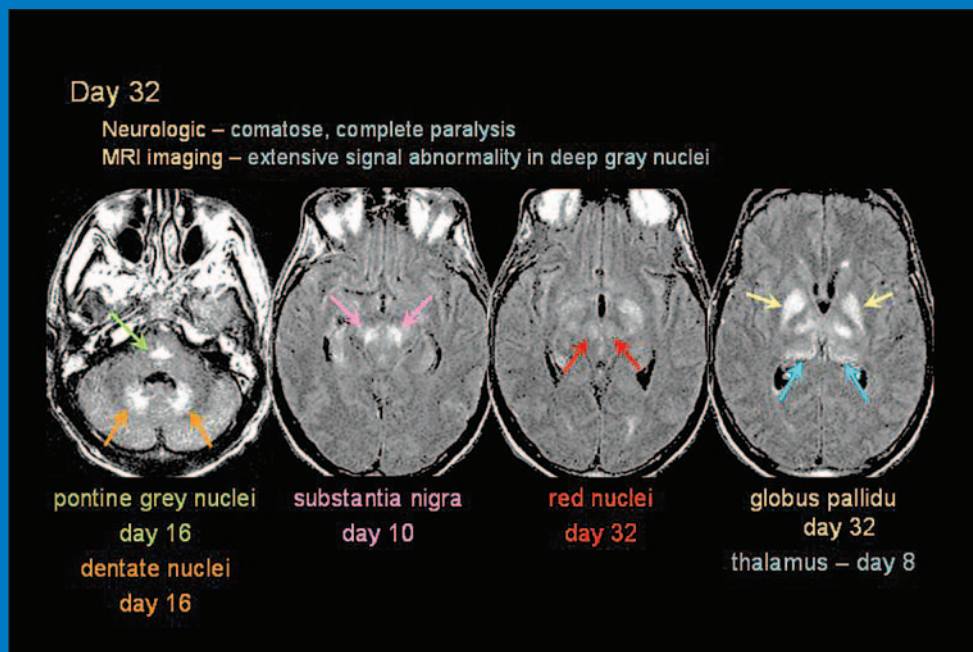


MR Imaging Helps Confirm West Nile Virus Encephalitis



Also Inside:

- CT and MR Set to Play Major Role in Evaluating Coronary Artery Disease
- The Radiology Shortage: Will It Continue?
- Ambitious National Lung Screening Trial on Track
- NIH Offers Loan Repayment Program

Abstract Deadline for RSNA 2003
April 15, 2003

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RSNA News

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In Memoriam

Retired radiologist **William Snow, M.D.**, died in November on a farm near Cumberland, Md., at the age of 104.

Dr. Snow was born in 1898 on a farm near Bridgeport, Conn. He earned his medical degree at Columbia P&S Medical School in New York, and completed his radiology residency at Mt. Sinai. He later worked as director of radiology at the Bronx Hospital and Harlem Hospital.

During the 1930s and 1940s, Dr. Snow wrote numerous papers on roentgenology in obstetrics and gynecology, radiology of the chest and radiology of the small bowel. His son, Paul Snow, M.D., says his father is most known for developing a pelvimetry ruler used to measure a pregnant woman's pelvis and the fetal head to see if she could deliver vaginally.

In the 1950s, Dr. Snow worked as director of radiology at the Shreveport Veteran's Hospital and what is now known as LSU Medical School. He also worked at an island hospital in St. Thomas and as director of the OPD Radiology Clinic at the regional VA center in Montgomery, Alabama, before retiring in 1961. He had been a member of RSNA since 1948.



William Snow, M.D.

In Memoriam

Retired radiologist **John R. Mapp, M.D.**, died in his home in Nassawadox, Va., on December 22, 2002. He was 87.

Dr. Mapp, an RSNA member since 1949, trained as a surgeon at the University of Virginia Medical School and served with the University's hospital unit in North Africa and Italy during World War II. After the war, he completed a radiology residency and opened the Radiology Department at the Northampton Accomack Memorial Hospital where he practiced for 37 years.

Dr. Mapp, a fellow of the American College of Radiology, organized the Eastern Shore of Virginia Tumor Clinic, which provided treatment to the indigent. He also served as the first president of the Eastern Shore College Foundation, which succeeded in establishing what is now the Eastern Shore Community College.

Goodman New Director of CBER, Zoon Moves to NCI

Jesse Goodman, M.D., M.P.H., will replace **Kathryn Zoon, Ph.D.**, as director of the FDA's Center for Biologics Evaluation and Research (CBER). Dr. Zoon has accepted the position of principal deputy director of research for the Center for Cancer Research at the National Cancer Institute (NCI).

FDA Commissioner Mark B. McClellan, M.D., says as a result of Dr. Zoon's move to NCI, he expects improvements in making effective new cancer treatments available, "I [am] convinced that the close FDA ties Dr. Zoon brings to her new post at NIH will enhance FDA's efforts to collaborate closely with NIH to bring safe and effective products to the market—one of my top priorities as FDA Commissioner."

NHGRI Names New Scientific Director

Eric D. Green, M.D., Ph.D., is the new scientific director of the National Human Genome Research Institute (NHGRI). He will lead the institute's Division of Intramural Research, a research program that includes a staff of more than 400 and an annual budget exceeding \$80 million.

"As a researcher, he knows how to use ever-improving genomic technologies to wrest new knowledge from nature," says NHGRI Director **Francis S. Collins, M.D., Ph.D.** "As a physician, he will provide essential leadership in translating genomic science into medical benefits. As a leader, he has demonstrated an impressive ability to organize multidisciplinary teams of researchers to complete complex scientific projects."

An early member of the vanguard of young scientists who launched their careers as part of the Human Genome Project, Dr. Green made major contributions to the mapping and sequencing of the human genome, particularly in the development of technologies and strategies for the large-scale analysis of vertebrate genomes. His research in human genetics also has led to the identification of genes implicated in several human diseases, including deafness, cancer and neurological disease.



Eric D. Green, M.D., Ph.D.



Francis S. Collins, M.D., Ph.D.

RSNA News Send your submissions for *People in the News* to rsnanews@rsna.org, (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.

2003 RSNA Research & Education Foundation Board of Trustees

The RSNA Board of Directors has announced the following appointments and reappointments to the 2003 RSNA Research & Education Foundation Board of Trustees.

They are:

(Front row from left)

R. Nick Bryan, M.D., Ph.D.;

Jerry P. Petasnick, M.D.,

Secretary; Seymour H.

Levitt, M.D., *Chairman;*

Luther W. Brady, Jr., M.D.;

Peggy J. Fritzsche, M.D.;

William M. Angus, M.D.,

Ph.D. (Back row from left)

C. Leon Partain, M.D.,

Ph.D.; **Stephen R. Thomas,**

Ph.D.; **David H. Hussey,**

M.D., *Treasurer; Anne G.*

Osborn, M.D.; **Brian C.**

Lentle, M.D. Not pictured:

James H. Thrall, M.D.



ASRT Membership Reaches 100,000

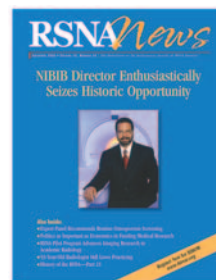
The American Society of Radiologic Technologists (ASRT) reached a milestone in late October with the addition of its 100,000th member. This is important to ASRT's grass-roots advocacy efforts, according to Christine Lung, ASRT director of government relations. "Being able to say that the ASRT represents 100,000 technologists immediately elevates our strength and credibility in the political arena," she said. One of these efforts is the passage of Consumer Assurance of Radiologic Excellence (CARE), a bill that would set minimum federal requirements for education and certification of medical imaging and radiation therapy professionals (see the January issue of *RSNA News*).



ASRT immediately elevates our strength and credibility in the political arena," she said. One of these efforts is the passage of Consumer Assurance of Radiologic Excellence (CARE), a bill that would set minimum federal requirements for education and certification of medical imaging and radiation therapy professionals (see the January issue of *RSNA News*).

RSNA News, Daily Bulletin Win Top Awards

Two RSNA publications earned first-place awards in the 2002 Association Trends Publications Contest. *Association Trends* is a weekly publication for associations in the United States. *RSNA News* earned the top award for best monthly newsletter in four color, while the *RSNA Daily Bulletin* won first place for best weekly or daily member communication in print.



ARRT to Launch Breast Ultrasound Certification

The American Registry of Radiologic Technologists is developing a new certification focused on breast ultrasound. The new post-primary certification, expected to be available in 2004, will allow individuals, who are certified and registered in mammography and meet clinical experience requirements, to demonstrate additional qualifications in breast ultrasound.



RSNA Board of Directors Report

On Friday, December 6, 2002, the 2003 RSNA Board of Directors convened for the first time and welcomed the newest Board member, Hedvig Hricak, M.D., Ph.D., as its Liaison-designate for Publications and Communications.

The meeting was held at the conclusion of RSNA 2002 in Chicago—a meeting that saw attendance return to pre-9/11 levels.

The Board reviewed the 2002 annual meeting, continued to plan for the 2003 annual meeting and prepared for its January strategic planning retreat.

RSNA Scientific Assembly & Annual Meeting

Due to the overwhelming popularity of the Essentials of Radiology series, the Board approved the continuation of this series of refresher courses at RSNA 2003. The concept will also be extended to other topics. For 2003, there will be three single-day review courses aimed at radiologists who want to attend a comprehensive, case-based review in three subspecialties: vascular and interventional radiology, neuroradiology and pediatric radiology.

