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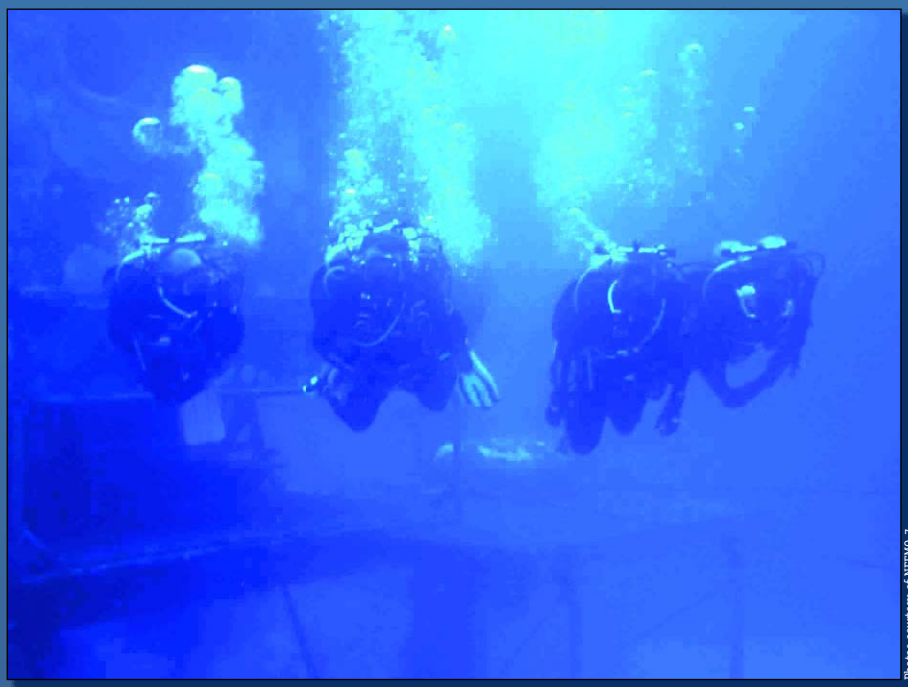
RSNA News



Photos courtesy of NEEMO 7

Underwater Medical Mission Uses Radiology Telementoring

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RSNA News

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December 2004 • Volume 14, Number 12

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Fritzsche Calls for Involvement

2003 RSNA President **Peggy J. Fritzsche, M.D.**, is calling on her medical colleagues to get involved in politics to help protect patients and the medical profession.

In a cover story in the September issue of *Southern California Physician*, Dr. Fritzsche said: "I have observed firsthand, on visits to legislators' local offices and to Sacramento, the importance of educating our legislators on issues related to medicine. They honestly do not understand our view unless we make the effort to inform them."

Dr. Fritzsche sits on the executive committee of the California Medical Association (CMA) Political Action Committee, is the RSNA delegate to the American Medical Association, and is a member of the Key Contact Program for CMA and for the American College of Radiology.

To read the article, go to *www.socalphys.com/sep04/feature1.pdf.*

Vannier Earns Faculty Post at University of Chicago

Michael W. Vannier, M.D., a pioneer in the collection and presentation of medical images, has been appointed professor of radiology at the University of Chicago.

A member of the NASA/U.S. Space Foundation Hall of Fame, Dr. Vannier was previously a professor of radiology and industrial engineering at the University of Iowa.

He holds six image-processing patents, including one for a method of gastrointestinal tract unraveling and two for computer-based upper-extremity evaluation.

Phlegar Steps Down at Erlanger, ADR

Robert F. Phlegar, M.D., has left his post as chief of radiology at Erlanger Medical Center in Chattanooga, Tenn., and as president and CEO of Associates in Diagnostic Radiology (ADR).

"For the last four years I have been going to meetings early in the mornings and at night. Now I will be spending more time with my family," said Dr. Phlegar, who recently turned 61.

Som Receives ASHNR Gold Medal

Peter M. Som, M.D.

The American Society of Head and Neck Radiology (ASHNR) has awarded its 2004 gold medal to **Peter M. Som, M.D.**, a professor of radiology, otolaryngology and radiation oncology at Mount Sinai Hospital in New York City.

Dr. Som, recognized as one of the world's foremost head and neck radiologists, is a founding member of ASHNR.

Two Radiology Residents Honored

Julia J. Choo, M.D., and **Stephanie H. Swope, M.D.**, have been awarded the inaugural Steven M. Pinsky, M.D., Resident Research Awards.

Presented by the Illinois Radiological Society (IRS) at its annual meeting in September, the award is designed to encourage radiology and radiation oncology members-in-training to do research, to enhance their academic careers and to promote an inter-institutional exchange of information.

Dr. Choo is a radiation oncology resident at Rush University Medical Center in Chicago. Dr. Swope is a diagnostic radiology resident at Southern Illinois University Hospitals in Springfield.

A committed educator and former IRS president, Dr. Pinsky died last April.

Julia J. Choo, M.D.

Stephanie H. Swope, M.D.

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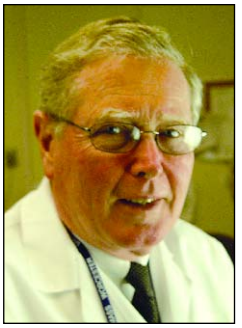


Francis X. Van Houten, M.D.

Van Houten to Head UMass Radiology

Francis X. Van Houten, M.D., is the new director of radiology services for the Memorial and Hahnemann Campuses of the University of Massachusetts Memorial Medical Center.

Dr. Van Houten is also an associate professor of clinical radiology at the University of Massachusetts Medical School.

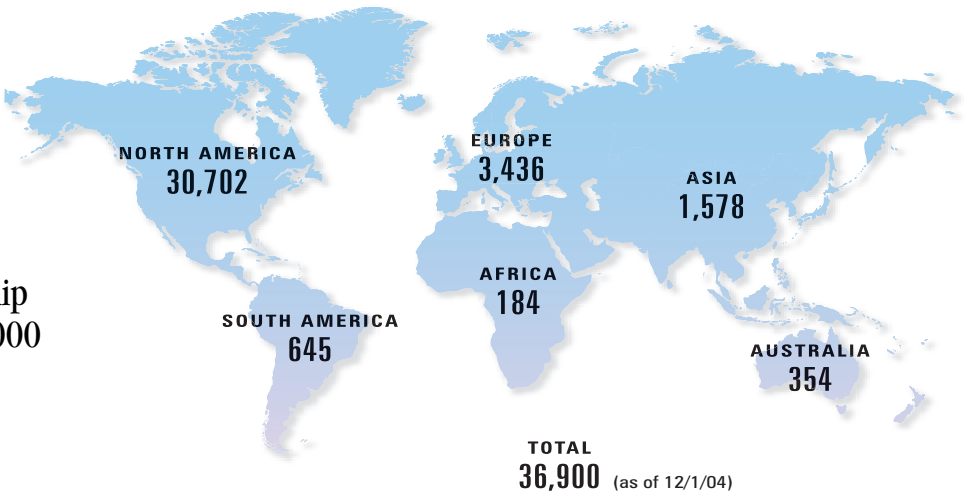
John Becomes First Female UT Chair

Susan D. John, M.D., has been named the John S. Dunn Sr. Distinguished Chair of Radiology at the University of Texas Houston Medical School. Her appointment makes her the first female chair in the history of the medical school.

Dr. John is also the chief of pediatric radiology for Memorial Hermann Hospital in Houston.

Susan D. John, M.D.

RSNA Membership Approaches 37,000



NCI Launches New Integrative Cancer Biology Program

The National Cancer Institute (NCI) is providing $14.9 million in funding for a new Integrative Cancer Biology Program (ICBP).

ICBP is a unique initiative designed to gain new insights into the development and progression of cancer through a systems-wide approach. The multi-disciplinary effort will incorporate new technologies such as genomics, proteomics and molecular imaging to generate computer and mathematical models that could predict the cancer process.

Nine ICBP centers will serve as training and outreach programs, enabling developing technologies to be communicated to other scientists in the cancer research community. The ICBP centers also will interact and collaborate with other NCI programs and external groups. NCI's Cancer Biomedical Information Grid (caBIG, *cabig.nci.nih.gov*) program will coordinate all the bioinformatics software needed by the ICBP as part of caBIG's ongoing effort to simplify and integrate the sharing and usage of data by providing access to NCI's cancer research communities.

Fore more information on this project, go to *www.nih.gov/news/pr/oct2004/nci-26.htm.*

NIH Awards 1,400 New Student Loan Repayment Contracts

In fiscal year 2004, the National Institutes of Health (NIH) awarded student loan repayment contracts, totaling nearly $68 million to more than 1,400 health researchers.

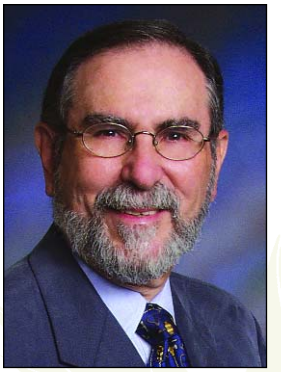
More than half of the awards were to researchers who completed their doctoral degrees within the past five years. In addition, more than 40 percent of the awardees hold M.D. degrees, 34 percent hold Ph.D. degrees, nine percent M.D., Ph.D. degrees, and seven percent other doctoral degrees.

For more information, go to *www.lrp.nih.gov.*

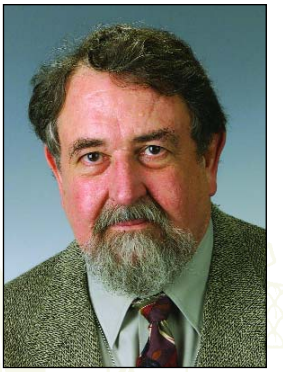
2004 RSNA

Outstanding Educator and Outstanding Researcher

At RSNA 2004, the Society honored two individuals for their commitment to education or research. ☐ The 2004 RSNA Outstanding Educator award was presented to Henry I. Goldberg, M.D. The 2004 RSNA Outstanding Researcher was Steven M. Larson, M.D.



Henry I. Goldberg, M.D.



Steven M. Larson, M.D.

DR. GOLDBERG has been an influential and respected educator and mentor for more than 30 years. He has earned numerous teaching awards from the University of California, San Francisco (UCSF) School of Medicine, including "Teacher of the Year" and several clinical teaching awards.

Former residents and fellows strongly credit Dr. Goldberg for enhancing their educational experiences, and many former medical students have cited Dr. Goldberg as the influencing factor for their decision to pursue careers in radiology. His teaching methods and curricula development are innovative and effective. One former resident recalls Dr. Goldberg using a Japanese kite to explain the windsock sign seen in duodenal diverticulum, "He showed me how to describe this case as a case report and that academic writing can be fun."

Dr. Goldberg's CD-ROM, "Introduction to Clinical Imaging," and his *Radiology 100* syllabus are examples of enduring educational materials that have been widely used at his institution and at several other medical schools in the country. Additionally, he has authored at least 160 original reports, 51 chapters and four electronic publications.

A leader in medical education at both the undergraduate and continuing medical education levels, Dr. Goldberg currently serves as director of the Radiology Learning Center at the UCSF School of Medicine and has been director of all medical student radiology teaching since 1994.

He is a founding member and past-president of the Alliance of Medical Student Educators in Radiology, and is a charter member of the Haile T. Debas Academy of Medical Educators at UCSF—an honor society and service organization to promote excellence in teaching, to foster innovation in the medical school curriculum and to support and reward outstanding teachers. He is one of only three radiologists who are surveyors for the Accreditation Council for Continuing Medical Education.

DR. LARSON IS one of the world's foremost experts in targeted radiotherapy and molecular imaging. His research, which spans three decades, has resulted in many novel findings especially in understanding cancer. Using carbon-14 labeled media and a sensitive radiodetector system, Dr. Larson was able to rapidly identify bacterial and cell growth, a technology that is used widely today for detecting mycobacterium tuberculosis.

