Meeting

Booth assignments will be released on June 27 at the Exhibitor Planning Meeting and Luncheon. All exhibitors for RSNA 2006 are invited to attend the meeting at Rosewood Restaurant and Banquets near Chicago O'Hare International Airport. RSNA will send an e-mail invitation to all confirmed 2006 exhibitors this month.

## Important Exhibitor Dates for RSNA 2006

May 30	Block housing forms available online
June 5	Exhibitor block housing point system initiated Individual exhibitor housing system opens
June 27	Exhibitor Planning/Booth Assignment Meeting
July 5	Technical Exhibitor Service Kit available online Block housing deadline
July 28	Deadline for reduction/cancellation (for full refund)
August 11	Deadline for final payment Deadline for reduction/cancellation (for partial refund)
Nov. 10	Exhibitor advance badge request deadline
Nov. 26–Dec. 1	RSNA 92nd Scientific Assembly and Annual Meeting

For up-to-date information about technical exhibits, go to [rsna2006.rsna.org](http://rsna2006.rsna.org). For more information, contact RSNA Technical Exhibits at 1-800-381-6660 x7851 or [exhibits@rsna.org](mailto:exhibits@rsna.org).

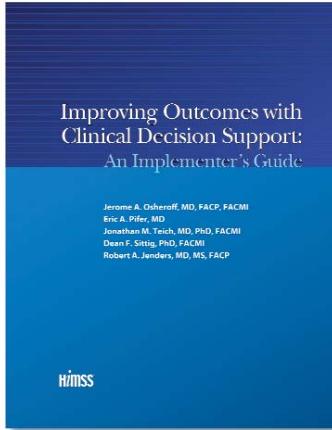
# Product News

## PRODUCT RECOGNITION

### HIMSS Book of the Year

**A** BOOK sponsored by Thomson Micromedex ([www.micromedex.com](http://www.micromedex.com)), "Improving Outcomes with Clinical Decision Support: An Implementer's Guide," was named a Book of the Year by the Healthcare Information and Management Systems Society (HIMSS).

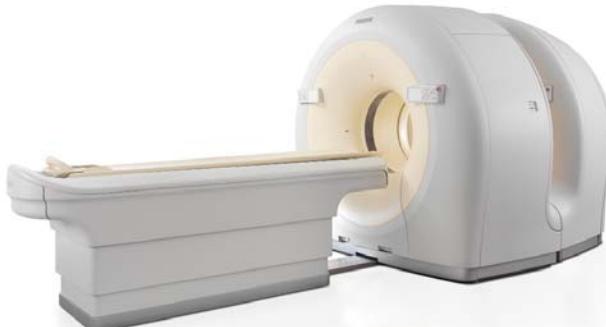
The guide helps healthcare organizations use clinical decision support programs to improve the quality, safety and cost-effectiveness of patient care. The HIMSS award honors a book that offers outstanding practical guidance and/or strategic insight for healthcare information and management systems professionals.



## NEW PRODUCT

### Terumo Introduces New Microcatheter System

Terumo Interventional Systems ([www.terumo-medical.com](http://www.terumo-medical.com)) has combined its Progreat™ Microcatheter with its Glidewire® GT to create the Progreat Coaxial Microcatheter System. The microcatheter withstands high-pressure injections of embolics and other agents and has a polytetrafluoroethylene (PTFE) inner layer to ensure smooth delivery. The Glidewire GT has an elastic nitinol alloy core designed to resist kinking and ease navigation of difficult anatomy. The wire's hydrophilic coating also reduces friction to enhance vessel navigation and its 45-degree angled tip is reshapeable for unique cases. Combining the two products, the company said, eliminates procedural steps, which increases physician convenience and improves procedure efficiency.



## NEW PRODUCT

### Philips Introduces New PET/CT System

Royal Philips Electronics ([www.philips.com](http://www.philips.com)) has introduced the GEMINI TF PET/CT system, which uses atomic particle time-measurements to deliver increased image quality and consistency.

Billing the GEMINI TF as a "time-of-flight PET/CT system," Philips stated that the system measures the difference in time it takes each pair of gamma rays to reach the PET scanner, enabling the point of origination to be more accurately predicted. The GEMINI TF raises effective image sensitivity by more than two times over conventional PET and shortens image acquisition time to less than 10 minutes for a whole-body PET or PET/CT scan, according to the company.