The 2003 Annual Oration in Diagnostic Radiology will be presented by Donald L. Resnick, M.D. The 2003 Annual Oration in Radiation Oncology will be presented by Lester Peters, M.D. The Eugene P. Pendergrass New Horizons Lecture will be presented by NIH Director Elias A. Zerhouni, M.D. The Opening Session will focus on emergency radiology.

The 2003 Diagnostic Categorical Course topic is

Musculoskeletal Imaging and Intervention.

The course directors are Mark J. Kransdorf, M.D., and Kenneth A. Buckwalter, M.D. A Physics Categorical Course, "Frontiers in Digital Imaging," is being organized under the direction of Ehsan Samei, Ph.D. An Update Course will be conducted on ultrasound.

The ultrasound subcommittee will review ultrasound submissions in 2003, although abstracts can be submitted under the organ systems and the ultrasound modality. Abstracts for RSNA 2003 are due to RSNA by April 15 and must be submitted online at www.rsna.org.

New Board Structure

The new Board configuration is now in place (see pages 14-15) with the duties of Secretary-Treasurer falling under the charge of the President-elect. This allows for the creation of a Liaison for Science. The reorganization will strengthen RSNA's support for radiologic science and research.

RSNA Research & Education Foundation

The RSNA Research & Education Foundation officially launched its Exhibitor's Circle program at RSNA 2002. This new giving program provides small to mid-size companies with the opportunity to pledge \$1,000 per year to the Founda-



David H. Hussey, M.D.
Chairman, 2003 RSNA Board of Directors

tion. The Vanguard program requires an annual pledge of at least \$100,000.

During the annual meeting, individuals contributed in excess of \$20,000—that's more than double the amount donated during RSNA 2001.

New Member Benefits

RSNA is developing a common gateway on the Web so that members can easily access all of their

continuing medical education credits stored online. With the launch of the RSNA CME Credit Repository in 2002, and other radiologic organizations following suit, this common gateway will provide convenient entry into each participating society's repository while still allowing each organization to maintain and manage their own CME certificates.

International Outreach

RSNA will have a booth at the Mexican Society of Radiology and Imaging meeting in February in Mexico City, and the European Congress of Radiology meeting in March in Vienna, Austria.

In addition, RSNA President-elect Brian C. Lentle, M.D., will serve a two-year term as RSNA's representative to the InterAmerican College of Radiology.

Other Board Action

- The Board has approved a revised plan to publish the 2003 supplementary

Continued on page 5

2002 Year in Review

Brian C. Lentle, M.D., chairman of the 2002 RSNA Board of Directors, gave a comprehensive report to the Board at RSNA 2002. The text of his report has been posted in the About RSNA section of *RSNA Link*: www.rsna.org/about/report_of_the_chairman.html

MR Imaging Helps Confirm West Nile Virus Encephalitis

Serial MR imaging can be helpful in confirming and monitoring disease progression in patients with a rare, deadly form of West Nile Virus (WNV) encephalitis, but will not likely play a role in the initial diagnosis and treatment, according to a report presented at RSNA 2002.

This first-of-its-kind case report involving WNV imaging was carried out at the NIH's Warren Grant Magnuson Clinical Center in Bethesda. It began with the hospitalization of a 55-year-old man with persistent fever. This occurred three weeks after receiving chemotherapy in preparation for stem cell transplant for refractory leukemia. The severely immunocompromised patient underwent MR imaging when he developed diplopia and proximal weakness five days after hospitalization. The initial images showed no visible abnormality. On day 7, dysarthria and dysphagia developed, proximal weakness progressed and the patient was intubated. On day 10, WNV was confirmed by spinal tap and reverse transcriptase polymerase chain reaction (RT-PCR). Status epilepticus developed on day 14 and the patient never

regained consciousness. MR imaging was repeated on days 8, 11, 18, 23 and 37.

The study's lead author, John Butman, M.D., Ph.D., says encephalitis was suspected when, despite the patient's focal neurologic symptoms, MR imaging showed no signs of hemorrhage, tumor, stroke or leukemic infiltrate. Dr. Butman, a staff neuroradiologist, saw the first signs of deep brain gray matter involvement—a subtle thalamic hyperintensity—on that second scan at day 8. By day 11, thalamic involvement progressed and the substantia nigra were abnormal bilaterally. By day 18, the pons and dentate nuclei were abnormal. The severity progressed, so that by day 37 the globus pallidus and red nuclei also were involved. White matter involvement was confined to the corona radi-



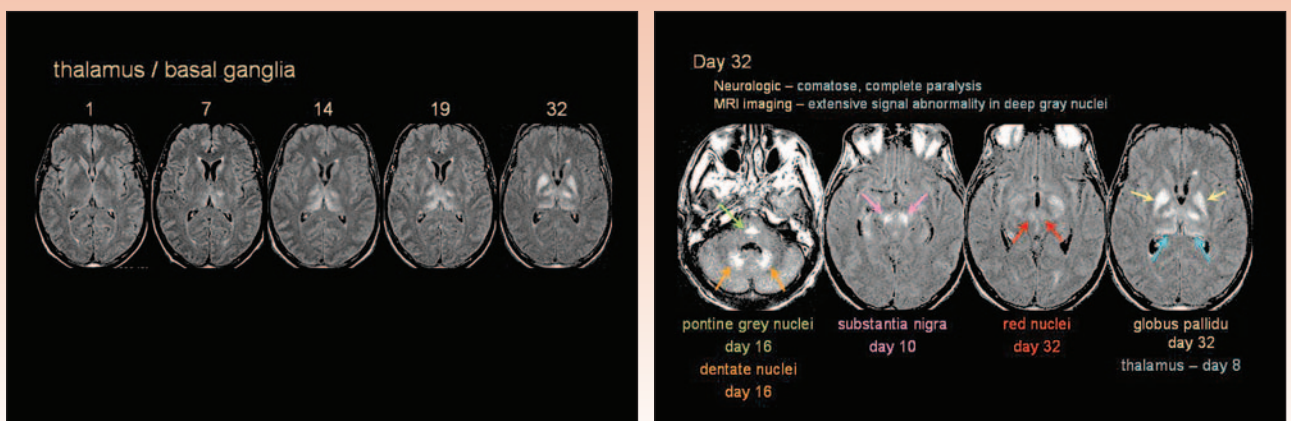
John Butman, M.D., Ph.D.
Warren Grant Magnuson Clinical Center, NIH

ate, identified on days 23 and 37, according to Dr. Butman.

Patient number two was a 55-year-old woman undergoing chemotherapy for ovarian cancer. She was hospitalized with confusion, progressive weakness and decreasing level of consciousness. In contrast to the first case, her initial MR examination, performed on day 2, did show a subtle abnormality in the thalamus.

“Either she had a more aggressive infection, or she had a more aggressive immune response to that infection,” concludes Dr. Butman. WNV infection was subsequently confirmed by detection of antibodies in her spinal fluid. The woman became comatose but survived and was discharged at day 50 with severe neurologic deficits.

Dr. Butman believes these two cases suggest a role for MR imaging in



Serial MR imaging of a 55-year old man with WNV encephalitis.
Images courtesy of Dr. Butman.

confirming WNV encephalitis and, once a pattern develops, monitoring subsequent neurologic changes. At the same time, he says, they indicate that brain lesions may vary from patient to patient. "There may be some cases where MR imaging will put West Nile Virus encephalitis in a differential diagnosis fairly early," he says.

Dr. Butman says this case study provides important information for radiologists. He stresses that initially negative MR findings should not be dismissed outright, because a negative examination can be used to rule out other neurologic problems pending spinal fluid pathology results. "When the lesion is first imaged in the thalamus, it could be any number of disease processes. But once this sort of symmetry in multiple specific sites develops, encephalitis should be suspected."

He urges radiologists to be sensitive to subtle findings in deep nuclei of the brain. "Radiologists should be aware of the structures involved in this form of encephalitis—the thalamus and substantia nigra—and understand that the findings can be very subtle and symmetric," Dr. Butman says.

R. Nick Bryan, M.D., Ph.D., a neuroradiologist and chairman of the Department of Radiology at the Uni-

versity of Pennsylvania Health System, says this study shows a very good correlation between clinical imaging and the pathology of WNV. "This confirms what one might have thought this type of encephalitis would be like. Interestingly, these images have a very similar

Radiologists should be aware of the structures involved in this form of encephalitis—the thalamus and substantia nigra—and understand that the findings can be very subtle and symmetric.

— John Butman, M.D., Ph.D.

appearance to what Japanese scientists report for Japanese encephalitis. So the two viruses behave similarly with regard to involvement of the basal ganglia and brainstem. And although the imaging follows clinical signs, it is not terribly helpful early on. Rather, it's more of a confirmatory type of thing—it excludes other processes when you actually see these changes."

Dr. Butman notes that the sites of brain involvement with WNV enceph-

alitis have a high overlap with viruses in the same family and produce similar symptoms. "St. Louis encephalitis is like WNV encephalitis in that it is very unusual to have early MR findings, whereas Japanese encephalitis often has early MR findings."

Dr. Bryan, RSNA's immediate past-president, says he does not believe MR imaging will become a valuable procedure in the management of WNV encephalitis, although it might occasionally help in a diagnosis. "This disease resembles, and can easily be confused with, some completely different conditions such as metabolic disorders and Wilson's disease. It would be interesting to know if these lesions seen on MR imaging indicate a universally bad prognosis. With just a few cases we don't know that. This informs us about how the virus affects the brain, but it's doubtful, unless somebody had missed the initial diagnosis, that this will play a role in initial diagnosis and treatment."