Dr. Larson has successfully tackled the problems of antibody production, radiolabeling, humanization of the antibody, minimizing host immune response and developing methodologies to quantify response. His research in detection of colorectal cancer has been successfully applied in the treatment of patients with advanced tumors.

He also has made significant contributions to the advancement of positron emission tomography (PET) as a clinical tool for oncology. He was recruited to the National Institutes of Health (NIH) in 1983, in part to establish a state-of-the-art PET center for NIH researchers. His success in this endeavor led to an NIH Directors Medal in 1987 for him and his colleagues.

While conducting cutting-edge research in targeted therapy and related molecular imaging, Dr. Larson continues to be heavily involved in teaching, administration and clinical care. Dr. Larson currently serves as chief of the nuclear medicine service at Memorial Sloan-Kettering Cancer Center (MSKCC), director of radiology research and director of the PET Center at MSKCC. He is also a professor of radiology at Cornell University Medical College.

Dr. Larson has authored or co-authored 430 manuscripts in major peer-reviewed journals, including *Science, Nature Medicine, Nature Biotechnology, Radiology, The New England Journal of Medicine,* and *Journal of Nuclear Medicine.*

He has also served on several governmental advisory committees and study sections at NIH, the Department of Energy and the U.S. Food and Drug Administration (FDA).

Radiology Should Assume Leadership Role in Cardiac Imaging, Experts Say

EXTRAORDINARY technological advancements and increasing interest in cardiac imaging present a unique opportunity for radiologists. Are they prepared for the challenge?

"Radiologists are as prepared as cardiologists for CT studies of coronary calcium and for coronary angiograms. Radiologists must simply learn about cholesterol, Framingham risk score, and the National Cholesterol Education Protection Guidelines APT III," says Melvin E. Clouse, M.D., vice-chairman and director of research at Beth Israel Deaconess Medical Center and professor of radiology at Harvard Medical School. Dr. Clouse was a panelist during a focus session on cardiac imaging at RSNA 2004.

"Radiologists need to study and apply what we've learned in practice. The technology and the patients are here," he says.

The session, "Cardiac Imaging in the 21st Century: Is Radiology Ready for Prime Time?," was moderated by Martin J. Lipton, M.D.

"Interest in cardiac imaging has accelerated over the last few years because of scanners that are now able to provide high-speed, ECG-gated images of good diagnostic quality," says Dr. Lipton, a professor of radiology at Brigham and Women's Hospital in Boston.

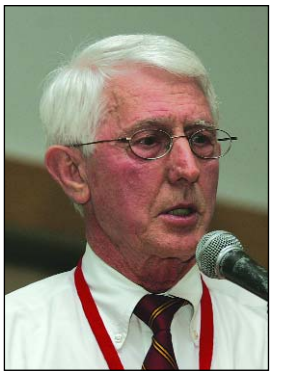
> *This is a very serious issue for radiology. Cardiac imaging is an enormous field and will continue to grow.*
>
> **Martin J. Lipton, M.D.**

In the past, radiologists were involved in cardiac imaging but times have changed. "In the last two to three decades, cardiologists have taken responsibility for nearly all of the cardiac imaging, including angiocardiography, echocardiography and at least half of nuclear medicine exams. These are the established diagnostic imaging tools for patient management," says Dr. Lipton, who is educated in both cardiology and radiology.

Now that cardiac CT and MR imaging are feasible, Dr. Lipton suggests radiology departments become vigorously involved. "This is a very serious issue for radiology," he says. "Cardiac imaging is an enormous field and will continue to grow."

Incidents such as former President Clinton's heart surgery bring a heightened awareness to the detection of subclinical disease in completely asymptomatic individuals or those with minor symptoms previously thought not to be life threatening.

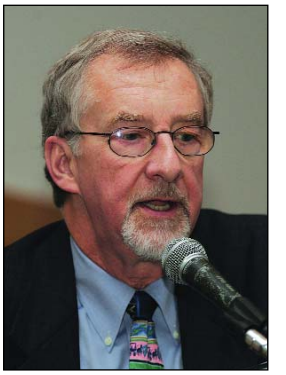
"New technologies are largely focused on the evaluation of very early disease before people have heart attacks and strokes. Good examples of that are evaluations of coronary artery disease using MR angiography depicting plaque to identify the buildup of atherosclerotic lesions," adds focus session panelist David Bluemke, M.D., Ph.D.



Melvin E. Clouse, M.D.

Martin J. Lipton, M.D.

David Bluemke, M.D., Ph.D.



Thomas J. Brady, M.D.

Hot Topics in Cardiac Imaging

Cardiac CT is not just a hot topic in cardiac imaging, it is also one of the hottest topics in medicine. Cardiac CT allows the entire heart to be scanned in approximately 10 to 15 seconds with a bolus injection of contrast material, which generates remarkable images of the coronary anatomy. Radiologists can examine cardiac function and coronary artery plaque while assessing cardiac structure for other diseases.

"It's a unique exam," says focus session panelist Thomas J. Brady, M.D., director of the cardiac MR/CT program at Massachusetts General Hospital and the Robbins Professor of Radiology at Harvard Medical School. "Cardiologists at Massachusetts General have used cardiac CT extensively and have significantly altered management of patients

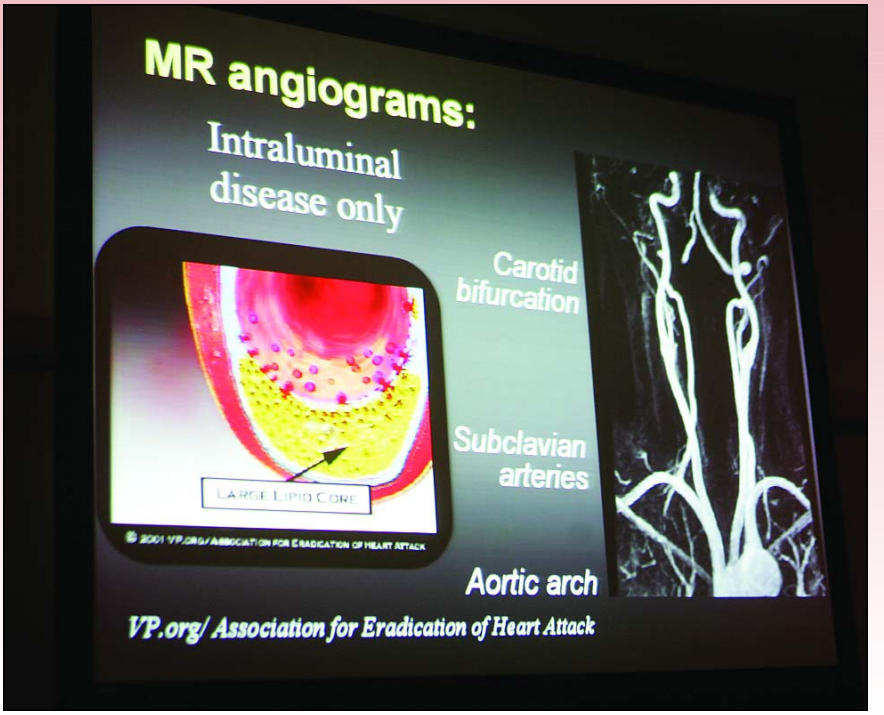
with coronary artery disease. They predict cardiac CT will replace diagnostic coronary angiography in the next several years. I believe that in the right situation with the right patient population, we can actually get patients to the catheter lab earlier and perhaps save more lives."

Another hot area is cardiac MR imaging. "It is in prime time right now, especially in the areas such as the evaluation of left and right ventricle function and myocardial viability," says Dr. Bluemke, an associate professor and clinical director of MRI at the Johns Hopkins Medical School in Baltimore, Md. "In the future, I believe that these MR imaging applications will be central within the realm of patient management for coronary disease."

Heart imaging is highly complex. Currently, 3D imaging of the heart can be performed within a breath hold. Left ventricle function can be rapidly determined and areas of myocardial viability can be established during one or more breath holds, avoiding more complicated diagnostic procedures.

In a very short period of time, viability imaging has become the gold standard for assessing myocardial viability using standard MR imaging contrast agents. Dr. Bluemke predicts that other novel approaches, such as MR assessment of unstable plaque, are soon to be developed and evaluated. "MR is the best noninvasive method for identifying substructure within atherosclerotic plaque and has been used to show regression of plaque after statin therapy," he says.

Contrast materials used in cardiac MR imaging are also being improved and used in novel ways. Dr. Bluemke says that the latest generation of intravascular contrast agents for MR imaging provides prolonged imaging periods of 10 to 15 minutes allowing much higher potential resolution of vascular detail, while existing contrast agents are being used to evaluate stem cell therapy of myocardial infarction and cardiomyopathy.



Calcium Scoring

The coronary calcium score is also a controversial topic in cardiac imaging. Previously, it was thought that variability and reproducibility made the score unreliable. Dr. Clouse says this technology has now been validated for both electron beam and multidetector CT.

"The reproducibility and variability are such that radiologists should begin using it to detect early or asymptomatic disease so that patients can be treated to prevent progression," says Dr. Clouse, adding that the negative predictive value of a zero calcium score is approximately 97 percent.

He says total plaque burden is the most important predictor for future myocardial events. "Recently published research in *The Journal of the American Medical Association* indicates that the calcium score is additive to the Framingham risk score—the gold standard for predicting future myocardial events," says Dr. Clouse. "This proves the calcium score is an important predictor for future myocardial events. I think it should be used in those patients that are at intermediate and high risk."

Educating Residents in Cardiac Imaging

Major issues facing chairs of radiology departments today include recruiting and/or training the necessary cardiac imaging faculty and adequately educating residents. "Cardiac imaging is very complex," says Dr. Lipton. "Many aspects of cardiac diagnosis and management are clouded by the self-referral patterns of cardiologists. Radiologists should not use this as an excuse to deter them from participating and offering imaging services to referring physicians."

All the experts in the focus session agree that radiology must take an active role in cardiac imaging or run the risk of being left out of this burgeoning field. □

CVI Fellowships

Several cardiovascular imaging fellowships are available through programs established as a result of grants from the RSNA Research & Education Foundation. See page 24 for more information.

Radiologists Can Help Patients Avoid Triggering Security Detectors

AFTER UNDERGOING certain nuclear medicine procedures, patients can trigger radiation detectors for up to three months—something radiologists must discuss with their patients, according to a scientific paper presentation at RSNA 2004.

Lionel Zuckier, M.D., a professor of radiology at the University of Medicine and Dentistry of New Jersey, and colleagues found that patients who undergo exams, such as bone and thyroid scans, cardiac exams and iodine therapy, are at risk of setting off Homeland Security detectors for much longer periods than previously imagined.

"The nuclear medicine community has known for some time that these patients can set off radiation detectors. It's becoming a more common occurrence with the increasing number of very sensitive portable Homeland Security radiation detectors given to police officers, airport security personnel and border patrols," says Dr. Zuckier, who is also the director of nuclear medicine and PET at University Hospital in Newark.

He supports recommendations made by the Society of Nuclear Medicine (SNM) and the U.S. Nuclear Regulatory Commission (NRC) that radiologists and hospitals should provide official documentation to the more than 18-million patients who undergo nuclear medicine and therapeutic procedures each year. His study suggests guidelines as to how long this documentation should be retained.

Lionel Zuckier, M.D., participated in a press conference at RSNA 2004 during which he urged patients to talk with their doctors about getting official documentation when undergoing certain medical procedures such as bone and thyroid scans, cardiac exams and iodine therapy.

Not a New Problem

Dr. Zuckier says initial reports of nuclear medicine patients setting off radiation detectors came almost two decades ago. A 1986 letter to the editor of *The New England Journal of Medicine*, "Problems on Pennsylvania Avenue," described how, in two separate incidents, nuclear medicine patients set off detectors at the White House.