# RSNA HIGHLIGHTS

## CLINICAL ISSUES FOR 2007

PHOENIX, ARIZONA – FEBRUARY 26–28, 2007



J.W. Marriott Desert Ridge Resort & Spa



## Introducing a new educational opportunity...

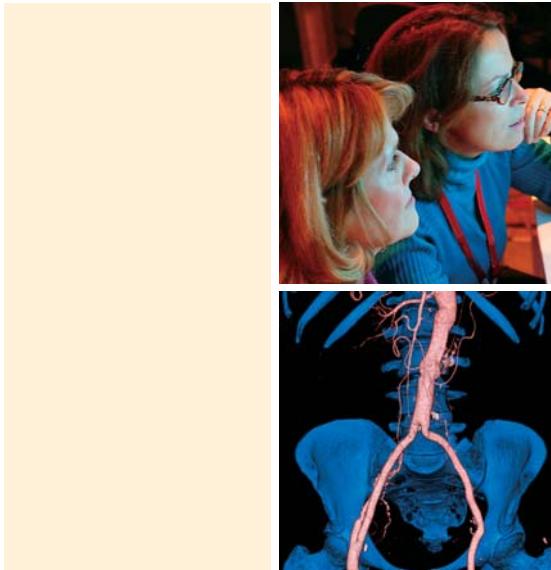
This new RSNA educational conference will include selected refresher courses and electronic education exhibits from the 2006 RSNA annual meeting.

Course content will include special emphasis on:

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

RSNA Highlights is intended for anyone who was unable to attend RSNA 2006 or who missed some of the educational sessions of interest to them. All courses will be taught in an interactive format, using audience response technology.

For more information, contact  
RSNA Program Services at  
[programs@rsna.org](mailto:programs@rsna.org).



Registration begins September 5, 2006  
[RSNA.org/highlightsconference](http://RSNA.org/highlightsconference)

**RSNA** Education

# RSNA.org

## Your Member Profile

UPDATING your RSNA member profile is easy and ensures you receive important RSNA information without delay.

To view or change your member profile:

Go to *RSNA.org* and click on Member's LOGIN at the top of the page ①. In the boxes on the login page, type your user name and password, then click Log in ②.

If you have forgotten your user name or password, you may click the link beneath the login boxes for assistance.

On the My Profile page, use the links to the right of Update Information to view, add or change your:

- Address/Phone/Fax/E-mail
- Specialties ③
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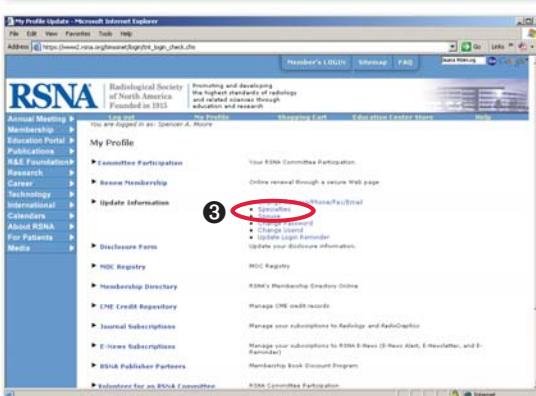
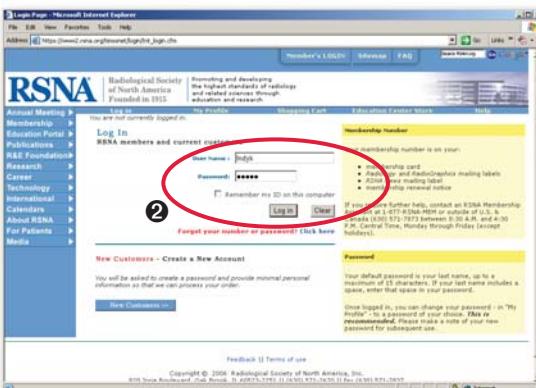
RSNA encourages you to provide information regarding your specialty area. Having this information allows RSNA to better target educational materials and resources to your specific needs. These targeted materials make it easier for you to identify programs relevant to your practice and your continuing professional development. If you are participating in the maintenance of certification (MOC) process, these materials also help you organize your lifelong learning and self-assessment activities.

### OTHER WEB NEWS

#### Find Your Way Around the NIH

Zero in on the information you need from NIH with this list of popular NIH Web pages:

- NIH Bulletin: [getinvolved.nih.gov/newsbulletins.asp](http://getinvolved.nih.gov/newsbulletins.asp).
- NIH News in Health (monthly newsletter offering practical health news and tips based on recent research): [newsinhealth.nih.gov](http://newsinhealth.nih.gov).
- NIH Roadmap: [nihroadmap.nih.gov](http://nihroadmap.nih.gov).
- NIH Director Elias A. Zerhouni, M.D.: [www.nih.gov/about/director/index.htm](http://www.nih.gov/about/director/index.htm).
- Neuroscience Blueprint: [neuroscienceblueprint.nih.gov](http://neuroscienceblueprint.nih.gov).