Dr. Butman and his colleagues continue to compile imaging data on a more recent, third patient who died of confirmed WNV encephalitis. As with the first two patients, his health was compromised by disease—in this case, HIV infection. □

RSNA Board of Directors Report

Continued from page 3

issue of *RadioGraphics* both in print and online, to monitor resources and readers' format preferences, and to make appropriate recommendations in the future.

- The RSNA/Chicago Public Schools Project, "Exploring Your Future in Radiology," will be continued in 2003.

Volunteers Needed

RSNA staff is busily working to fill several vacancies on RSNA committees. RSNA depends on the expertise of

its many committed volunteers to help the Society achieve its goal to have a positive impact on the present and future of radiology research and education.

If you are not already an RSNA volunteer, please review the list of committees and indicate which one you would like to join by filling out the form on page 4 of the January issue of *RSNA News* and sending it back to RSNA Headquarters as soon as possible.

The Board is currently incorporating ideas on streamlining committee

functions and using Web conferencing to reduce committee member travel.

DAVID H. HUSSEY, M.D.

CHAIRMAN

2003 RSNA BOARD OF DIRECTORS

Editor's 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 March.

CT and MR Set to Play Major Role in Evaluating Coronary Artery Disease

Coronary artery imaging by computed tomography and magnetic resonance is one of the latest and fastest growing applications of radiology. The noninvasive nature of CT and MR imaging makes these techniques more appealing to patients than catheter angiography, but radiologists and cardiologists are still defining what role noninvasive imaging should play in the diagnosis of coronary artery and ischemic heart disease.

At a Special Focus Session during RSNA 2002, three experts in the uses of CT and MR in coronary artery imaging described the latest techniques, listed the relative advantages of CT and MR imaging in evaluating coronary artery abnormalities, and identified opportunities for integrated uses of CT and MR imaging in assessing patients with coronary artery or ischemic heart disease.

“We are in the middle of something that is very exciting and hasn’t been experienced in many years,” said moderator Richard D. White, M.D., head of the Section of Cardiovascular Imaging in the Department of Diagnostic Radiology at the Cleveland Clinic.

“Angiography, as we normally think of it, has been the mainstay of coronary artery evaluation since the 1960s, and I think it will be for some time,” he said. “But we now need to look more holistically at the needs in coronary artery assessment. Coronary angiography today, in many cases, is accompanied by visualization of the plaque process itself. So, we are at an important new phase in the development of coronary artery evaluation.



Richard D. White, M.D.
Department of Diagnostic Radiology,
Cleveland Clinic

I think the noninvasive imaging techniques are going to be big players in this phase.”

CT Angiography

In a talk on CT angiography, Christoph R. Becker, M.D., from the Department of Clinical Radiology at the Klinikum Grosshadern of Ludwig-Maximilian-University Hospital in Munich, said, “For CT angiography of the coronary arteries, we exclusively use a retrospective ECG gating technique. We perform spiral CT scanning that differs from a routine application in two aspects. One is that we simultaneously record the ECG signal with the spiral scan of the heart. The other is that we use a low pitch factor. For cardiac investigations, we reduce the pitch factor from 1 or 1.5 for routine applications to approximately 0.3.”

The reduction in pitch factor is nec-



Christoph R. Becker, M.D.
Department of Clinical Radiology,
Klinikum Grosshadern

essary to provide enough radiation protection for the heart while still being able to reconstruct the cardiac images according to the ECG signal, Dr. Becker said.

“We do continuous spiral scanning during diastole and systole, but reconstruct the images only in the diastolic phase, and therefore we have a lot of redundant radiation during the systolic phase of the heart,” he added. “To reduce or avoid part of this redundant radiation, we use a technique called prospective ECG tube current modulation, meaning that we wrench up the tube current in the diastolic phase and wrench it down in the systolic phase. This helps eliminate approximately 50 percent of the radiation.”

Given certain limitations, such as imaging patients with a high heart rate or extensive coronary calcifications, “CT angiography of the coronary arter-

ies turns out to be a robust and reliable technique,” Dr. Becker said. “One of the best applications of CT angiography is in ruling out coronary artery stenosis.” Multidetector CT has an average positive predictive value of 76 percent versus catheter angiography, and an average negative predictive value of 97 percent. It is also a valuable tool for characterizing coronary plaque in asymptomatic patients and in patients with acute unstable angina. Further clinical trials are necessary to learn more about how coronary artery and plaque imaging translates into patient outcome.

New applications of CT angiography include imaging of bypass grafts and congenital heart disease.

MR Angiography

Michael V. McConnell, M.D., M.S.E.E., assistant professor of medicine and clinical director of cardiovascular MR imaging at Stanford University in California, reviewed the expanding applications of MR imaging to explore the coronary arteries. “Why use MRI for the coronaries?” he asked.

“Cardiologists primarily rely on noninvasive imaging techniques to look at perfusion and cardiac viability,” he said, adding that MR imaging is in many ways the superior technique to use in evaluating cardiac viability, left-ventricular function, coronary perfusion, coronary stenosis and atherosclerotic plaque.

Dr. McConnell said that MR imaging is a valuable tool in assessing coronary artery and ischemic heart disease because it provides superior tissue characterization, is completely noninvasive and carries no long-term cumulative radiation risk. It is also a versatile technique that provides 2D and 3D images in any plane.

However, among its limitations are

that acquisition time is long, from two to 15 minutes; imaging distal vessels is challenging; implanted devices, such as pacemakers, stents and surgical clips, interfere with its imaging; and the availability of multiple techniques presents more options but less standardization of technique.

The clinical applications of MR angiography, Dr. McConnell explained, include the imaging of rare anomalous coronary arteries, evaluation of bypass graft patency, the exclusion of high-risk proximal coronary artery disease and the diagnosis of ischemic versus nonischemic heart disease.

In the future, the clinical utility of MR imaging in assessing the coronary arteries is likely to be expanded through improved contrast agents, higher fields of 3 T and above, the availability of comprehensive cardiac and coronary data and clinical trials involving MR angiography for specific applications, he concluded.

Combined Uses

In the final presentation, Dr. White described integrated uses of coronary CT angiography and myocardial MR imaging in the evaluation of coronary artery and ischemic heart disease. “At the Cleveland Clinic, we use both



Michael V. McConnell, M.D., M.S.E.E.
Division of Cardiovascular Medicine,
Stanford University

modalities on a regular basis,” he said. “However, for the evaluation of the coronary arteries, I favor CT because of the quality of imaging.”

On the other hand, Dr. White said, MR imaging of the left ventricular myocardium is a powerful technique for defining areas of ischemia versus infarction in comprehensive viability studies or the early or late post-infarct complications in patients

who have suffered a myocardial infarction. It is also useful in monitoring the effects of thrombolytic or revascularization therapy.

CT, on the other hand, is valuable in assessing post-stenting conditions and coronary artery patency following bypass grafting.

When images from both are combined, the two modalities are useful in evaluating patients with regions of subendocardial MI, transmural MI, or diffuse myocardial scarring and their direct relationships with specific patterns of epicardial coronary artery disease. This is enhanced by advanced image co-registrations.

“Both modalities are immensely powerful,” Dr. White said. “In the next few years, we are going to see the merging of the two through common platforms. In the new applications-driven era of cardiovascular imaging, we will see the different modalities rising and falling as they gain new capabilities. But it doesn’t mean one has to be a winner and one has to be a loser.” □

Both modalities are immensely powerful. In the next few years, we are going to see the merging of the two through common platforms.
— Richard D. White, M.D.

Refresher Course Handouts from RSNA 2002

Some of the presenters of refresher courses at RSNA 2002 have posted their handout materials. Links to those handouts are on a new page of the Annual Meeting section of *RSNA Link*: www.rsna.org/education/syllabus_links.html

RSNA has not reviewed or endorsed these handout materials, which presenters maintain on external, non-RSNA sites. They are available to everyone.

Ambitious National Lung Screening Trial on Track

The 50,000 patients needed for the National Lung Screening Trial (NLST) should be recruited by December 2003—nine months ahead of schedule—according to Denise R. Aberle, M.D., NLST principal investigator.

NLST, a collaboration of the American College of Radiology Imaging Network (ACRIN) and the National Cancer Institute (NCI) Early Detection Branch Lung Screening Study (LSS), will compare the screening technologies of low-dose spiral CT and chest x-ray to determine which test is better at reducing lung cancer mortality. The \$200 million randomized, controlled trial officially launched in September 2002 and will continue through 2009. Thirty parent institutions will participate in the study.

Funded by NCI, NLST is the largest lung cancer screening trial ever undertaken in the United States. It will be a model for the European Union, which is collectively developing a single randomized protocol that will complement the NLST trial. These efforts are trying to generate as much data as possible on lung cancer screening and mortality.

“NLST is the largest and most expensive of the 17 ACRIN-run trials,” says Bruce J. Hillman, M.D., ACRIN chair and chair of the Department of Radiology at the University of Virginia School of Medicine. “ACRIN’s major challenge is to make recruiting as smooth as possible at the NLST sites.”



Denise R. Aberle, M.D.
NLST Principal Investigator



Bruce J. Hillman, M.D.
ACRIN Chair

ACRIN is an NCI-funded clinical trials cooperative group with base funding to conduct a series of 17 trials while supporting the required infrastructure. ACRIN involves more than 100 institutions and hundreds of investigators. ACRIN’s digital mammographic imaging screening trial

(DMIST) and NLST also receive supplemental funding.

“ACRIN’s goal is to incorporate good science into the imaging components of clinical oncology trials.

The NLST is

ACRIN’s centerpiece trial because of the level of interest in imaging-based screening in general,” says Dr. Aberle, professor of thoracic imaging and vice-chair of research in the Department of

Radiology at the UCLA School of Medicine. “But equally important, ACRIN-NLST is a clinical trial of great breadth using imagers on the front lines instead of in the historical context of consultants.”