More recently, the NRC has alerted users to an event where a patient who had undergone a nuclear medicine procedure ignored written safety instructions not to travel for two days. The patient boarded a bus traveling from New York City to Atlantic City. The bus was subsequently pulled over when a radiation alarm sounded in a tunnel. While there was no danger to those on the bus, this incident did cause unnecessary concern for travelers and law enforcement officials.

We found that even miniscule amounts of radionuclides could set off the detectors.
Lionel Zuckier, M.D.

With today's state of heightened security, Dr. Zuckier and his colleagues wondered how long patients undergoing diagnostic and therapeutic nuclear medicine procedures could potentially set off detectors—such as those used by Homeland Security personnel. The researchers tested the sensitivity of a panel of detectors to various radionuclides and, making the assumption that personal radiation detectors worn by security officers could be positioned as close as one meter away from a patient, calculated the threshold of radionuclides that would trigger these devices.

In collaboration with Michael G. Stabin, Ph.D., from Vanderbilt University in Nashville, Tenn., who provided expertise regarding rates of excretion of radiopharmaceuticals from the body, the authors then calculated how long it

would take for the patient to drop below the thresholds needed to trigger the alarms.

"In our experimental measurements, we found that even miniscule amounts of radionuclides could set off the detectors," says Dr. Zuckier. "Consequently, the length of time it took for the human body to excrete the radiopharmaceuticals to below threshold levels was much longer than expected."

As indicated by the study, trace quantities of radionuclides remaining in the body can set off radiation detectors for variable periods of time:

PET scan	Less than one day
Bone and thyroid scan	Three days
Cardiac thallium exams	Up to 30 days
Iodine or Bexxar* therapy	Up to 95 days

*Bexxar therapy involves an antibody conjugated to radiolabeled iodine.

What Should Radiologists Do?

SNM says radiologists can help patients and security personnel by providing patients who will be traveling on public transportation (such as airplanes, trains and rapid transit) or visiting secure facilities with a letter that contains the following information:

- Patient name
- Name and date of nuclear medicine procedure
- Radionuclide
- Half-life
- Administered activity
- 24-hour contact information

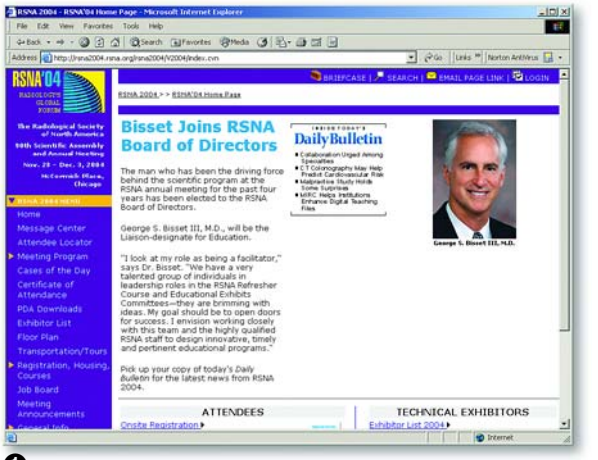
SNM says the letter should also provide specific details about who should be contacted, if necessary, for verification. Outside of normal working hours, the contact person should have access to an appropriate source of information such as a hospital or radiology information system, so that the letter can be independently confirmed.

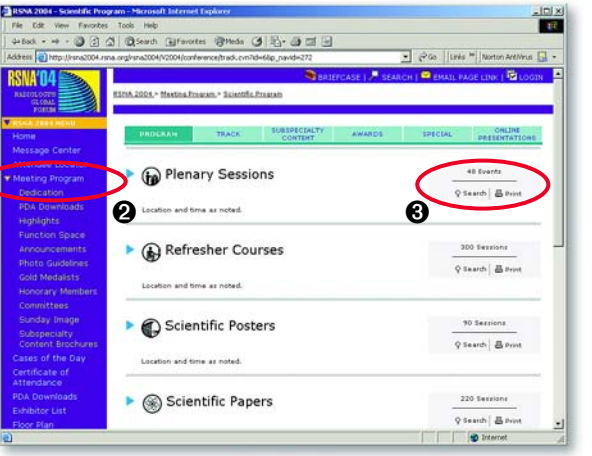
While this is an extremely important matter, Dr. Zuckier says his study should not alarm the public nor should patients avoid needed procedures for fear of triggering radiation alarms. The amount of radiation a patient receives from a typical nuclear medicine procedure is minimal, but he says under the current climate of security consciousness, patients should be provided with a note from their doctors.

In addition to presenting the scientific paper at RSNA 2004, Dr. Zuckier also participated in an RSNA press conference in which he discussed his findings with the medical news media. To view the news releases from the annual meeting, go to *rsna.org/press04.*

To view the abstract of Dr. Zuckier's scientific paper, go to *rsna2004.rsna.org/rsna2004/V2004/conference/event_display.cfm?em_id=4407767.*

For more information on developing a letter for patients, see the SNM Web site at *www.snm.org.* Type the term "security authorities" in the search box and hit Enter. Click on the article, "SNM Working With Security Authorities To Develop Procedures To Expedite Radiation Monitoring." □





To search for presentations from RSNA 2004, go to *rsna2004.rsna.org* ❶, click on Meeting Program ❷ in the left-hand column, then click on search ❸ within the course type.

Webcasts of RSNA 2004 Press Conferences

DR. ZUCKIER'S press conference was among 20 held during RSNA 2004. Six of the press conferences were offered via Webcast.

To view the press conferences, go to *rsna.org,* click on Media in the left-hand navigation bar, click on RSNA 2004 and then click on Access the Webcast Archive.

Press conferences include:

- Thyroid Treatment Can Trigger Homeland Security Detectors – Lionel Zuckier, M.D.
- Patients' Own Stem Cells Used to Cure Incontinence – Ferdinand Frauscher, M.D.
- Imaging Tool May Help Physicians Diagnose Bipolar Disorder – John DeWitt Port, M.D.
- Brain Remapping May Be Key to Recovery from Stroke – Kristine M. Mosier, D.M.D., Ph.D.
- Brain Imaging with MRI Could Replace Lie Detector – Scott H. Faro, M.D.
- CT Helps Find Cause of Puzzling Cough in WTC Rescue Workers – David S. Mendelson, M.D.

RSNA Visiting Professors Share Experiences with Argentine Radiologists

ARGENTINA OFTEN conjures up visions of the tango, gauchos or Eva Peron. But after participating in this year's RSNA International Visiting Professor (IVP) Program and seeing the country firsthand, three RSNA members will remember other images.

"As we were leaving for the airport, we saw families having picnics on the median strips of the highway to enjoy what greenery there was in the city," says Theodore Dubinsky, M.D., one of three visiting professors who attended the 50th Argentine Congress of Radiology in Buenos Aires this September. The team saw both the beauty of South America's second largest nation as well as the devastating impact Argentina's economic crisis has had on its citizens and their healthcare.

Dr. Dubinsky is an associate professor of radiology at the University of Washington School of Medicine, and serves as director of the Body Imaging Center at Harborview Medical Center in Seattle. The team also included William Brant, M.D., a professor and acting chairman of the Department of Radiology at the University of Virginia, Charlottesville, and Gia DeAngelis, M.D., an associate professor of clinical radiology at the University of Virginia. The IVP Program allows small teams of imaging professionals to lecture at the national radiology meeting of emerging nations, as well as at the host institution.

All three physicians attending the congress made presentations to well-attended sessions. "Overall, my impression is of wonderful people and, for the most part, the physicians are very well-trained. But they are being challenged by their economy," says Dr. Dubinsky. "Costs are difficult to manage and their equipment is not as up to date as ours."

RSNA's three International Visiting Professors to Argentina are pictured with Sociedad Argentina de Radiologica (SAR) President Ricardo García Mónaco at the 50th Argentine Congress of Radiology in Buenos Aires. *(from left to right)* **William Brant, M.D., Gia DeAngelis, M.D., Theodore Dubinsky, M.D., and Professor García Mónaco.**

The Argentine economy collapsed in December 2001. After several days of violent street protests that left 27 people dead, Argentine President Fernando de la Rúa resigned and a state of emergency was declared. The value of the peso plummeted and has stayed low while unemployment and poverty have increased. For the medical community, the impact has meant less of everything—training, equipment and space to perform exams and medical tests.

Dr. Dubinsky says the state of the economy was a popular topic of conversation at the congress, noting that some physicians fear their perceived wealth makes them targets for criminals. "I heard one story of a doctor's child being held at gunpoint while he and his family were forced to drive to a bank and withdraw money," he says. "The child and his parents escaped unharmed when the robbers ran off with the cash."

Despite the uncertain economic climate, Argentine physicians warmly welcomed the RSNA contingent and treated them very well. "It's an honor being a visiting professor representing RSNA," says Dr. Brant.

In return, Drs. Dubinsky, Brant and DeAngelis say they worked hard during their visit, doing extra lectures, teaching conferences and making hospital visits to regions outside the meeting site in Buenos Aires. Dr. Brant's host took him around the city of Mendoza, near the Andes Mountains, to medical

(left) **The ruins of a hotel destroyed in an avalanche at 9,000 feet in the Andes.** *(above)* **The most colorful barrio in La Boca, Buenos Aires, was settled by Italian immigrants to Argentina. It is currently an artists colony and a home of the tango.**

Images courtesy of William Brant, M.D.

facilities at the National University of Cuyo.

In the region's central hospital, he saw how physicians and students cope with a lack of sufficient medical funding and outdated equipment. "It's like seeing a county or public hospital here. There are large numbers of ill, indigent patients, but the situation is magnified," Dr. Brant says.

He saw radiology residents act as technicians, performing ultrasounds and other scans, but Dr. Brant says that may have had a positive effect on patient care. "The tests were tailored to the patient's problem and the resident was right there to make a decision," he explains. "The quality of the equipment is some generations behind what we have. For instance, they're using single-slice CT units but the quality of the studies was high. They push the scanner for quality."

At the region's central hospital, thousands of patients are seen each year in the one room where fluoroscopy studies can be done. Dr. DeAngelis found similar conditions at a public hospital in Cordoba, a major city outside of Buenos Aires.

"They have a CT scanner that has not been used for two years since the tube burned out. A new tube would need to be imported and the hospital is dependent on public funds, so they cannot afford to get another one," she says. "The radiologists have to make do. They perform angiography with equipment that had been dedicated to cardiac imaging and adapt their technique to obtain high-quality images."

A physician surplus in Argentina has created fierce competition for medical residency spots—especially in the better-equipped private practices. "There are only about 500 paid medical residency opportunities for approximately 8,000 graduates a year," says Dr. Brant. "There are about 1,000 more unpaid residency slots. So residents in the unpaid programs compete for the chance to take night call for extra money."

They have a CT scanner that has not been used for two years since the tube burned out. A new tube would need to be imported and the hospital is dependent on public funds, so they cannot afford to get another one.

Gia DeAngelis, M.D.

Because the value of the Argentine peso is so low, only a few wealthy students can go abroad for training. While most of the faculty at medical schools is devoted to training young physicians, the professional surplus with the concurrent lack of adequate specialty training could make some physicians reluctant to train residents for fear of the competition.

"Ultimately, some patients have less access to medical treatment," says Dr. DeAngelis, who adds that part of the solution may be to train more radiologists in subspecialties. "We take so much for granted. One prominent radiologist I met considered it one of the highlights of her career to get a poster accepted at the RSNA annual meeting. They're so appreciative when they receive an accolade from a radiology society or have a chance to speak or be published."

As part of the IVP Program, RSNA's Committee on International Relations and Education provides for donation of educational materials to the host institutions.

Also this fall, an IVP team visited Romania, and in a separate but similar program, a team of visiting professors traveled to Mexico City.