Your online links to RSNA

### RSNA.org

- Radiology Online**  
[RSNA.org/radiologyjnl](http://RSNA.org/radiologyjnl)
- Radiology Manuscript Central**  
[RSNA.org/radiologyjnl/submit](http://RSNA.org/radiologyjnl/submit)
- RadioGraphics Online**  
[RSNA.org/radiographics](http://RSNA.org/radiographics)

- RSNA News**  
[rsnanews.org](http://rsnanews.org)
- Education Portal**  
[RSNA.org/education](http://RSNA.org/education)
- CME Credit Repository**  
[RSNA.org/cme](http://RSNA.org/cme)
- CME Gateway**  
[CMEGateway.org](http://CMEGateway.org)
- RSNA Medical Imaging Resource Center**  
[RSNA.org/mirc](http://RSNA.org/mirc)
- RSNA Career Connections**  
[RSNA.org/careers](http://RSNA.org/careers)

- RadiologyInfo™**  
RSNA-ACR patient information Web site  
[radiologyinfo.org](http://radiologyinfo.org)

- RSNA Press Releases**  
[RSNA.org/media](http://RSNA.org/media)

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# Medical Meetings June – September 2006

**MAY 28–JUNE 1**

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

**JUNE 3–7**

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

**JUNE 4–7**

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

**JUNE 8–11**

Caribbean Society of Radiologists, 13th Congress, Hilton Miami Airport Hotel • [www.csor.org](http://www.csor.org)

**JUNE 9–13**

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

**JUNE 12–16**

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

**JUNE 19–23**

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

**JUNE 22–25**

American Radiological Nurses Association (ARNA), Annual Convention and 25th Anniversary, Stardust Resort and Casino, Las Vegas • [www.arna.net](http://www.arna.net)

**JUNE 22–25**

Radiation Therapy Oncology Group (RTOG), Meeting, Fairmont Royal York, Toronto • [www.rtog.org](http://www.rtog.org)

**JUNE 28–JULY 1**

Computer Assisted Radiology and Surgery (CARS), 20th International Congress and Exhibition, Osaka International Convention Center, Osaka, Japan • [www.cars-int.org](http://www.cars-int.org)

**JULY 30–AUGUST 3**

American Healthcare Radiology Administrators (AHRA), 34th Annual Meeting & Exposition, MGM Hotel & Casino, Las Vegas • [www.ahraonline.org](http://www.ahraonline.org)

**JULY 30–AUGUST 3**

American Association of Physicists in Medicine (AAPM), 48th Annual Meeting, Orange County Convention Center, Orlando, Fla. • [www.aapm.org](http://www.aapm.org)

**AUGUST 6–9**

11th Asian Oceanian Congress of Radiology (AOCR), Hong Kong Convention & Exhibition Centre, Hong Kong • [www.aocr2006.org](http://www.aocr2006.org)

**AUGUST 6–10**

Society of Computed Body Tomography and Magnetic Resonance (SCBTMR), Summer Practicum, Quebec City, Canada • [www.scbtmr.org](http://www.scbtmr.org)

**AUGUST 27–SEPTEMBER 1**

World Congress on Medical Physics and Biomedical Engineering 2006, COEX Convention Center, Seoul, Korea • [www.wc2006-seoul.org](http://www.wc2006-seoul.org)

**AUGUST 29–30**

RSNA/SNM/Society of Molecular Imaging (SMI), Molecular Imaging in Medicine symposium, Hilton Waikoloa Village, Hawaii • [www.molecularimaging.org](http://www.molecularimaging.org)

**AUGUST 30–SEPTEMBER 2**

SMI, 5th Annual Meeting, Hilton Waikoloa Village • [www.molecularimaging.org](http://www.molecularimaging.org)

**SEPTEMBER 12–16**

International Society of Radiology (ISR), 24th International Congress of Radiology, Cape Town International Convention Center, South Africa • [www\\_isr2006.co.za](http://www_isr2006.co.za)

**NOVEMBER 26–DECEMBER 1**

RSNA 2006, 92nd Scientific Assembly and Annual Meeting, McCormick Place, Chicago • [rsna2006.rsna.org](http://rsna2006.rsna.org)

**FEBRUARY 26–28, 2007**

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

**RSNA News**

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