Michael A. Sullivan, M.D., associate chairman of the Department of Radiology at Ochsner Clinic Foundation in New Orleans, says that recruiting is going well at the Ochsner site. Currently, 60 of the planned 1,500 subjects are enrolled.

“We’ll have a big challenge this year as we try to accrue most of the patients. Reaching the population of smokers, recruiting them, getting them here for testing and follow-up is going to be an ongoing challenge, not to mention phone questionnaires and eight years of mail follow-up,” says Dr. Sullivan, the 2002 chairman of the RSNA Research and Education Foundation and a past-president of RSNA. “Our

ACRIN-NLST is a clinical trial of great breadth using imagers on the front lines instead of in the historical context of consultants.

—Denise R. Aberle, M.D.

subjects are volunteers. Although they are long-term smokers, many people deny to themselves they have any chance of developing lung cancer.”

NLST Challenges

“While the trial is progressing very well, there are always challenges when



Michael A. Sullivan, M.D.
Department of Radiology, Ochsner Clinic Foundation

you do something of this magnitude,” says Dr. Aberle.

The first challenge NLST is facing is the establishment of an infrastructure for the clinical trialists to enable them to remain operationally efficient. Dr. Aberle says the ACRIN component faces additional challenges. The ACRIN sites have additional research hypotheses beyond the primary modality endpoint incorporated into the trial requiring an operational infrastructure that allows the clinical trialists to efficiently multi-task and maintain contact with all participants.

The ACRIN investigators are looking at quality of life, smoking addiction, impact of screening on smoking behaviors, screening costs and medical resource utilization. They are also developing a biorepository of blood, sputum, urine and remnant tissues that might be left over after resection from

patients who undergo surgery. This extensive biorepository will be used as part of the validation for potential biomolecular markers of lung cancer.

“We are developing electronic infrastructures including computerized databases with central servers to provide sites with basic resources,” says Dr. Aberle. “Although clinical trial sites frequently design their own databases, because of NLST’s considerable scope, I think it is important for the NLST oversight body to provide software resources. ACRIN is already moving in this direction.”

Another challenge NLST faces is reaching underserved populations. “In general, there is a risk of limited ethnic diversity because of the degree of mistrust among certain ethnic groups about the purpose of the trial, safety issues and also the intention of the trialists. There are relatively few NLST physicians who are members of those ethnic communities. I believe those connections are important in recruiting members of underserved populations,” Dr. Aberle explains.

“We are reaching out to underserved populations through the NCI’s office of communications Partnership Program. This grassroots program is active in the 30 parent-site cities. The American Cancer Society, which has a vested interest, will help us target and reach at-risk populations that may not have heard the recruitment message through English language television or newspaper,” Dr. Aberle says.

NLST Ramifications

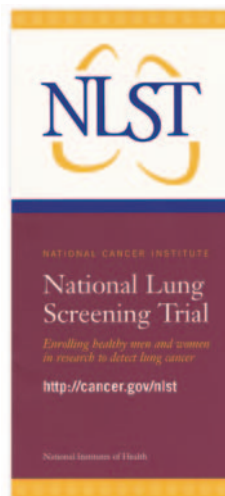
“I think one of the great contributions this trial will make is that it will allow radiologists the opportunity to function efficiently as clinical trialists,” says Dr. Aberle. “ACRIN and NLST have

shown that the imaging community has a tremendous amount to bring to the table in terms of quality control, measurement precision, accuracy and validity concerning imaging-based measurements. I think the NLST will elevate the scientific rigor and the validity of imaging-based quantitative issues in clinical trials.”

NLST’s results may have a variety of implications ranging from public health to future research. The results may help develop lung-screening recommendations while assisting the public in the understanding of lung screening’s risks and benefits. Additionally, ACRIN will analyze the NLST data for cost-effectiveness implications.

“Given the high cost of CT lung screening and the fact that the most common result is actually false-positive, there is an enormous cost to society with uncertain benefit,” says Dr. Hillman. “The NLST trial is going to tell us whether or not CT screening impacts the mortality rate; this will presumably guide the policy on CT lung screening.”

Dr. Aberle adds, “Beyond just imaging screening, I think that the development of the biorepository and its use will be tremendously important in identifying potential biomolecular markers to be used for screening or to identify cancers with different biological virulence. I think that’s going to be a huge gain from the trial, quite apart from the imaging component itself.” □



The Radiology Shortage: Will It Continue?

There is no magic bullet for radiology's growing manpower crisis, according to several experts making presentations at RSNA 2002.

The current shortage of radiologists stands at about five percent and is growing rapidly. Even worse, radiology isn't the only area of medicine facing a shortage—physicians of all types will be in great demand by 2020.

As chairman of the Board of Chancellors for the American College of Radiology (ACR) and co-chair of the ACR's Task Force on Human Resources, E. Stephen Amis Jr., M.D., receives dozens of suggestions for resolving the shortage.

"We know radiologists are in great demand by looking at the increasing number of physician ads in the journals," he said during a special focus session. "I was looking for a neuroradiologist the other day. I found 44 jobs listed and four names listed looking for jobs."

Factors that have exacerbated this problem include an aging baby boom population, phenomenal growth and applications of technology used by radiologists, and the growth in the pool of radiologists not keeping pace with the growth of the number of imaging exams.

"If the shortage is not corrected, we

stand to lose more turf than we are already losing to other specialties," Dr. Amis said.

Avenues of Pursuit

Some ideas under consideration by the Task Force include increasing the number of residents in training or restructuring

Richard A. Cooper, M.D., director of the Health Policy Institute at the Medical College of Wisconsin, offered startling evidence of the early stages of a deepening shortage of all physicians, particularly in specialties. "We could see a deficiency of 200,000 physicians in the United States by 2020,"



A panel of experts discussed the radiologist shortage during a special focus session at RSNA 2002. (from left) **C. Douglas Maynard, M.D., Ronald J. Zagoria, M.D., Jonathan H. Sunshine, Ph.D., Robert R. Hattery, M.D., and E. Stephen Amis Jr., M.D.**

turing residency training to produce more radiologists in less time. "This has certainly been bandied about by me for a year or so, and has not met with a great deal of acceptance or success," Dr. Amis said. Several other physicians on the panel discussed whether the time has come to consider a complete overhaul of residency training programs with the goal of reducing total training time while still providing important skill acquisition for the ever-increasing technology.

Dr. Cooper warned.

He said previous evidence presented to lawmakers by the Bureau of Health Professions and other groups predicting a physician surplus was based on poor and invalid methodology. "Time and task models were fundamentally flawed," he said.

Dr. Cooper said projections from the Bureau of Labor Statistics over the same period were quite accurate, but were ignored by government officials, as were early warnings from some oth-

er policy analysts, including his own reports. "We now face a legislative dilemma. After years of lawmakers hearing there would be a physician surplus, we have to tell Congress that there are shortages and that funding will be needed for additional slots at medical schools and in residency programs," he said.

An updated survey of radiology chairs shows about 600 academic job openings each year. C. Douglas Maynard, M.D., co-chair of the ACR Task Force on Human Resources with Dr. Amis, said inadequate numbers of faculty lead to stress in clinical situations and decreased time for educational programs, academic activities and research.

"Research is critical presently because we were successful last year in getting the National Institute of Biomedical Imaging and Bioengineering. At a time when we really need to be producing more research to take advantage of opportunities at the NIH, in fact we are producing less," Dr. Maynard said.

He said academic radiologists are frustrated by the huge income disparity they see between themselves and private practice radiologists.

A Glimmer of Hope?

While the demand for radiologists is still strong, the pace may be easing, according to new research presented at RSNA 2002 by Daniel D. Saketkhoo, a fourth year medical student at Yale University School of Medicine.

Saketkhoo, who will receive his M.D., M.B.A. later this year, reviewed all 4,726 diagnostic radiology jobs advertised in *Radiology* and the *American Journal of Roentgenology* from January through November 2002.

Saketkhoo's comparison of data from 1992 to 2001 revealed a proportional increase in job ads for the Midwest, with a decrease in positions across the rest of the country. Absolute numbers for positions increased everywhere.

He also found that demand rose sharply for mammographers, pediatric radiologists and nuclear medicine positions, but demand fell for general radiology. Total positions for radiologists apparently peaked in November of 2001 and may be decreasing over the past year.

However, an informal poll during Saketkhoo's presentation showed about a quarter

of the audience had stopped running some journal advertising for radiology positions due to the lack of response. Saketkhoo said that could have a minor impact on his data showing a decrease in ads for private positions.

You Can Attract More Bees with Honey than Vinegar

A study was also released from Montefiore Medical Center in the Bronx revealing a birthday cake and a kind word go a long way to retaining existing staff levels to meet institutional needs.

Nogah Haramati, M.D., chief of radiology at the Jack D. Weiler Hospital of the Albert Einstein College of Medicine, admits the shortage of radiologists is taking a toll. "We've reached the point of desperation. We're increasing our dependence on moonlighters with reductions of onsite attending coverage. We've been calling retired radiologists to active duty."

He said they have even used cross-coverage with other hospitals, even competitors. "At some point we say, 'We'll do musculoskeletal for you. You do neuroradiology for us, but we still remain competitors.'"

He said the group has adopted flextime scheduling to accommodate personal and child-care needs, increased dependence on part-timers, adjusted academic time and even installed workstations in homes. "We will cater to whatever anybody wants, as long as productivity stays high," he said.