Next year, IVP teams will go to Brazil, Thailand and Sri Lanka. Dr. Brant says it's important for U.S. radiologists to play a role as international teachers. "RSNA is very highly respected in Argentina. Physicians look at it as the standard of where radiology is going," he says.

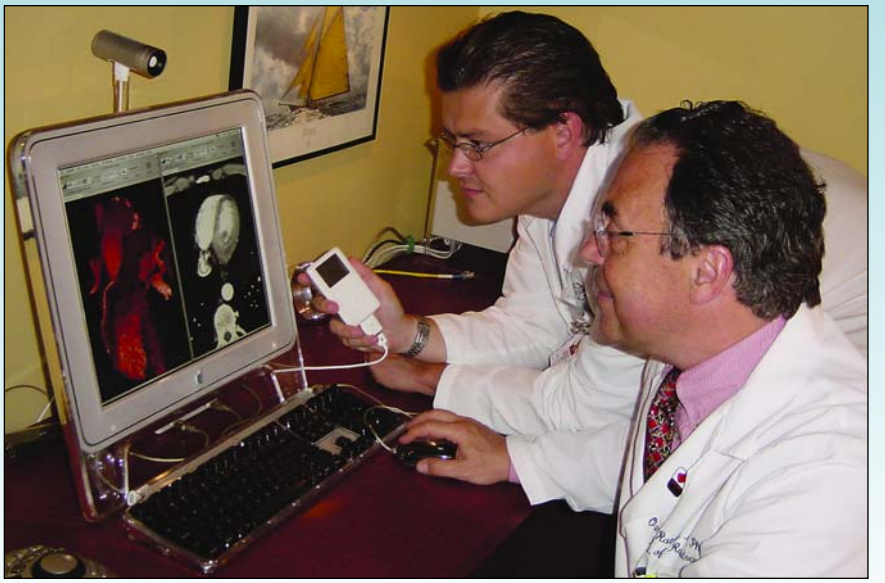
The 2004 RSNA IVP program was funded through an endowment from the Agfa Corporation. In 2005, the IVP program will be funded through endowments from Agfa and FUJIFILM Medical Systems. □

iPod Helps Radiologists Manage Medical Images

THE IPOD is not just for music any more. Radiologists from the University of California, Los Angeles (UCLA), and their colleagues at other institutions from as far away as Europe and Australia are now using iPod devices to store medical images.

"This is what we call using off the shelf, consumer market technology," says Osman Ratib, M.D., Ph.D., professor and vice-chairman of radiologic services at UCLA. "Technology coming from the consumer market is changing the way we do things in the radiology department."

Dr. Ratib and Antoine Rosset, M.D., a radiologist in Geneva, Switzerland, recently developed OsiriX, Macintosh-based software for display and manipulation of complex medical image data.



The authors of the Osirix Software, Osman Ratib, M.D., Ph.D. *(front)*, **and Antoine Rosset, M.D.** *(back)*, **review images stored on the iPod portable device.**

Images courtesy of Osman Ratib, M.D., Ph.D.

"We chose to do it on the Macintosh because of the high performance of Mac graphics," Dr. Ratib says. "The purpose is to be able to quickly and interactively manipulate very large data sets in 3D, 4D and even 5D. It's amazing how much performance we get."

How did the developers go from a music player to a medical storage device? "We basically wanted something that everybody could use," explains Dr. Ratib. "That's why OsiriX can be used with the iPod, iChat and other tools."

> *Technology coming from the consumer market is changing the way we do things in the radiology department.*
>
> **Osman Ratib, M.D., Ph.D.**

"Radiologists deal with a very large amount of medical imaging data," Dr. Ratib explains. "I never have enough space on my disk, no matter how big my disk is—I always need more space. One day I realized, I have an iPod that has 40 gigabytes of storage on it. It's twice as big as my disk on my laptop and I'm using only 10 percent of it for my music. So, why don't I use it as a hard disk for storing medical images?"

Dr. Rosset set up the OsiriX software to automatically recognize and search for medical images on the iPod. When it detects the images, they automatically appear on the list of image data available—similar to the way music files are accessible by the iTune music application.

"It's easy to use and you don't have to worry about how to load and unload it from the iPod," Dr. Ratib says. "But the real beauty of it is that I can use the images directly on the iPod. I don't have to take the time to copy them to my computer. The iPod allows me to copy data from work to my laptop, but I don't have to do it if I don't want to."

Dr. Ratib sees the iPod as a kind of giant memory stick, "The performance is amazing."

Large data sets can be transferred directly to the iPod through the firewire connection. "I use my software to download images from the PACS or from any imaging source," Dr. Ratib says. "OsiriX follows the most universal way of accessing any image and it covers virtually every DICOM format possible. It's very, very flexible."

Once the images are on the iPod, they can be carried from one machine to another, as long as the computer is a Macintosh. "You can see the images and display them as you would do with any other file that's on your hard disk," Dr. Ratib says.

OsiriX allows users to upload images to the Internet. It also supports iChat instant messaging, which is com-

This teleradiology setting shows an inserted live video image *(upper right corner of the screen)* **of a videoconference session using iChat software for instant messaging that is available on all Macintosh platforms.**

OsiriX converts virtually every DICOM format possible.

PET-CT reconstruction on the iPod Photo as displayed on a TV through the S-Video interface

patible with AOL instant messaging. This allows the user to take advantage of the video-conferencing capability. But instead of seeing the user's face on a Webcam, it is modified to show the user's screen at the other end of the conversation.

"For us, it's a way of doing very cheap, very convenient teleradiology," Dr. Ratib explains. "I could be chatting with one of my buddies and he can see my screen, so I can show him what I'm doing with an image."

"I can also send him that image at high resolution as an attachment," he continues. "He'll immediately receive it, open it and we can continue to talk about it."

The software is free, distributed under Open Source Licensing, and has found users around the world. "I want everybody to participate," Dr. Ratib says.

A recent survey of OsiriX users found that it has been very well received. One thousand people downloaded the software within the first month of distribution. Dr. Ratib believes actual usage is about three to five times that number.

Among the respondents to the survey, more than one quarter of the OsiriX users were radiologists, half of them at university hospitals. Forty-one percent of the total survey respondents said they use OsiriX daily, while 46 percent use it weekly. The most frequent usage was for research (53 percent), followed by presentations (37 percent), PACS at home (34 percent), PACS at work (29 percent), 3D station (26 percent) and fun (24 percent).

Free Software Download

OsiriX software can be downloaded at *homepage.mac.com/rossetantoine/osirix/*.

The software was featured at RSNA 2004 on 30-inch, high-definition color screens during two presentations in the *info*RAD area. The presentations were titled, "OsiriX: Multimodality Open Source Image Display and Navigation Software," and "Navigating the Fifth Dimension—Innovative Interface for Multidimensional Multimodality Image Navigation."

OsiriX was also featured in the scientific poster, "Merging Imaging Modalities: Practical Applications," and in the scientific paper, "Display and Interpretation of Multidimensional and Multimodality Images."

"We're not trying to reinvent something that's completely different," Dr. Ratib concludes. "We're trying to adapt to the very rapidly changing environment, and provide ourselves with tools that industry would take years to give us." □

Underwater Medical Mission Uses Radiology Telementoring

RECENTLY, a Canadian radiologist successfully drained a patient's abscess. Sound routine? Maybe, but in this case, the patient was hundreds of miles away lying 19 meters beneath the surface of the waters off Key Largo, Fla.

It was all in a days work for Julian Dobranowski, M.D., and the crew of NEEMO 7, otherwise known as the National Aeronautics and Space Administration (NASA) Extreme Environment Mission Operation.

The goal of this joint venture by NASA, the Canadian Space Agency (CSA) and the Centre for Minimal Access Surgery (CMAS), a surgical center affiliated with McMaster University that develops techniques to be used in remote medical care, was to test and evaluate the latest in remote medical diagnostic and therapeutic technologies.

"We want to be able to deliver the highest quality diagnostic and surgical care to remote areas of the world as well as in space," says Dr. Dobranowski, chief of the Department of Diagnostic Imaging and medical director of the Imaging Research Centre at St. Joseph's Healthcare in Hamilton, Ontario.

Julian Dobranowski, M.D., in the telerobotics lab at St. Joseph's Healthcare in Hamilton, Ontario.

The Crew

The crew for the 10-day October mission was split into two teams—a land-based team and the underwater team.

St. Joseph's Healthcare was the base for the land crew. The team comprised a number of experts including Dr. Dobranowski, NASA astronaut Bill Todd, who was the mission director, and Mehran Anvari, M.D., CMAS founder and director. Dr. Anvari is world renowned for having performed the very first hospital-to-hospital remote surgery in 2003.

The underwater crew included mission commander and CSA astronaut Bob Thirsk, M.D., NASA astronauts Mike Barratt, M.D., and Cady Coleman, Canadian surgeon Craig McKinley, M.D., and habitat technicians James Talacek and Billy Cooksey. The underwater team conducted their work from the Aquarius Undersea Laboratory in the Florida Keys Marine Sanctuary. The steel cylinder Aquarius habitat is similar in size to that of the service module for the International Space Station.

> *We want to be able to deliver the highest quality diagnostic and surgical care to remote areas of the world as well as in space.*
>
> Julian Dobranowski, M.D.

"The extreme conditions of a long underwater mission are similar to those of space. The NEEMO 7 mission afforded aquanauts, astronauts and medical professionals an unprecedented opportunity to test state-of-the-art remote medical techniques in real-time and real-life situations. Someday, these techniques could be used in long-duration, manned space flights to the Moon and Mars," says Dave Williams, M.D., CSA astronaut/ aquanaut and trauma physician, who was slated to be mission commander of the Aquarius before a last-minute surgery prevented him from making the trip.

Mission Objectives

The mission had two diagnostic imaging objectives. The first objective was to experiment with telementoring by having Dr. Dobranowski and his team

Julian Dobranowski, M.D. *(top photo, left)***, and registered diagnostic medical sonographers Patty Harkness** *(top photo, center)* **and Terry Popowicz** *(top photo, right)* **guide the NEEMO 7 crew through an ultrasound procedure.**

guide medical and non-medical personnel aboard the Aquarius through an evaluation of the abdomen and neck using a portable ultrasound unit.

The second objective was telementoring of a percutaneous drainage of a simulated abscess under ultrasound guidance. Other mission objectives included telementoring the crew through various procedures including intubation, suturing of a nerve and artery, and laparoscopic cholo-appendectomy or nephroscopy.

The mission was successful and proved that medical and non-medical personnel could successfully locate key organs and perform accurate and reproducible ultrasound-guided tasks. It also showed that educational manuals designed to help non-medical personnel use the ultrasound machine and identify key organs in an emergency situation were effective and valuable.

Mission Complications

In the past, signal delay has been an area of concern for remote surgical applications. However, Dr. Anvari's research has shown a delay of up to three-quarters of a second is tolerable during surgical procedures as long as it's constant. But, with the signal delay to the International Space Station estimated at one second and the delay to the Moon thought to be about three seconds, how long is too long?

"In many ways we are trying to push the edge of the envelope and take technology to its limits to find out where it begins to fail and break down so that we can learn how to develop the next generation of technology," says Dr. Williams. "We truly believe that we are changing the face of how we deliver healthcare. In so doing, we are reducing or eliminating the geographic disparity in healthcare."

From radiology's perspective, signal delay has not been as much of an issue. "We didn't find that the delay impeded our mission objectives whatsoever. It was all quite fluid and went very smoothly," says Dr. Dobranowski.