As workloads increase Dr. Haramati said maintaining high morale is critical. "We can't match the pay levels or the vacation time provided by private practice, but we try to make people feel loved in our facility," he said. An enjoyable work environment, friendly surroundings, guaranteed vacation time, extra comp time and celebrating the birthdays of attending physicians keeps everyone happy and reduces the flow of radiologists to private practice to just a trickle.

"Out-of-the-box thinking and innovation are critical to finding solutions to cope with staff shortages," he added. □

Out-of-the-box thinking and innovation are critical to finding solutions to cope with staff shortages.

— Nogah Haramati, M.D.



Richard A. Cooper, M.D.
Director, Health Policy Institute, Medical College of Wisconsin



Daniel D. Saketkhoo
Fourth Year Medical Student, Yale University



Nogah Haramati, M.D.
Chief of radiology, Jack D. Weiler Hospital, Albert Einstein College of Medicine

NIH Offers Loan Repayment Program

Now that the National Institute of Biomedical Imaging and Bioengineering (NIBIB) is fully operational, there is a growing demand for radiologists interested in clinical research.

However, some young radiologists—even if they are passionate about working in a laboratory—may feel they can't afford to start a research career while holding large medical school loans. But that is where they are wrong.

The National Institutes of Health (NIH) has a loan repayment program that helps to pay off medical school loans in exchange for a two-year commitment from a physician to do clinical research, either extramurally or intramurally.

"The NIH Loan Repayment Programs are part of our nation's effort to ensure a solid foundation of clinical research professionals for the next generation," says Ruth Kirschstein, NIH deputy director.

"These programs provide a means for health professionals to launch their research careers unfettered by the burden of student loan debt."

Of particular note are the clinical and pediatric research extramural loan repayment programs (LRPs), which entered their second year in fiscal 2003.

For this second year, a key requirement was changed to make the two programs more accessible—a physician does not have to have an NIH grant to be included in the programs.

NIH is anxious to spread the word about these programs. In fiscal 2002, the budget for loan repayments was \$28 million. NIH officials hope to double that amount in fiscal 2003.

Five participants in 2002 were involved in radiology research, though

none of them at NIBIB, which, so far, has only an extramural research program.

The NIH loan repayment program has existed since 1989 when intramural AIDS researchers were sought. Since then, intramural programs have been added for researchers from disadvantaged backgrounds, those doing clinical research and those interested in contraception and infertility research. Those last three categories, as well as pediatric research and health disparities research, are also available in the extramural loan repayment program. But the

These programs provide a means for health professionals to launch their research careers unfettered by the burden of student loan debt.

—Ruth Kirschstein

extramural clinical and pediatric programs have become the most popular.

One of the differences in the extramural and intramural loan repayment programs is that applicants for extramural programs must be employed by nonprofit organizations or must be working on federal-, state- or local-funded research in private industry. That may rule out researchers in hospitals, depending upon how the hospital is organized. Intramural participants must be employees of NIH.

Because Congress failed to approve the FY 2003 NIH appropriations bill before it adjourned in late November, there has been some uncertainty about how much money will be available for the loan repayment programs this year.

The delay has also given NIH some wiggle-room on the 2003 deadline for applications.

Both intramural and extramural loan repayment programs allow NIH to annually pay up to \$35,000 of an individual's outstanding education debt. The LRP will repay lenders directly for the principal, interest and related expenses of qualified U.S. Government (federal, state, local) and commercial educational loans obtained for undergraduate, graduate and health professional school expenses. The qualifying educational debt must equal or exceed 20 percent of the applicant's institutional base salary on the expected date of program eligibility. Ineligible loans include those consolidated with another individual (including spouses, children, etc.), loans not in a current pay status, loans obtained after an LRP contract has been signed by NIH, or noneducational loans, such as home equity loans. In addition, NIH will not repay penalty, late, or delinquency fees or extraordinary interest incurred due to the lateness of prior payments.

To be eligible applicants must be citizens, nationals or permanent residents of the United States. Applicants must also have the correct professional affiliations attached to the end of their last name: Ph.D., M.D., D.O., D.D.S., D.M.D., Pharm.D., D.P.M., D.C., N.D., or an equivalent doctoral degree from an accredited institution (a D.V.M. is also a qualifying degree for the Pediatric Research LRP).

An applicant must have the backing of his or her institution, which must provide research support through the end of the two-year NIH loan repayment contract. The researcher must spend 50 percent of his or her time (not

less than 20 hours per week) on research.

Some categories of individuals are barred from applying. These include any individual who has a federal judgment lien against their property arising from a federal debt; any individual who owes an obligation of health professional service to the federal government, a state, or other entity, unless deferrals are granted for the length of their LRP service obligation; full-time

employees of federal agencies; individuals with ineligible loans, which includes loans that have been consolidated with a loan of another individual (including spouses, children), or loans that are not educational, such as home equity loans.

For more information about the NIH Extramural Loan Repayment Programs, go to www.lrp.nih.gov, or call toll free (866) 849-4047. □

NIH Loan Repayment Programs

- Clinical Research LRP
- Clinical Research LRP for Individuals from Disadvantaged Backgrounds
- Contraception and Infertility Research LRP
- Health Disparities Research LRP
- Pediatric Research LRP

JOURNALS

Radiology in Public Focus

Press releases have been sent to the medical news media for the following scientific articles appearing in the February issue of *Radiology* (radiology.rsna.org):

“Renal Cell Carcinoma: Clinical Experience with and Technical Success of Radio-frequency Ablation of 42 Tumors”

PERCUTANEOUS IMAGE-guided radio-frequency (RF) ablation of renal cell carcinoma (RCC) is a very promising technique and is most successful in treating exophytic tumors less than 3 cm in size, although tumors up to 5.0 cm can be completely ablated.

Debra A. Gervais, M.D., and colleagues from the Department of Radiology, Abdominal Imaging and Intervention at Massachusetts General Hospital in Boston evaluated 34 patients who underwent RF ablation of 42 RCC tumors.

Of the 29 exophytic tumors, all were completely ablated as were two parenchymal tumors. The remaining 11 tumors had a

component in the renal sinus. For tumors larger than 3.0 cm, presence of a tumor component in the renal sinus was a significant negative predictor of technical success.

The researchers add that the incidence of RCC continues to increase. In 2000, more than 30,000 new cases were reported in the United States. (*Radiology* 2003; 226:417-424)

“Vertebral Compression Fractures: Pain Reduction and Improvement in Functional Mobility after Percutaneous Polymethylmethacrylate Vertebroplasty—Retrospective Report of 245 Cases”

TREATMENT OF VERTEBRAL fractures with percutaneous polymethylmethacrylate (PMMA) vertebroplasty appears to be safe and results

in substantial immediate pain reduction and improved functional status.

Avery J. Evans, M.D., from Radiology Associates of Tampa, and colleagues retrospectively interviewed 245 patients who underwent percutaneous PMMA vertebroplasty at seven university-based and private hospitals in the United States.

Using a 10-point scale to describe their pain, patients reported pain levels at 8.9 before vertebroplasty and 3.4 afterward. Before vertebroplasty, 72 percent of patients reported substantially impaired ambulation, compared with 28 percent afterward. The patients also reported a significantly improved ability to perform activities of daily living following vertebroplasty.

As the baby boom population ages and the number of



vertebral compression fractures associated with osteoporosis increases, the researchers say that “a randomized controlled trial appears warranted to assess the efficacy and safety of vertebroplasty.” (*Radiology* 2003; 226:366-372)

RSNA press releases are available at www2.rsna.org/pr/pr1.cfm.

RSNA Restructures Board of Directors

In a move designed to strengthen RSNA's support for radiologic science and research, the Board of Directors voted in December to restructure its Cabinet (which consists of the responsibilities of the Board members in their capacities as liaisons to RSNA committees) in order to create a Liaison for Science. Gary J. Becker, M.D., a radiologist at the Miami Vascular Institute at Baptist Hospital of Miami, was named to fill the position. Dr. Becker has served on the Board for the past year as a Member-at-Large and designate for a liaison role. He became the Liaison for Science on December 5, 2002.

The restructuring was part of RSNA's three-year strategic plan, which emphasizes improving the Society's scientific and research activities.

Liaison's Responsibilities

The RSNA Board oversees the major activities of the Society and addresses issues related to RSNA programs. The new Liaison for Science is responsible for overseeing the work of the Scientific Program Committee, Science Editor, Associated Sciences Committee, Research and Education (R&E) Foundation Board of Trustees, R&E committees and the Research Development Committee.

As the Liaison for Science, Dr. Becker will attend the meetings of the committees under his aegis, report back to the Board of Directors about the meetings, and relay Board directives and statements of support to the members of these committees. He will also work with RSNA Science Editor Anthony V. Proto, M.D., editor of *Radiology*, to achieve the goals of the science and research committees he

oversees in identifying important scientific developments in radiology and hastening the publication of related research.

The new Liaison for Science will be responsible for helping RSNA meet its strategic plan goals to:

- Improve scientific and educational communication through all venues, including meetings, publications and electronic media.
- Maintain the preeminence of the annual meeting as a scientific and educational forum.
- Promote the quality and quantity of research in the field of radiology.

Other Changes

Under the Board's restructuring plan, the Cabinet now consists of four liaison positions: Liaison for Science (Gary J. Becker, M.D.), Liaison for Publications and Communications (Robert R. Hat-

RSNA is increasing its emphasis on research through the Liaison for Science, an important step not only for academic radiologists and radiological scientists, but also for the future stature and credibility of our specialty.

—David H. Hussey, M.D.

tery, M.D., and Liaison-designate Hedvig Hricak, M.D., Ph.D.), Liaison for Education (Theresa C. McCloud, M.D.), and Liaison for the Annual Meeting and Technology (R. Gilbert Jost, M.D.). In addition, the duties of the Secretary-Treasurer have been transferred to the President-elect (Brian C. Lentle, M.D.)