The only real complication for the mission arose when St. Joseph's temporarily lost real-time visual contact

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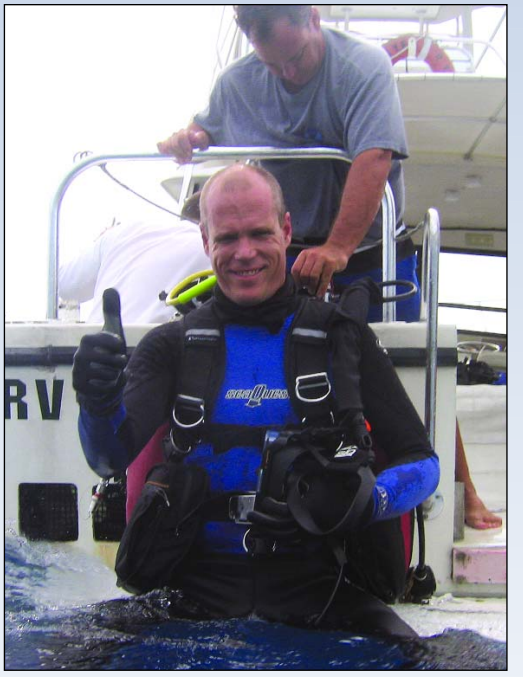

(top left photo) **Mehran Anvari, M.D.** *(right)*, **demonstrates laparoscopic techniques on a medical dummy with NEEMO 7 Mission Commander Bob Thirsk, M.D.** *(top right photo)* **Craig McKinley, M.D., prepares to splash down into the Aquarius Habitat in the waters off Key Largo, Fla.** *(left)* **Drs. Anvari and McKinley.**
Photos courtesy of NEEMO 7.

Continued from previous page

and was unable to see into the Aquarius. "At that point we communicated instructions to the astronauts using our cell phones and they were able to perform their duties successfully even in that scenario," says Dr. Dobranowski.

In the end, the team successfully completed all surgical and radiologic objectives.

What's Next?

As telecommunications and robotic technologies continue to improve and expand, so to will telehealth capabilities.

For now, Dr. Dobranowski feels that a logical next step might be pursuing research with other imaging techniques. "We're very limited with ultrasound as a modality," he says. "Experimentation with digital radiography in these types of extreme environments and at the space station would be an important step."

With the NEEMO 7 mission firmly under their belts, the crew is satisfied that the information collected will help to further refine medical technique, equipment and resources needed for the delivery of medical care in remote locations now and in the future.

A NEEMO 9 mission to further explore telehealth is tentatively scheduled for next fall. □

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Keith J. Dreyer, Amit Mehta and James Hunter Thrall

With contributions from leaders in the field of PACS, this user-friendly guide addresses the introductory concepts, computing fundamentals, advanced imaging technologies and future opportunities. This text is geared toward radiologists, technologists, administrators and IT professionals wishing to gain a broader understanding of this emerging field. 408 pp., 122 illus.

RSNA Member Price $85.50

BOOK

Atlas of Virtual Colonoscopy

Abraham Dachman

Virtual colonoscopy is a rapidly developing technique that promises to be safer, more economical and less intrusive than conventional diagnostic tests for colon cancer. Renowned radiologist Dr. Abraham Dachman and a distinguished list of international contributors have prepared a comprehensive atlas that explains and depicts the entire range of this new technique. The *Atlas of Virtual Colonoscopy* is a necessary resource for all radiologists and gastroenterologists who desire to learn about VC. 276 pp., 479 illus.

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CD-ROM

EZTNM for the AJCC Cancer Staging Manual

Frederick L. Greene, Charles M. Balch, Irvin D. Fleming and Fritz April

EZTNM for the AJCC Cancer Staging Manual, 6/e and the *AJCC Cancer Staging Handbook,* 6/e provide the first physician-designed professional grade cancer staging program for handhelds. *EZTNM* puts TNM staging for 50 different anatomic sites at the user's fingertips. It is an essential and ground-breaking resource for all healthcare professionals who care for cancer patients.

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Frederick L. Greene, David L. Page, Irvin D. Fleming, April Fritz, Charles M. Balch, Daniel G. Haller, Monica Morrow

The *AJCC Cancer Staging Manual and Handbook,* prepared by the American Joint Committee on Cancer, are used by physicians and health care professionals throughout the world to facilitate the uniform description of neoplastic diseases. The staging information in the *AJCC* is uniform with the UICC and must be used for all tumors staged as of January 1, 2003. The manual includes 45 staging forms on CD Rom for individual or institutional use. 480 pp., 95 illus., with CD-ROM.

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Dominique Delbeke, William H. Martin, James A. Patton and Martin P. Sandler

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Positron Emission Tomography

Basic Science and Clinical Practice

Peter E. Valk, Dale L. Bailey, David Townsend, Michael N. Maisey

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BOOK

PET and PET-CT in Oncology

Peter Oehr, Hans-Jürgen Biersack, and R. Edward Coleman

In clear and straightforward fashion, this book offers instructive information and overviews of the basic principles of PET and PET-CT as well as the routine clinical PET scanning procedures for all important oncological indications. It is designed to serve as a reference work for specialists in nuclear medicine and radiology and for oncologists. It also provides student and physicians in other medical specialties with a general introduction to the effective integration of this modern technique into routine clinical diagnostics. Above all, this volume illustrates the importance of PET and PET-CT in comparison with other imaging techniques. 350 pp.

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Michael E. Phelps

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BOOK

An Atlas of Contrast-Enhanced Angiography: Three-Dimensional Magnetic Resonance Angiography

Nicholas Bunce, Raad Mohiaddin

A clinical aid to diagnosis and a review text containing bibliographic references and index, *An Atlas of*

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Contrast-Enhanced Angiography uses images taken directly from the magnetic resonance scanner to illustrate the application of CEA to all the common pathologies and anomalies seen in the cardiovascular system. It contains tables, charts, and line diagrams that delineate the angiograms. Authors Mohiaddin and Bunce supply explanatory text supporting and complementing the figures and providing clinical diagnoses and investigations of a multitude of normal and abnormal findings. In addition, it serves as a visual aide to the diagnosis and management of vascular disease. 96 pp.

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Janet Husband, Rodney H. Reznek

Building on the foundations laid by the first edition, the second edition of this widely acclaimed book addresses all aspects of cancer imaging, from diagnosis through to long term follow-up. It is a state-of-the-art text covering the application of imaging in all tumors. The authors provide an extensively referenced, evidence-based analysis of the role of imaging in planning treatment and expert opinions on the advantages and limitations of all relevant imaging modalities, including ultrasound, CT, MRI, PET/CT, and other nuclear medicine techniques. *Imaging in Oncology, Second Edition* is essential reading for radiologists and all members of a multidisciplinary cancer team. 1,800 pp.

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A. Michael Peters

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S. Saini

Rapid advances in CT imaging technology have led to significant increases in both the speed and resolution of images captured. The latest generation of multi-detector CT scanners are finding new applications in a variety of fields, making this one of the most exciting imaging modalities currently available. In this volume a prestigious team of specialists bring their expertise in MDCT to a series of reviews of selected applications in imaging the head and neck, thorax and abdomen. Topics include emergency CT imaging, CT angiography and perfusion CT, and gynecologic and genitourinary imaging, with additional sections dedicated to scanning protocols and contrast media. 400 pp.

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Asim Kurjak, Frank A. Chervenak

Featuring more than 650 color illustrations, this definitive volume provides comprehensive and expert coverage on the practical applications of ultrasound. The text is divided into three parts: general aspects, obstetrics, and gynecology. It includes recent technological breakthroughs in diagnostic ultrasound, including the advent of color Doppler, power Doppler, and three-dimensional and four-dimensional imaging. All contributors are either present or former teachers at the 8 branches of the Ian Donald school. A comprehensive text with state-of-the-art images, the book is of value to obstetricians, gynecologist, and medical ultrasonographers. 819 pp.

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Paul J. Rosch, Marko S. Markov

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BOOK

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Paul Schoenhagen, Steven E. Nissen

Intravascular ultrasound (IVUS) is an imaging technique used during coronary angiography. This book provides a systematic introduction to coronary imaging with (IVUS). It is divided into two integrated and extensively cross-referenced parts, the Atlas and the Manual. The Manual describes the rationale, method, and interpretation of IVUS imaging for therapeutic and diagnostic purposes. It also presents a range of both established and evolving clinical and research applications. The Atlas features non-illustrated IVUS images together with corresponding illustrated figures. The reference list and subject index are connected to the Atlas and the Manual, allowing for rapid and easy access to information. 168 pp.

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BOOK

An Atlas of 3D and 4D Sonography in Obstetrics and Gynecology

Asim Kurjak, David Jackson

As the use of three-dimensional ultrasound in clinical practice increases, the need for a reference covering this and other emerging technologies also increases. Edited by acknowledged leaders in the field, with contributions from international experts, *An Atlas of Three- and Four-Dimensional Sonography in Obstetrics and Gynecology* is just that. The book presents three-dimensional ultrasound images in full color accompanied by extensive captions and expert textual commentary. It provides authoritative coverage of the latest developments in three-dimensional ultrasound in obstetrics and gynecology and highlights cutting-edge technology such as four-dimensional ultrasound. 214 pp.

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Nicola Strickland and Preeti Gupta

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Edited by P.A. Hulse and B.M. Carrington

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By Maurice M. Reeder, M.D., with MRI Gamuts by William G. Bradley Jr. and Ultrasound Gamuts by Christopher R. Merritt

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The *Essentials of Radiology* is designed to teach the basics of current radiology practice. It is useful for medical students (starting at any level), residents of all specialties, clinical colleagues, physician assistants, nurse practitioners, nurses, technologists, hospital administrators, managed care administrators, lawyers and lay support groups. This CD-ROM contains over 330 interactive cases using the well-established teaching methods of Dr. Lucy Squire. In all, there are over 900 questions included in the course and over 2,300 images (including x-ray, CT, HRCT, MRI, nuclear imaging, static ultrasound, real-time ultrasound and real-time fluoroscopy). This is truly a comprehensive overview of the essentials of radiology and represents over 50 hours of radiology instruction for the beginning student.

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Lothar Wicke

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Students and healthcare professionals alike will find this authoritative atlas indispensable for its unique balance of historical insight, detailed images and drawings, and techniques for practical application.

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Journal Highlights

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

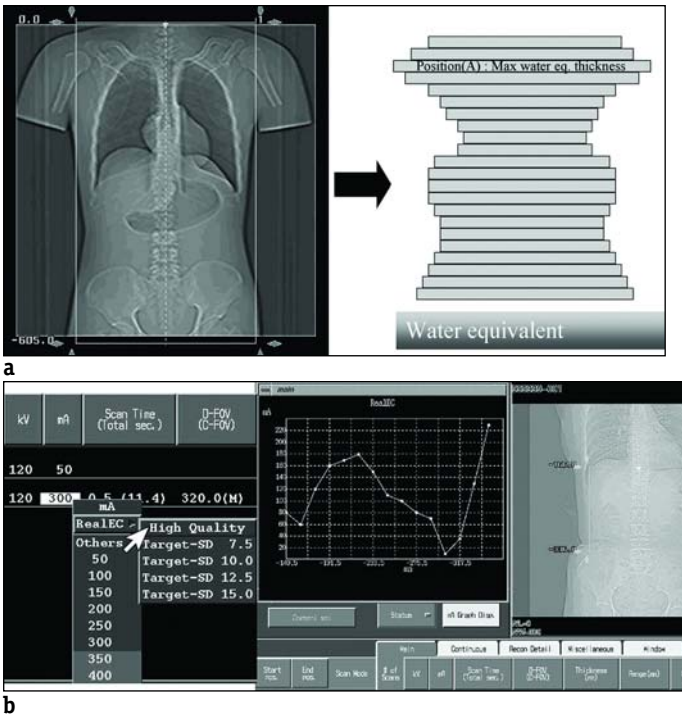
Techniques and Applications of Automatic Tube Current Modulation for CT

Currently available automatic tube current modulation (ATCM) techniques can be used to maintain acceptable image quality while reducing radiation exposure on the basis of patient geometry and clinical indications.