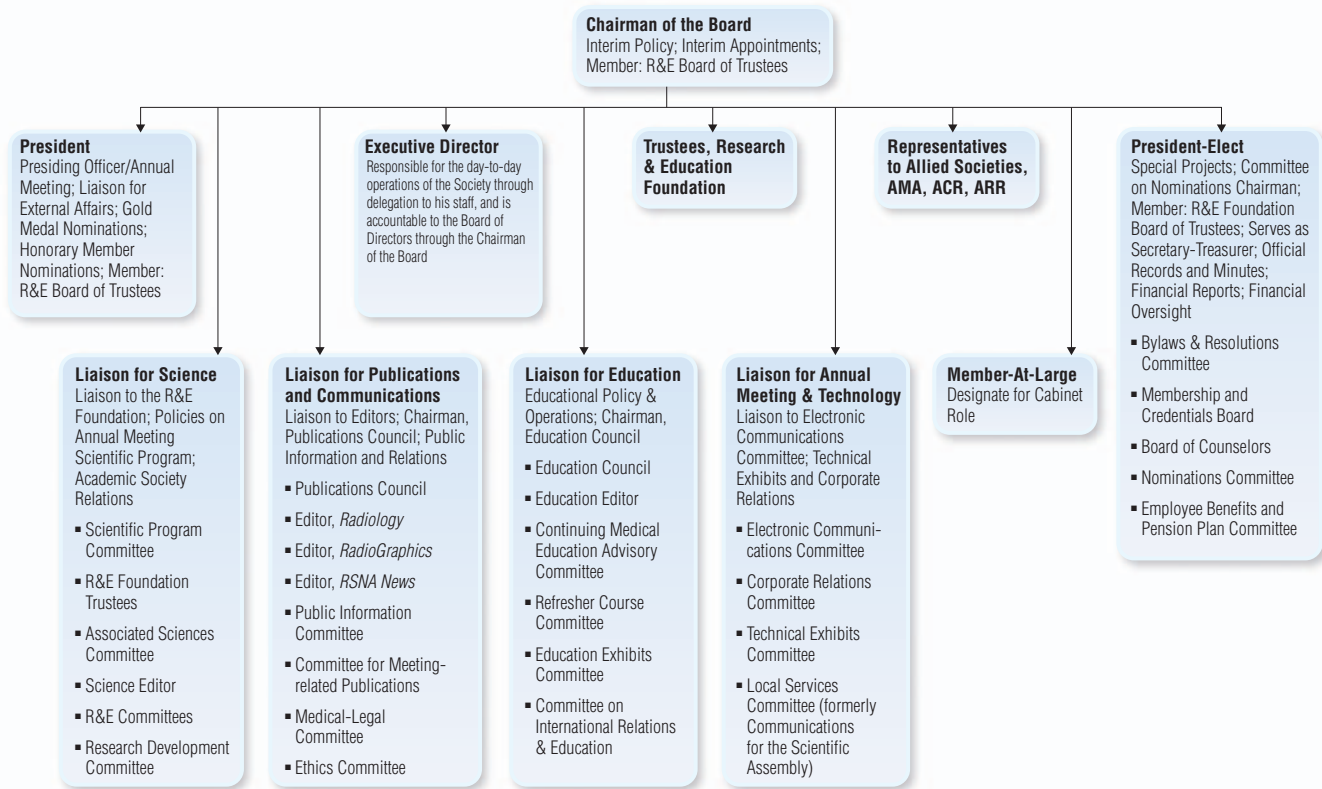
and the Board liaisons have been given greater authority over the budgets in their areas of influence. The liaisons will then report to the President-elect on budget matters. The duties of the President (Peggy J. Fritzsche, M.D.) remain virtually unchanged. The members of the Board made these changes to place greater emphasis on RSNA's mission to support radiologic science and research without increasing the size of the Board.

The expanded role of the President-elect includes responsibility for special projects, official RSNA records and minutes, financial reports, financial oversight, serving as Secretary-Treasurer, chairing the Committee on Nominations and serving on the R&E Foundation Board of Trustees. These changes will help better prepare the President-elect to serve as President.

The Liaison for Publications and Communications replaces the Liaison for Publications and Educational Materials and the Liaison for Communications and Corporate Relations, bringing together publications and communications activities under one umbrella. This new liaison has oversight of the Publications Council, editor of *Radiology*, editor of *RadioGraphics*, editor of *RSNA News*, Public Information Committee, Committee for Meeting-related Publications, Medical-Legal Committee, Ethics Committee, and the *RSNA News* Editorial Board.

The office of Liaison for Education has not changed under the Board's reorganization plan for its Cabinet. This liaison is responsible for the Education Council, Education Editor, Continuing Medical Education Advisory Committee, Refresher Course Committee, Education Exhibits Committee and Com-

BOARD OF DIRECTORS CABINET STRUCTURE



mittee on International Relations and Education.

The newly created Liaison for the Annual Meeting and Technology takes on some of the responsibilities of the former Liaison for Communications and Corporate Relations. This new liaison oversees the Electronic Communications Committee, Corporate Relations Committee, Technical Exhibits Committee, Local Services Committee (formerly the Communications for the Scientific Assembly Committee) and the Audiovisual Services Committee.

All the liaisons and the President-elect maintain communication with the staff of RSNA by interacting with Executive Director Dave Fellers,

C.A.E, and the Assistant Executive Directors who oversee their areas of responsibility. The Liaison for Science and the Liaison for Education coordinate activities and communicate with Assistant Executive Director for Research and Education Linda B. Bresolin, Ph.D., M.B.A. The Liaison for Publications and Communications interacts with Assistant Executive Director for Publications and Communications Roberta E. Arnold, M.A., M.H.P.E. The Liaison for the Annual Meeting and Technology relates to Assistant Executive Director for the Annual Meeting and Technology Steve Drew. The President-elect now communicates with Assistant Executive Director for

Finance and Administration Mark Watson, C.P.A. The liaisons serve for five years, including one year as a liaison-designate.

“The Board cabinet has been restructured in response to changing times and new opportunities,” says RSNA Board Chairman David H. Hussey, M.D. “The radiologic sciences are becoming an increasingly powerful tool not only for managing patient health, but also for understanding disease mechanisms at a fundamental level. The NIH recognized the expanding role of imaging in research by creating the National Institute of Biomedical Imaging and Bioengineering. Similarly, RSNA is increasing its emphasis on research through the Liaison for Science, an important step not only for academic radiologists and radiological scientists, but also for the future stature and credibility of our specialty.” □

2003 RSNA BOARD OF DIRECTORS

DAVID H. HUSSEY, M.D.
Chairman

ROBERT R. HATTERY, M.D.
Liaison for Publications and Communications

R. GILBERT JOST, M.D.
Liaison for Annual Meeting and Technology

THERESA C. MCLLOUD, M.D.
Liaison for Education

GARY J. BECKER, M.D.
Liaison for Science

HEDVIG HRICAK, M.D., PH.D.,
Liaison-designate for Publications and Communications

PEGGY J. FRITZSCHE, M.D.
President

BRIAN C. LENTLE, M.D.
President-elect

Editor's Note: This article is based on a Special Communication appearing in the February issue of Radiology.

Working For You

Patient Education Brochures

RSNA has developed new patient education brochures to help patients prepare for various radiologic procedures. Five brochures are available, including one on



one on Mammography. This brochure explains what mammography is, how to prepare for the procedure, what the equipment looks like, and how the procedure is performed.

Other brochures are

available on Abdominal Ultrasound Scanning, CT of the Body, MRI of the Musculoskeletal System and Radiology & Your Health.

For more information or to place an order, go to www.rsna.org/practice/index.html or call (800) 272-2920. The RSNA member price is \$19.95 plus shipping for a packet of 100.



NEW!

Palm/PDA Service from HighWire Press

Radiology and *RadioGraphics* tables of contents and abstracts, along with some simple full-text articles such as editorials, are now available for downloading on PDAs. HighWire Press, the online journals hosting company that hosts the RSNA journals, has implemented this feature for handheld devices using Palm OS (e.g., PDAs from Palm, Handspring, Sony) that work with either PCs or Macintosh computers.

Support for the PocketPC standard is being considered. An upcoming version will allow more interaction with the Web site, such as ordering a document to be delivered to your desktop. If you have a Palm OS PDA and it is set up to sync with a PC or Mac, you can try the feature by going to the HighWire portal (highwire.stanford.edu) and click on the "My Alerts" link. Register for a free account, then scroll down to the "My PDA Channels" section and install the software.



Virtual Monographs

Virtual Monographs, found within the RSNA Education Portal of *RSNA Link* (www.rsna.org), are collections of important topics and materials from *RadioGraphics* and InteractED. Virtual Monographs are a convenient way for radiologists to locate education programs to assist them in their maintenance of certification. Articles on similar topics are grouped together:

- From the Archives of the AFIP
- Best Cases from the AFIP

- AAPM/RSNA Physics Tutorials for Residents
- Issues in Electronic Communication/Informatics
- PET Imaging
- Breast Imaging
- Radiation Biology

The RSNA Education Portal also includes InteractED, the RSNA CME Credit Repository, Residents' Lounge, Education Resources Catalog, and more.

NEW!

E-mail-a-Friend

Radiology and *RadioGraphics* online have added a feature that allows the reader to e-mail an article to a friend. There is now a link in the content box of each article that says "E-mail this article to a friend." When the reader selects this link, an e-mail message with a link to the article is created. The reader can then send the e-mail to a friend (or anyone else). If the article is access controlled and the friend has a subscription, he or she will be able to access the full text from the abstract view; otherwise the friend would have access to the abstract only.

If you have a colleague who would like to become an RSNA member, you can download an application at www.rsna.org/about/membership/memberapps.html, or contact the RSNA Membership and Subscription Department at (630) 571-7873 or membersh@rsna.org.

Book Discounts for RSNA Members

A new benefit of membership is available through *RSNA Link*—the Membership Book Discount Program.

Several publishers are offering discounts to RSNA members who buy books or other educational materials through their Web sites. Selected titles and prices are listed on a special page in the products area of *RSNA Link*. They include:

- Springer-Verlag New York, Inc.
- American Association of Physicists in Medicine
- Primal Pictures Ltd.
- ProScan MRI Education Foundation
- Medical Interactive
- Martin Dunitz

After logging into the Member's LOGIN area found at the top of the home page (www.rsna.org), click on the Publisher Partners link in the left navigation column.

The RSNA Publisher Partners

page links to the publishers' e-commerce Web sites and indicates the order code that each publisher will use to give discounts on their own Web site.



SERVICE TO MEMBERS:

I oversee all fundraising activities for the RSNA Research and Education Foundation, including the cultivation of individual and corporate contributors. My job has been challenging because of the present

economic environment. Many corporations are merging and only 10 percent of RSNA members contribute to the Foundation. My fundraising priorities focus in two specific areas: increasing awareness of the Foundation's mission; and, the most obvious, increasing the number and the amount of our individual and corporate support.

My marketing background proves to be extremely helpful in promoting each of the Foundation's giving opportunities, including individual and planned giving, major gifts and corporate giving. I work closely with RSNA members who serve on the Foundation's Board of Trustees, Fund Development Committee, Visionaries Advisory Council and the Corporate Advisory Council. Together, we develop and implement appropriate strategies to engage contributions, monitor and evaluate current fundraising activities and make sure we attain our fundraising goals.

WORK PHILOSOPHY:

My work philosophy is three-fold: to do whatever it takes to get the job done, to always do my best, and to have fun in the process. It is important to enjoy the work you do, those with whom you work—staff and member volunteers—and the mission of the organization. I'm a people-oriented person and, in fundraising, the cultivation of personal relationships is the key to its success.



NAME:

Deborah Kroll

WITH RSNA SINCE:

April 1, 2002

POSITION:

Managing Director:
Fund Development

connections Your online links to RSNA

RSNA Link
www.rsna.org

Radiology Online
radiology.rsnaajnl.org

Radiology Manuscript Central
radiology.manuscriptcentral.com

RadioGraphics Online
radiographics.rsnaajnl.org

NEW

RSNA Virtual Journal Club
vjc.rsna.org

Education Portal
www.rsna.org/education/etoc.html

CME Credit Repository
www.rsna.org/cme

RSNA Index to Imaging Literature
rsnaindex.rsnaajnl.org

Database of Funding Opportunities
www3.rsna.org/dor/

RadiologyInfo™
RSNA-ACR public information Web site
www.radiologyinfo.org

RSNA Online Products and Services
www.rsna.org/member-services

RSNA Fellow and Scholar Fulfills Career Goals



On her application to become an RSNA Research and Education Foundation Scholar, Pamela K.

Woodard, M.D., wrote, "My long-term career objective is to become an NIH-funded independent investigator in non-invasive cardiovascular imaging research with a primary emphasis on MR."

Four years after writing those words, Dr. Woodard is doing just that.

Dr. Woodard is an assistant professor of radiology at the Mallinckrodt Institute of Radiology at Washington University School of Medicine in St. Louis. She leads the clinical investigative cardiac MR effort in the Cardiovascular Imaging Laboratory at Mallinckrodt.

Since August of 2000, she has been the principal investigator at Washington University on a three-year, eight-center, \$13.5 million study funded by the National Institutes of Health (NIH) called "Prospective Investigation in Pulmonary Embolism Dx-II." This prospective study is to assess the accuracy and utility of multidetector contrast-enhanced spiral CT in searching for pulmonary embolisms. Expert readers in this blinded study will examine data from about 1,300 patients.

She is the co-investigator of an additional NIH grant, this one for \$1.5 million, titled "Methods for MRI Guided Interventions in Coronary Vessels." Nikos Tsekos, Ph.D., is the principal investigator. The goal of this grant is to develop and optimize methods for performing coronary artery interventions under MR guidance. "Technical hurdles that are being overcome include development of catheters, coils, pulse sequences and image processing, and

display approaches required to perform these procedures," she says. "The advantage of MR guidance is that there is no ionizing radiation. Also, there is no iodinated contrast, which can be nephrotoxic or cause allergies in some patients."

Dr. Woodard's department chair, R. Gilbert Jost, M.D., praises her commitment to radiology research. "Dr.

Woodard is an outstanding young scientist who has chosen to focus her research in the area of cardiac imaging, with particular attention to cardiac MRI," says Dr. Jost, who is also the RSNA Board Liaison for Annual Meeting and Technology. "I believe that the opportunities for cardiac imaging are going to expand dramatically over the next five to 10 years, and it is important for us to have experts in radiology who can provide leadership. Dr. Woodard is such a person," he says.

RSNA Participation

Dr. Woodard is a member of RSNA and participated in several RSNA 2002 panels. She's on the board of directors for the North American Society for Cardiac Imaging, the oldest and largest society dedicated to all cardiac imaging. She's also a member of the leadership committee for the American Heart Association's Council on Cardiovascular Radiology and Intervention.

"Although cardiac magnetic reso-



Pamela K. Woodard, M.D.
Assistant Professor of Radiology,
Mallinckrodt Institute of Radiology

nance imaging was pioneered by radiologists, radiologists need to continue to develop the field and teach cardiac MR imaging. RSNA's research training and teaching programs help radiologists as a whole maintain their strength," she says.

Dr. Woodward joined Mallinckrodt in 1995. From July 1996 to June 1998, she was the Siemens Medical Solutions/RSNA Research

Fellow. She worked with physicists in cardiac imaging while conducting her research, "Identification of Proximal Coronary Artery Stenoses with 3D MR Retrospective Respiratory Gating."

In 1999, she was accepted as the Eastman Kodak/RSNA Research Scholar. She was principal investigator of "Detection of Coronary Artery Stenoses and Qualitative Flow Assessment Using an Intravascular Contrast Agent."

"Having the opportunity to write grants and participate in research early on helped pave the way for the current success I have," she says.

Dr. Woodard says the key for junior level researchers is to receive early training in physiology-based, hypothesis-driven research, which is just what NIH wants. "The RSNA Fellowship and Scholars programs helped me fill that niche," she says.

Dr. Jost concurs. "I want to emphasize the enormous contribution that is being made by the RSNA Research and

Education Foundation. I can point to several successful scientists in my department who got their start through support from RSNA. The research seed grants provide important stepping-stones that allow young scientists to mature to the point where they can successfully compete for federal funding," he says.

Dr. Woodard says Dr. Jost has expanded the Cardiovascular Imaging Laboratory at Mallinckrodt, created by Ronald G. Evens, M.D. She says both chairmen saw the benefit of allowing individuals the time to pursue and conduct research, in addition to providing an

excellent infrastructure.

Dr. Jost says other radiology chairmen can do this too. "The pressures on academic radiology departments these days are significant, and it is increasingly difficult for academic radiologists to find time to pursue an academic career. Nevertheless, if radiology is going to continue to hold its own, we need to commit to building the research infrastructure to support an ambitious academic program. Above all, we need to provide the resources and environment to nurture young investigators who will be our future leaders," he says.

Dr. Woodard says she enjoys con-

ducting research and applying it clinically. She chose academic radiology because she could not do that in private practice.

She has specific advice for junior level radiologists. "Find appropriate mentors and a wide variety of mentors. One mentor can't teach you about every area in radiology," she says. For example, she recommends young investigators seek help from M.D.s and Ph.D.s who have been successful in writing NIH grants. □

RSNA's research training and teaching programs help radiologists as a whole maintain their strength.

—Pamela K. Woodard, M.D.

For more information on the Research and Education Foundation grants and programs, contact Scott Walter at (630) 571-7816 or walter@rsna.org.

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A PDF version of the Research and Education Foundation 2002 Annual Report has been posted in the R&E section of *RSNA Link*: www.rsna.org/research/foundation/annualreport.html



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News about RSNA 2003

Abstracts for RSNA 2003

The deadline is April 15, 2003, to submit scientific abstracts for RSNA's 89th Scientific Assembly and Annual Meeting. All abstracts for RSNA 2003 must be submitted online through *RSNA Link* at www.rsna.org.

Complete abstract submission instructions can be found in the back of the January, February and March 2003 issues of *Radiology* and the January–February 2003 issue of *RadioGraphics*.

All abstracts must be received by April 15, 2003.

Abstracts are required for scientific papers, scientific posters, education exhibits and *infoRAD* exhibits.

Scientific presentations can be made in either oral or poster format. Oral presentations will be delivered at an assigned date and time and will be limited to six minutes followed by three minutes for discussion. Attendees of oral presentations are awarded category 1 CME credit. An author of a poster will be assigned to a one-hour scientific session in which attendees will earn category 1 CME credit. Posters will be on display during the entire week for independent review by attendees who can claim self-study credit.