Radiology

In the December issue of *Radiology* (*rsna.org/radiologyjnl*), Mannudeep K. Kalra, M.D., D.N.B., from Massachusetts General Hospital and Harvard Medical School, and colleagues review the principles, clinical use and limitations of different ATCM techniques.

They write: "ATCM techniques represent an exciting recent technologic innovation toward radiation dose optimization. Further research is needed to standardize these techniques and define appropriate protocols for different patient sizes and indications."



Z-axis modulation with Real E.C. technique. (a) Attenuation is measured on a digital radiograph *(left)* **and is converted to water-equivalent thickness** *(right)*, **allowing user to specify image quality by choosing different noise levels. (b) After user selects tube current or, more appropriately, desired noise level for the examination** *(left)*, **the software displays the automatic modulation of tube current that will be used to achieve selected image quality.**

This article also includes "Essentials" or highlighted points to help busy readers recognize important information at a glance.

Differential Diagnosis of Polypoid Lesions Seen at CT Colonography (Virtual Colonoscopy)

CT colonography, also referred to as virtual colonoscopy, holds significant promise for effective large-scale colorectal cancer screening. 2D and 3D displays of the CT data are employed, both of which are critical for proper evaluation. Although many radiologists continue to use the 2D images for polyp detection, more emphasis on the 3D images for primary detection of polyps has yielded the best results for screening detection.

RadioGraphics

In an article in the November-December issue of *RadioGraphics* (*rsna.org/radiographics*), Perry J. Pickhardt, M.D., from the University of Wisconsin Medical School in Madison and Uniformed Services University of the Health Sciences in Bethesda, Md., provides a

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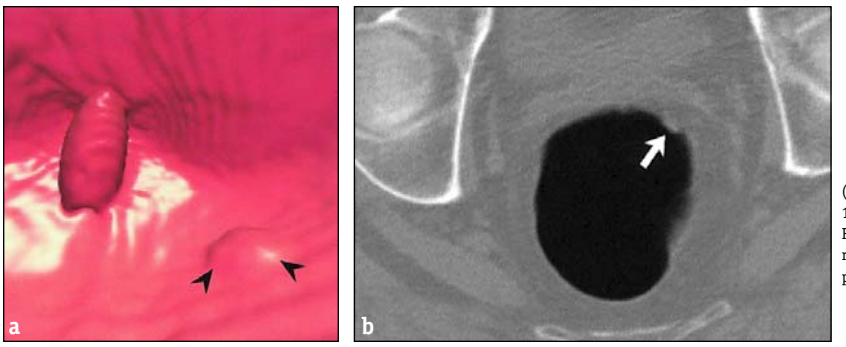


Flat adenoma. (a) Endoluminal 3D view from CT colonography shows a relatively subtle flat lesion (arrowheads) near the anal verge. This adenoma was missed at prospective colonoscopy before the CT colonographic results were revealed. (b) Corresponding axial 2D image helps confirm a flat rectal lesion *(arrow)*.

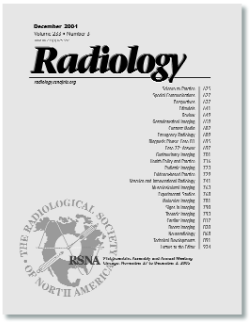
Radiology in Public Focus

A press release has been sent to the medical news media for the following special report appearing in *Radiology* (*rsna.org/radiologyjnl*):

Evaluation of Shoulder Integrity in Space: First Report of Musculoskeletal US on the International Space Station

THE ABILITY to provide medical care aboard a spacecraft is challenging because of limitations in crew medical training, medical equipment and environmental constraints in microgravity.

Documentation of the first shoulder ultrasound examination ever performed in microgravity of spaceflight will appear as a special report in the February 2005 issue of *Radiology*, and is available online now at *radiology.rsnajnls.org/cgi/content/full/2342041680v1*, along with audio, video and photographs.



E. Michael Fincke, M.S., from the National Aeronautics and Space Administration (NASA) at the Johnson Space Center in Houston, and colleagues aboard the International Space Station found that the medical images acquired by the astronaut were of excellent content and quality, and in a "real" medical scenario, would have provided essential information to guide clinical decision making.

Cabin view obtained with a still camera of the Human Research Facility (HRF) on the International Space Station. Commander Gennady Palalka performs a musculoskeletal US examination on Mike Fincke by using an HRF US unit (blue flat-screen monitor and keyboard).

They write: "The remotely guided ultrasound concept, with crew medical officers or comparably trained first responders as operators, is an important and clinically relevant advancement in space medicine, with profound ramifications for emergency or clinical medicine."

(*Radiology* 2004, 10.1148/radiol.2342041680)

RSNA press releases are available at *www.rsna.org/media.*

Differential Diagnosis of Polypoid Lesions Seen at CT Colonography (Virtual Colonoscopy)

Continued from previous page

variety of useful techniques and observations that can be used to increase the specificity of CT colonography for distinguishing false polyps from true polyps.

This article allows readers to:

- Provide a differential diagnosis for polypoid lesions seen at CT colonography.
- Describe techniques and findings that improve specificity for polypoid lesions seen at CT colonography.
- Discuss the diagnostic advantages and limitations for CT colonography as a colorectal screening tool.

This article meets the criteria for 1.0 category 1 CME credit.

Working For You

New Services on *RadiologyInfo*™

RadiologyInfo.org, the patient education Web site cosponsored by RSNA and the American College of Radiology, has recently been updated to provide additional services to patients and physicians:

- A comments box was added to the end of each procedure for user feedback with the option to complete a longer evaluation.
- A Download for Physicians link was added to the homepage to make it easier for physicians to find available resources and downloads.
- Links to the Society of Interventional Radiology were added to the interventional procedures.
- The News page now includes links to *Radiology* press releases and two government information resources on radiation threats.

Six new procedures have also been added to the site:

- Carotid ultrasound
- Chest MR
- CT of the sinuses
- Myelography
- Needle biopsy of lung nodules
- RFA of lung lesions

NAME:
Tracy Schmidt, M.S.

POSITION:
Managing Director, Department of Research

WITH RSNA SINCE:
July 2004

SERVICE TO MEMBERS:
I am responsible for administering the activities and programs of the Department of Research. Our very simply stated but extremely broad purpose is to promote research in radiology. The department does so mainly through our support to the Research Development Committee. We oversee courses including Introduction to Grantsmanship, Introduction to Research, Advanced Course in Grant Writing, and the NIH Grantsmanship Workshop. We provide staff support on the Revitalizing the Radiology Research Enterprise Program (RRRE), which, through a series of site visits and an educational workshop, is designed to increase the quality and quantity of research conducted in academic departments of radiology and radiation oncology. We are also heavily involved with the Biomedical Imaging Research Opportunities Workshops (BIROW), which are a joint effort by many medical researchers, scientific researchers, engineering researchers, societies and governmental agencies to identify and explore opportunities for research in biomedical imaging.

WORK PHILOSOPHY:
My work philosophy revolves around the basics of flexibility, collaboration and clarity. I try to be flexible in providing the varying levels and types of support that each member, committee and project might require. I strive to balance the need to be proactive and yet maintain a collaborative atmosphere in projects. Finally, I attempt to clarify expectations. This includes the deliverables, specific roles and responsibilities, as well as timelines expected for a given situation or project.

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

Private Practice Radiation Oncologist Promotes Strong Research Base

WHEN Nina Fukunaga Johnson, M.D., started practicing medicine, she says prostate-specific antigen tests were not available to test for prostate cancer. If you said "anti-angiogenesis" to someone, they might have thought you were talking about something out of science fiction.

It sounds like Dr. Johnson began her career in the 1960s. Actually, it was in 1988.

She says she's amazed by the rapid changes in medicine—particularly in radiation oncology. "Today, we have improved 3D conformal treatment planning, intensity-modulated radiation therapy, CT-PET fusion, MR fusion, tomotherapy and stereotactic radiosurgery. We have genetic markers. We have anti-angiogenesis," she says.

Dr. Johnson is a radiation oncologist in private practice with Radiology, Inc., in South Bend, Ind. She's been on staff there since 1997.

Dr. Johnson received a bachelor of science degree in chemical engineering from Purdue University in 1983 and her medical degree from the Indiana University School of Medicine in 1987.

She conducted her internship at Mount Carmel Hospital in Columbus, Ohio, and then her residency at the University of Michigan Medical Center in Ann Arbor. Between 1992 and 1997, she was a lecturer and then an assistant professor in the Department of Radiation Oncology at the University of Michigan, where she also worked in a basic science research laboratory.

In 1992, Dr. Johnson received an RSNA Research & Education Foundation Research Fellowship. Her project, "Effect of Ionizing Radiation on Topoisomerase I," showed her early interest in what she described as, "X-ray inducible gene transcription responses in human cells and their effect(s) upon DNA repair."

"Any award is a positive thing," Dr. Johnson says. "The RSNA Research Fellow award helped me to establish myself as a scientist at the University of Michigan Medical Center, and it helped establish my credibility." She maintains her ties to RSNA by attending the annual meeting.

Everything we do in basic science and clinical research has an impact on patient care. Research always improves patient care.

Nina Fukunaga Johnson, M.D.

Her clinical interests today include pediatric oncology, breast cancer, stereotactic brain radiosurgery and 3D conformal radiation.

In addition to the RSNA Research Fellow award, Dr. Johnson received the American Society for Therapeutic Radiology and Oncology (ASTRO) Research Fellowship Award. A one-year sabbatical during her residency in 1990 gave her the time to pursue a clinical laboratory project.

Decision-Making

Dr. Johnson says her choice to leave the University of Michigan Medical Center was not an easy one. "It was a family decision to go into private practice. I needed to be closer to my family and my in-laws," she explains. "My priorities changed. I had a great career at the University of Michigan. I surrounded myself with a lot of smart people there. However, it's very hard to be a good scientist and a good clinician while maintaining a strong family life." Dr. Johnson has three children ranging in age from five to nine.

Nina Fukunaga Johnson, M.D.
1992 RSNA Research Fellow

Currently, she holds an academic appointment with the Department of Radiation Oncology at Indiana University.

For young researchers considering a career in radiation oncology, Dr. Johnson has some advice: "Get a very sound base of knowledge. Knowledge

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Research & Education Foundation Donors

THE BOARD OF TRUSTEES of the RSNA Research & Education Foundation and its recipients of research and educational grant support gratefully acknowledge the contributions made to the Foundation **September 30–October 28, 2004.**

For more information on Foundation activities, a quarterly newsletter, *Foundation X-aminer*, is available online at *www.rsna.org/research/foundation/newsletters/x-aminer/x-aminer.pdf.*

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Maged F. Khalil, M.D.
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Won S. Kim, M.D.
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Cynthia & Kelly J. Krizan, M.D.
Harold L. Kundel, M.D.
Corinne H. Dyke, M.D. & Paul Thiessen
Lorraine Vazquez de Corral, M.D.

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Calvin B. Delaplain, M.D.
Steven B. Edson, M.D.
Terril A. Efird, M.D.
Maxine & Paul H. Ellenbogen, M.D.
Robert J. Entel, M.D.
Irma & Eli A. Etscovitz, M.D.
Genevieve & Daniel W. Eurman, M.D.
Ronald G. Evens, M.D.
Janet & Daniel A. Feeney, D.V.M.
Martin J. Fine, M.D.
James B. Fitzgerald, M.D.
Sander F. Fleisher, M.D.
Stasia J. Frank, M.D.
Rose & Ezekiel Freed, M.D.
Judith & G. Donald Frey, Ph.D.
Hajime Fujimoto, M.D.
Fay & Vicente T. Garciano M.D.
Erika & Felix Garfunkel M.D.
Vijayalaxmi & Ramesh S. Gaud, M.D.
Peter J. Georgis, M.D.
Bernard Gero, M.D.
David J. Giles, M.D.
Vera & Peter G. Gleason, M.D.
Claudia A. Goodwin, M.D.
Allison A. Griffiths, M.D.
Robert L. Haley Jr., M.D.
Isis S. Hannallah, M.D. & Raafat Hannallah
Raymond A. Hansen, M.D.
John S. Harding, M.D.
Donald A. Harper, M.D.
Kelly Z. Hart, M.D.
Kathryn A. Evers, M.D. & Allen Haas
Nobushige Hayashi, M.D., Ph.D.
Tamara M. Haygood, Ph.D., M.D.
Bruce R. Hebdon, M.D.
Norinari Honda, M.D.
Michele & Reed M. Horwitz, M.D.
Joan & Howard L. Hudson, M.D.
Kathleen T. Hudson, M.D.
Marlys & Kenneth A. Hurst, M.D.
Karen & Thomas M. Jamison, M.D.
Mark C. Johannsen, M.D.
William P. Jones, M.D.
Lester Kalisher, M.D.
Michael M. Kayne, M.D.
Cathrine E. Keller, M.D.
Judith & Howard Kessler, M.D.
Patricia & Brock T. Ketcham, M.D.
David M. Kirshy, M.D.
Sandra C. Kochanski, M.D.
Cynthia Reese & Keith Y. Kohatsu, M.D.
Marjorie B. Kossoff, M.D.
Sambasiva R. Kottamasu, M.D.
Madonna Leigh Kral, M.D.
Stewart W. Kribs, M.D.
Peter M. Krook Jr., M.D.
Judith & Arnold J. Krubsack, Ph.D., M.D.
Jerome Krumpelman, M.D.

Online donations can be made at *www.rsna.org/research/foundation/donation.*

COMMEMORATIVE GIFTS

Dr. & Mrs. Mark Alson
In honor of Dennis Alsofrom, M.D., and Gary Alsofrom, M.D.
Jeffrey C. Blum, M.D.
In honor of James T. Chen, M.D.
Dan P. Butcher, M.D.
In memory of Frank Alcorn, M.D.
Maria Vittoria Chiechi, M.D.
In memory of Michele Antonio Chiechi, M.D.
Joseph J. Darlak II, M.D.
In memory of John & Stephania Darlak
Ajay R. Malpani, M.D.
In memory of Radhakisan R. Malpani
Vernon L. Medlin, M.D.
In honor of Robert Sloan, M.D.
Leslie N. Nishimi, M.D.
In memory of Ethel J. Finck, M.D.
Harry L. Stein, M.D.
In memory of John A. Evans, M.D.
Bobby M. Thomas, M.D.
In honor of Luke Clements, M.D.
Lorraine Vazquez de Corral, M.D.
In honor of Heriberto Pagan-Saez, M.D.

Program and Grant Announcements

New Grant for 2005

The deadline is January 10 to apply for a new grant cosponsored by RSNA, Association of University Radiologists (AUR), Association of Program Directors in Radiology (APDR) and Society of Chairmen of Academic Radiology Departments (SCARD).

The RSNA/AUR/APDR/SCARD Radiology Educational Research Development Grant is designed to encourage innovation and improvement in health sciences education.

For more information or an application, go to *www.rsna.org/research/foundation/erd.html.*

CVI Fellowships

Through a grant from the RSNA R&E Foundation, the Cleveland Clinic Foundation is accepting applications for its 2006-2007 clinical fellowship in cardiovascular imaging (CVI). This position will be within the current one-year cardiovascular tomography fellowship program. The fellowship experience will emphasize integrated non-invasive cardiovascular imaging with state-of-the-art MR imaging and multidetector CT within a busy clinical service.

For more information, contact Richard D. White, M.D., at (216) 444-2740 or at *whiter1@ccf.org.*

Also through a grant from the R&E Foundation, Stanford University is accepting applications for its 2005-2006 and 2006-2007 one-year fellowships in non-invasive CVI. Fellows will receive detailed training in the principles and use of multidetector row CT and cardiovascular MR imaging systems within the context of a busy clinical cardiovascular imaging service.

For more information, contact Geoffrey D. Rubin, M.D., at (650) 723-7647 or at *grubin@stanford.edu.*

Register Now for BIROW 3

Register online for the third Biomedical Imaging Research Opportunities Workshop (BIROW 3), March 11–12, 2005, in Bethesda, Md.

The goal of the workshop is to identify and explore new opportunities for basic science research and engineering developments in biomedical imaging, as well as related diagnosis and therapy. This year's topics include:

- Cell Trafficking
- Informatics Solutions in Imaging
- Guiding Therapy by Multimodality Imaging
- Medical Imaging Technology: From Concept to Clinic

Biomedical Imaging Research Opportunities WORKSHOP 3

Category 1 continuing medical education (CME) credits are available and an application for medical education physics continuing education credits (MPCEC) has been submitted. For program information or to register, go to *www.birow.org.*

BIROW 3 is sponsored by RSNA, Academy of Radiology Research, American Association of Physicists in Medicine, American Institute for Medical and Biological Engineering, and Biomedical Engineering Society.

Private Practice Radiation Oncologist Promotes Strong Research Base

Continued from page 22

is power. A strong background will help you be a good academician (clinician or scientific), or a doctor in private practice. Also remember that everything we do in basic science and clinical research has an impact on patient care. Research always improves patient care."

As for her future, Dr. Johnson says she plans to stay in private practice.

"I also want to qualify for the Hawaii Ironman race," she says. The Ironman is a triathlon made up of a 2.4-mile swim, a 112-mile bike ride and a full 26.2-mile marathon. It is very difficult to qualify for the Hawaii Ironman, the original Ironman competition. Dr. Johnson recently ran in an Ironman competition in Wisconsin. The top three of her age group qualified for the Hawaii Ironman. Dr. Johnson came in fourth place. She says she'll try again. □

For more information about RSNA Research & Education Foundation grant programs, go to *www.rsna.org/research/foundation/programs.html,* or contact Scott Walter at (630) 571-7816 or at *swalter@rsna.org.*

Product News

FDA APPROVAL

First Non-Invasive Fibroid Treatment

The U.S. Food and Drug Administration has approved the ExAblate 2000® by InSightec, the world's first MR image-guided focused ultrasound system designed to target and destroy uterine fibroids.

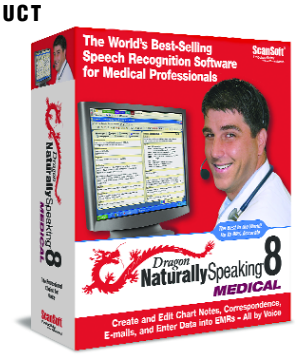
"[The] approval marks an historic event for InSightec and underscores the importance of imaging technologies not only as diagnostic tools, but also as therapeutic treatment enablers for a growing range of diseases," said Jacob Vortman, Ph.D., company president and CEO. "InSightec is committed to using focused ultrasound surgery and innovative MR imaging to advance the care of patients with serious diseases, and we are exploring the potential application of the ExAblate system in other diseases such as breast, liver, bone and brain cancer."

The ExAblate System integrates focused ultrasound thermal ablation with GE's MR imaging capabilities to provide a non-invasive method for destroying targeted tissue. ExAblate 2000 attaches to a standard

1.5 Tesla GE MR imaging system.

For more information, go to *www.fda.gov/bbs/topics/ANSWERS/2004/ANS01319.html.*

NEW PRODUCT



New Speech Recognition System

Dragon NaturallySpeaking® 8 Medical is a new release of Scansoft's best-selling medical speech recognition solution. Designed specifically for healthcare organizations, Dragon NaturallySpeaking 8 Medical is used to instantly and automatically transcribe clinical dictation on a PC with a 99 percent accuracy rate.

The results are reduced cost and turnaround time for manual transcription. This new release is 20 percent more accurate than the prior version, and includes an updated and expanded library of medical specialty dictionaries. It can be used with virtually any Windows-based computerized patient records application.

FDA APPROVAL

Dual Lumen Pigtail Catheter

Vascular Solutions, Inc., has announced FDA clearance for its Langston dual lumen pigtail catheter. The Langston catheter is a two-lumen diagnostic catheter for use in the simultaneous measurement of pressures from two locations in the arterial system.

"This clearance and our impending launch of the Langston catheter continues Vascular Solutions' strategy of delivering clinically unique products for interventional cardiology and interventional radiology," said Howard Root, CEO of Vascular Solutions. "The Langston catheter offers simultaneous accuracy and precise responsiveness in measuring intra-arterial pressure gradients, which is often used in diagnosing valvular disease."

NEW PRODUCT

Innovative Medical DVD/CD Recording Station

TDK Medical has launched the DMC-2000 DICOM Media Creator, an innovative medical DVD and CD recording solution that incorporates an integrated PC. Connected to any DICOM network, the DMC-2000 network appliance enables on-demand recording of patient studies to DVD or CD, drastically reducing film costs and streamlining workflow.

TDK's proprietary BluPrint™ software provides unprecedented versatility and power in recording and archiving diagnostic reports and non-DICOM data.

RSNA*News* Information for *Product News* came from the manufacturers. Inclusion in this publication should not be construed as a product endorsement by RSNA. To submit product news, send your information and a non-returnable color photo to *RSNA News,* 820 Jorie Blvd., Oak Brook, IL 60523 or by e-mail to *rsnanews@rsna.org.* Information may be edited for purposes of clarity and space.

News about RSNA 2005

Submit Abstracts for RSNA 2005

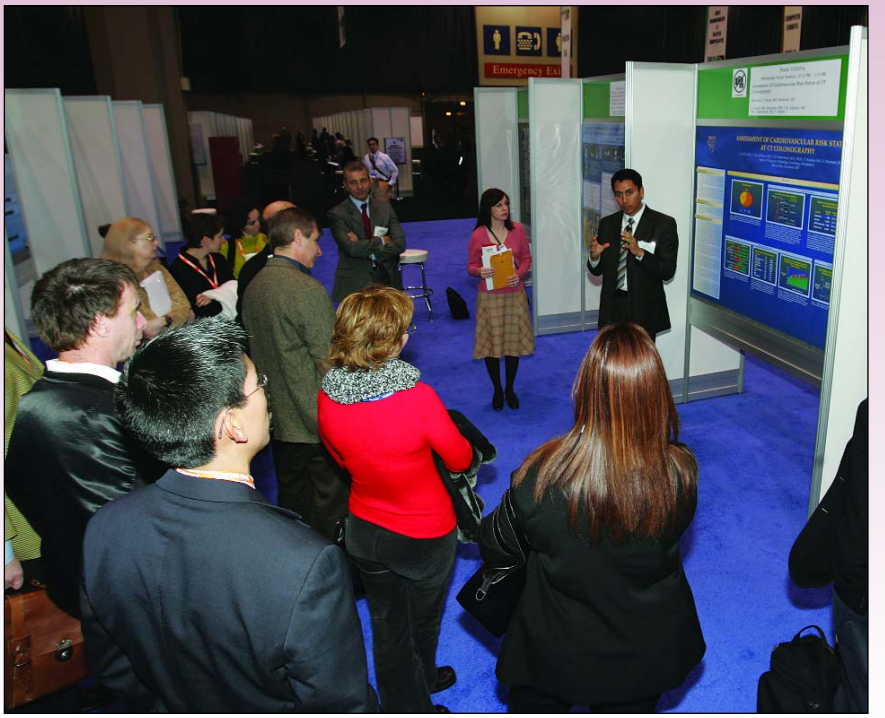
It's not too early to think about submitting an abstract for RSNA 2005. The online abstract submission system will be activated in January. The deadline is April 15, 2005.

Abstracts are required for scientific papers, scientific posters, education exhibits, *info*RAD exhibits and radiology informatics.

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

The online system is easy to use and makes it more efficient for the Scientific Program Committee to evaluate submissions.

For more information about the abstract submission process, contact RSNA at (877) 776-2227 within the United States or (630) 590-7774 outside of the United States.