RSNA'03

COMMUNICATION FOR
BETTER PATIENT CARE

November 30–December 5
McCormick Place, Chicago

Important Dates for RSNA 2003

April 15	Deadline for abstract submission
April 28	RSNA and AAPM member registration opens
June 23	General registration, housing and refresher course enrollment opens
Oct. 10	Registration deadline for Non-North American participants to have badge wallet mailed
Oct. 31	Final advance registration deadline
Nov. 30–Dec. 5	RSNA 89th Scientific Assembly and Annual Meeting

For more information about registration at RSNA 2003, call (630) 571-7862 or e-mail reginfo@rsna.org.

RSNA 2003 Exhibitor News

Exhibitor Planning Meeting

Exhibitors at RSNA 2002 are invited to attend the RSNA 2003 Exhibitor Planning Meeting on February 18 at Rosewood Restaurants and Banquets near O'Hare International Airport. RSNA 2002 will be reviewed and plans will be made for RSNA 2003. The official contact for each exhibiting company was sent more detailed information in mid-January.

For up-to-date information about technical exhibits at RSNA 2003, go to www.rsna.org/rsna/te/index.html.

Exhibitor Prospectus

The RSNA 2003 Exhibitor Prospectus will be mailed in late March. To achieve maximum available space and assignment points, your completed application must be received at RSNA Headquarters by April 7, 2003. The first-round space assignment deadline is May 2, 2003.

For more information, contact RSNA Technical Exhibits at (630) 571-7851 or e-mail: exhibits@rsna.org.

Important Exhibitor Dates for RSNA 2003

February 18	Exhibitor Planning Meeting
March 31	Exhibitor Prospectus mails
May 2	First-round space assignment deadline
June 24	Exhibitor Planning/Booth Assignment Meeting
July 3	Technical Exhibitor Service Kit mails
Nov. 30–Dec. 5	RSNA 89th Scientific Assembly and Annual Meeting

www.rsna.org

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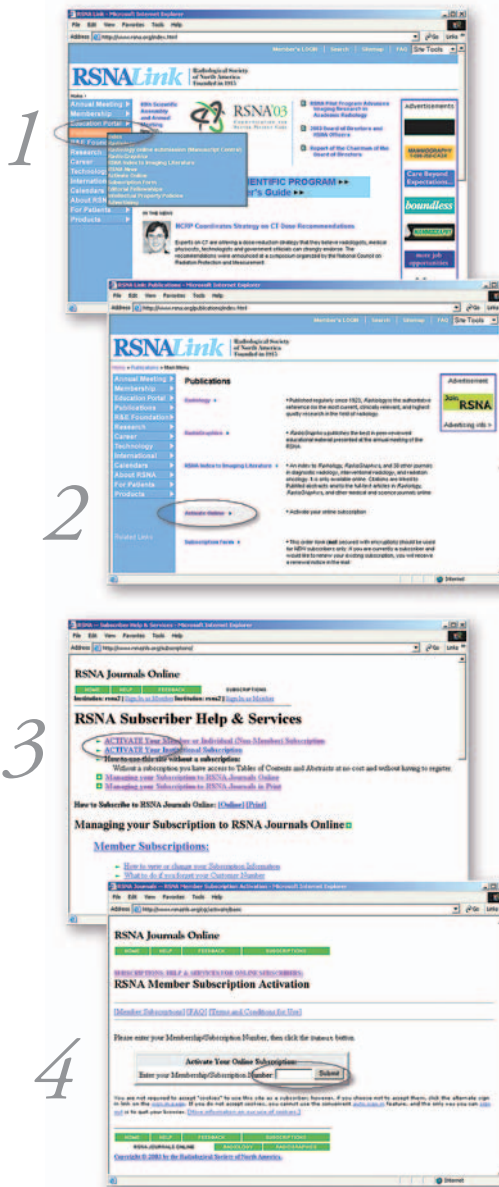
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To change your password, go to www.rsna.org/subscribe/#online-manage.



Virtual Journal Club for *RadioGraphics*

The RSNA Virtual Journal Club, a new area of *RSNA Link* designed to promote interactivity in education, made its debut with the January-February 2003 issue of *RadioGraphics*. Each issue will feature one article whose authors will be available to answer questions and comments online for a limited time after the online edition of *RadioGraphics* is published. After the period for open discussion ends, the dialog will be archived in the Virtual Journal Club. All residen-

cy program directors and resident members-in-training will be notified by e-mail each time a new article is posted on the site.

Go to vjv.rsna.org from February 3–21, 2003, to talk with authors Martin O'Malley, M.D., and Stephanie Wilson, M.D., about their article "US of Gastrointestinal Tract Abnormalities with CT Correlation." The Virtual Journal Club may also be accessed through the Residents' Lounge area of *RSNA Link*.

Tech Trivia from RSNA 2002

RSNA Link Onsite (rsna2002.rsna.org)

38,744

total visits

431,409

total page views

Most Active Hour

11:00 a.m.–12:00 p.m.

Least Active Hour

2:00 a.m.–3:00 a.m.

Most Active Days

Tuesday, December 3

(13,740 visits;

81,659 page views)

Monday, December 2

(8,232 visits;

79,995 page views).

Least Active Days

Thursday, November 28

(1,302 visits; 24,363 page views)

Saturday, November 30

(2,611 visits; 28,479 page views)

55%

sessions lasting less than two minutes

15%

sessions lasting more than 19 minutes

Exhibit Award Winners

RSNA 2002 exhibit award winners have been posted in the Education Portal at www.rsna.org/education/awards2002/.

Each winner is linked to its abstract in the online *Scientific Program* (rsna2002.rsna.org). RSNA 2002 awards were given in five categories: magna cum laude, cum laude, certificate of merit, *infoRAD* and excellence in design.

Medical Meetings

March – May 2003

MARCH 2-6

Society of Thoracic Radiology (STR), Annual Meeting and Scientific Session, Loews Hotel, Miami Beach, Fla.
• (507) 288-5620

MARCH 7-11

European Congress of Radiology (ECR), Vienna, Austria
• www.myecr.org

MARCH 12-16

3rd Annual PACS Conference, University of Rochester Department of Radiology, Westin Riverwalk Hotel, San Antonio, Texas
• (585) 275-1050 or www.urmc.rochester.edu/pacs2003

MARCH 24-28

Society of Computed Body Tomography and Magnetic Resonance (SCBT/MR), 23rd Annual Course, Westin Mission Hills Resort, Rancho Mirage, Calif. • (507) 288-5620

MARCH 27-APRIL 1

Society of Interventional Radiology (SIR), Convention Center, Salt Lake City, Utah • www.sirweb.org

MARCH 30-APRIL 2

American College of Cardiology (ACC), 52nd Annual Scientific Session, Chicago • www.acc.org

APRIL 5-9

American Association for Cancer Research, 94th Annual Meeting, Metro Toronto Convention Centre, Toronto, Ontario
• www.aacr.org

APRIL 9-13

Society of Chairmen of Academic Radiology Departments (SCARD), Fontainebleau Hilton, Miami • www.scard.org

APRIL 9-13

Association of University Radiologists (AUR), 51st Annual Meeting, Fontainebleau Hilton, Miami • www.aur.org

APRIL 9-13

American Association of Academic Chief Residents in Radiology (A3CR2), Fontainebleau Hilton, Miami • www.a3cr2.com

APRIL 9-13

Association of Program Directors in Radiology (APDR), Fontainebleau Hilton, Miami • www.apdr.org

APRIL 11-13

Japan Radiological Society (JRS), 62nd Annual Meeting, Yokohama, Japan • www.radiology.or.jp/english/index.htm

APRIL 12-15

Society of Breast Imaging (SBI), 6th SBI Postgraduate Course, Westin Diplomat Resort and Country Club, Hollywood, Fla.
• www.sbi-online.org

APRIL 26-30

American Radium Society, 85th Annual Meeting, Hotel Inter-Continental, Paris, France • www.americanradiumsociety.org

APRIL 27-MAY 2

American Society of Neuroradiology (ASNR), 41st Annual Meeting, Washington, D.C. • www.asnr.org

MAY 4-9

American Roentgen Ray Society (ARRS), 103rd Annual Meeting, San Diego Convention Center, San Diego
• www.arrs.org/meeting/

MAY 7-10

Society for Pediatric Radiology (SPR), Annual Meeting, Fairmont Hotel, San Francisco • www.pedrad.org

MAY 10

Molecular Imaging, ASTRO/ACR Symposium, Washington Hilton, Washington, D.C. • www.astro.org

MAY 10-13

Australian and New Zealand Society of Nuclear Medicine (ANZSNM), 33rd Annual Scientific Meeting, Sheraton on the Park, Sydney, Australia • www.anzsnm.org.au

MAY 10-15

ACR Annual Meeting & Chapter Leadership Conference, Washington Hilton, Washington, D.C. • (703) 716-7545

MAY 10-15

American College of Medical Physics (ACMP), Annual Meeting, Sagamore Inn, Lake George, N.Y. • www.acmp.org

MAY 10-16

International Society for Magnetic Resonance in Medicine (ISMRM), 11th Scientific Meeting and Exhibition, Metro Toronto Convention Center, Toronto, Ontario
• www.ismrm.org/03/

MAY 11-18

Radiology in Italy, Medical College of Wisconsin & the Universities of Brescia and Parma, Parma and Stresa, Italy
• www.radiologyintl.com

MAY 18-21

Radiology Business Management Association (RBMA), Radiology Summit, Hyatt Regency San Antonio • www.rbma.org

MAY 31

PowerRAD 2003: Digital Image Management and Presentation, RSNA Headquarters, Oak Brook, Ill. • (630) 368-3747 or ed-ctr@rsna.org

NOVEMBER 30-DECEMBER 5

RSNA 2003, 89th Scientific Assembly and Annual Meeting, McCormick Place, Chicago • www.rsna.org