Important Dates for RSNA 2005

April 15	Deadline for abstract submission
April 25	Registration and housing open for RSNA and AAPM members
May 23	Registration and housing open for non-RSNA members
June 20	General registration, housing and refresher course enrollment opens
Nov. 11	Final advance registration deadline
Nov. 27–Dec. 2	RSNA 91st Scientific Assembly and Annual Meeting

RSNA 2004 – Scientific Abstracts Accepted by Country

North America	
Canada	54
Mexico	3
United States	848
ASTRO*	50

International			
Argentina	3	Nepal	1
Australia	6	Netherlands	49
Austria	34	New Zealand	3
Belgium	22	Norway	3
Brazil	19	Pakistan	1
Chile	2	Philippines	1
China	91	Poland	5
Croatia	1	Portugal	1
Egypt	5	Qatar	1
Finland	3	Russia	2
France	45	Saudi Arabia	1
Georgia, Rep. of	2	Singapore	3
Germany	281	South Korea	92
Greece	9	Spain	22
Hong Kong	5	Sweden	5
Hungary	2	Switzerland	37
India	11	Taiwan ROC	9
Ireland	14	Tunisia	2
Israel	21	Turkey	19
Italy	132	United Kingdom	72
Japan	196	Venezuela	1

Total North America	955	Total International	1,233
		TOTAL	2,188

*Abstracts transferred from the American Society for Therapeutic Radiology and Oncology

RSNA 2005 Exhibitor News

Exhibitor Survey

RSNA 2004 exhibitors should have received their Exhibitor Survey. Please complete this survey and return it to RSNA. Exhibitor feedback is very important for the continued success of the annual meeting and improving the experience for all those attending the meeting.

Exhibitor Meeting

All RSNA 2004 exhibitors are invited to attend the RSNA 2005 Exhibitor Planning Meeting on February 22 at Rosewood Restaurants and Banquets near O'Hare International Airport. The meeting is intended to review RSNA 2004 and plan for RSNA 2005. More information will be sent to each exhibitor's official contact in mid-January.

Online Exhibitor List

Detailed information about the technical exhibitors at RSNA 2004 will be available online until September 2005.

Go to *rsna2004.rsna.org* and click on Exhibitor List on the right-hand side of the page. You can search by company name, category or keyword.

RSNA2005
Connecting for Lifelong Learning

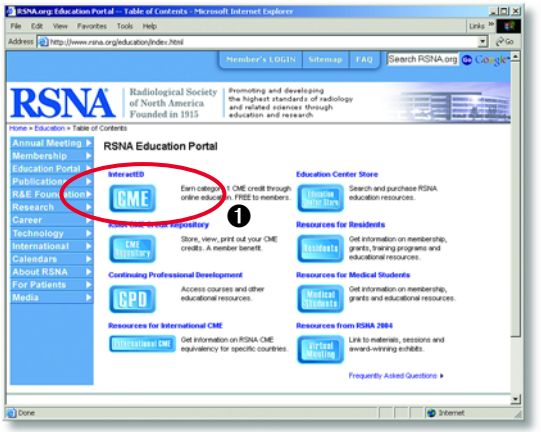
91st Scientific Assembly and Annual Meeting
November 27 – December 2, 2005
McCormick Place, Chicago

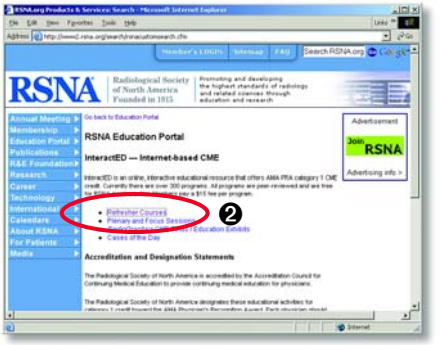
Important Exhibitor Dates for RSNA 2005

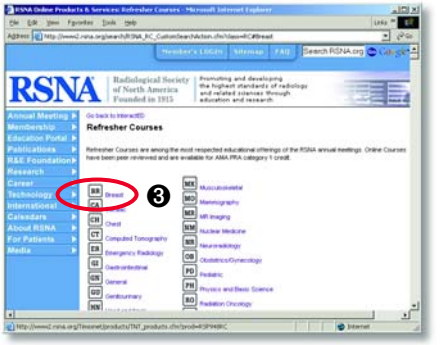
February 22	Exhibitor Planning Meeting
March 30	Exhibitor Prospectus Mails
June 28	Exhibitor Planning/Booth Assignment Meeting
July 5	Technical Exhibitor Service Kit Available Online
Nov. 27–Dec. 2	RSNA 91st Scientific Assembly and Annual Meeting

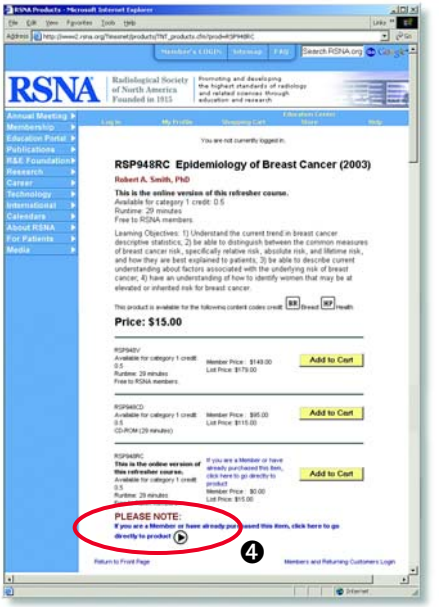
■ For more information, contact RSNA Technical Exhibits at (800) 381-6660 x7851 or e-mail: *exhibits@rsna.org.*

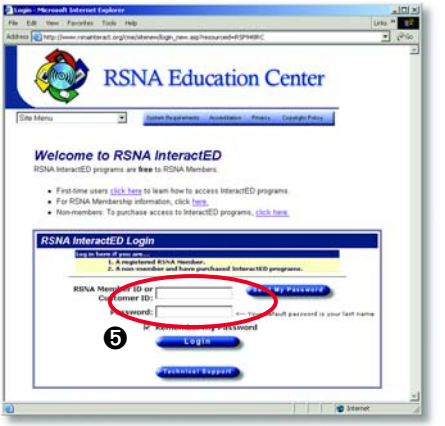
RSNA.org











RSNA Redesigns Education Portal

THE RSNA Education Portal (*rsna.org/education*) has been reorganized to make it easier to navigate and take advantage of the many educational offerings available, including opportunities to earn AMA PRA category 1 continuing medical education (CME) credits.

The main page of the Education Portal features links to:

- InteractED (online CME programs)
- RSNA CME Credit Repository
- Education Center Store
- Resources for Continuing Professional Development
- Resources for International CME
- Resources for Residents
- Resources for Medical Students
- Resources from RSNA 2004

For example, if you want to take an online breast imaging refresher course on InteractED, click on the InteractED button ❶, click on Refresher Courses ❷ and then click on Breast ❸.

You can then click on the name of the course. Access to course content via InteractED is a free benefit of RSNA membership. Members can click on the arrow button at the bottom of the page ❹. After you log in using your RSNA member ID and password ❺, you are ready to begin viewing the course.

Note: Under Resources for International CME, all RSNA online educational activities are valid for Australian RANZCR CPD points on a point-for-point basis. CPD points accrued from this activity are suitable for the audit component of Australian RANZCR CPD.

eConnections Your online links to RSNA

RSNA.org
www.rsna.org

RSNA 2004
rsna2004.rsna.org

***Radiology* Online**
rsna.org/radiologyjnl

***Radiology* Manuscript Central**
rsna.org/radiologyjnl/submit

***RadioGraphics* Online**
rsna.org/radiographics

RSNA News
rsnanews.org

Education Portal
rsna.org/education

CME Credit Repository
rsna.org/cme

RSNA Medical Imaging Resource Center
rsna.org/mirc

RSNA Career Connection
rsna.org/career

RadiologyInfo™
RSNA-ACR patient information Web site
radiologyinfo.org

RSNA Press Releases
rsna.org/media

RSNA Online Products and Services
rsna.org/memberservices

RSNA Research & Education Foundation
Make a Donation
rsna.org/donate

Community of Science
rsna.org/cos

Membership Renewal
rsna.org/renew

NEW
RSNA Membership Directory
rsna.org/directory

CALENDAR

Medical Meetings
January – May 2005

JANUARY 20–23
Radiation Therapy Oncology Group, RTOG Meeting, Sheraton Wild Horse Pass Resort & Spa, Phoenix • *www.rtog.org*

FEBRUARY 2–6
Mexican Society of Radiology (SMRI), Annual Meeting, Mexico City • *www.smri.org.mx*

FEBRUARY 16–19
International Society for Clinical Densitometry (ISCD), Annual Meeting, The Fairmont, New Orleans • *www.iscd.org*

FEBRUARY 27–MARCH 4
Society of Gastrointestinal Radiologists (SGR) and Society of Uroradiology (SUR), Abdominal Radiology Course 2005, Hyatt Regency Hill Country Resort, San Antonio • *www.sgr.org*

MARCH 4–8
European Congress of Radiology, ECR 2005, Austria Center Vienna, Austria • *www.ecr.org*

MARCH 11–12
Biomedical Imaging Research Opportunities Workshop 3 (BIROW 3), Hyatt Regency Bethesda, Md. • *www.birow.org*

MARCH 21–25
Society of Computed Body Tomography & Magnetic Resonance (SCBT/MR), 28th Annual Meeting, Loews Miami Beach Hotel, South Beach, Fla. • *www.scbtmr.org*

MARCH 31–APRIL 5
Society of Interventional Radiology (SIR), 30th Annual Scientific Meeting, New Orleans • *www.sirweb.org*

APRIL 9–14
American College of Radiology (ACR), Annual Meeting and Chapter Leader Conference, Hilton Washington, Washington, D.C. • *www.acr.org*

APRIL 19–22
10th International Conference on Occupational Respiratory Diseases (10th ICORD), Occupational Respiratory Hazards in the 21st Century: Best Practices for Prevention and Control, Beijing, China • *www.ICORD2005.com*

APRIL 28–30
European Society of Gastrointestinal and Abdominal Radiology (ESGAR), 3rd Hands-on Workshop: CT-Colonography, Brugge, Belgium • *www.esgar.org*

MAY 3–7
Society for Pediatric Radiology (SPR), 48th Annual Meeting, Sheraton New Orleans, New Orleans • *meeting.pedrad.org*

MAY 4–7
Association of University Radiologists (AUR), 53rd Annual Meeting, Fairmont Queen Elizabeth Hotel, Montreal, Quebec • *www.aur.org*

MAY 11–14
Japanese Society of Angiography & Interventional Radiology, 34th Annual Meeting and 9th International Symposium on Interventional Radiology & New Vascular Imaging, Awaji Yumebutai International Conference Center, Hyogo, Japan • *www.isir-jsair2005.jp*

MAY 15–20
American Roentgen Ray Society (ARRS), 105th Annual Meeting, New Orleans Hilton Riverside Hotel and Towers, New Orleans • *www.arrs.org*

MAY 21–27
American Society of Neuroradiology (ASNR), 43rd Annual Meeting, Metro Toronto Convention Centre, Toronto, Ontario • *www.asnr.org*

MAY 25–28
56th Nordic Radiological Congress, 17th Nordic Congress of Radiographers, 33rd Annual Meeting of Nordic Society of Neuroradiology, Radisson SAS Scandinavia Hotel, Oslo, Norway • *www.congrex.no/radio2005*

MAY 25–28
Society of Breast Imaging (SBI), 7th Postgraduate Course, Vancouver Convention and Exhibition Centre, Vancouver, British Columbia • *www.sbi-online.org*

MAY 28–31
European Society of Gastrointestinal and Abdominal Radiology (ESGAR), 16th Annual Meeting and Postgraduate Course, Palazzo dei Congressi, Florence, Italy • *www.esgar.org*

RSNA News

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