

Summer 2005

## Focal Spot, Summer/Fall 2005

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SUMMER/FALL 2005

VOLUME 36, NUMBER 2

# FOCAL SPOT

MALLINCKRODT

OF RADIOLOGY

WASHINGTON UNIVERSITY

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PET, Gynecologic Cancers,  
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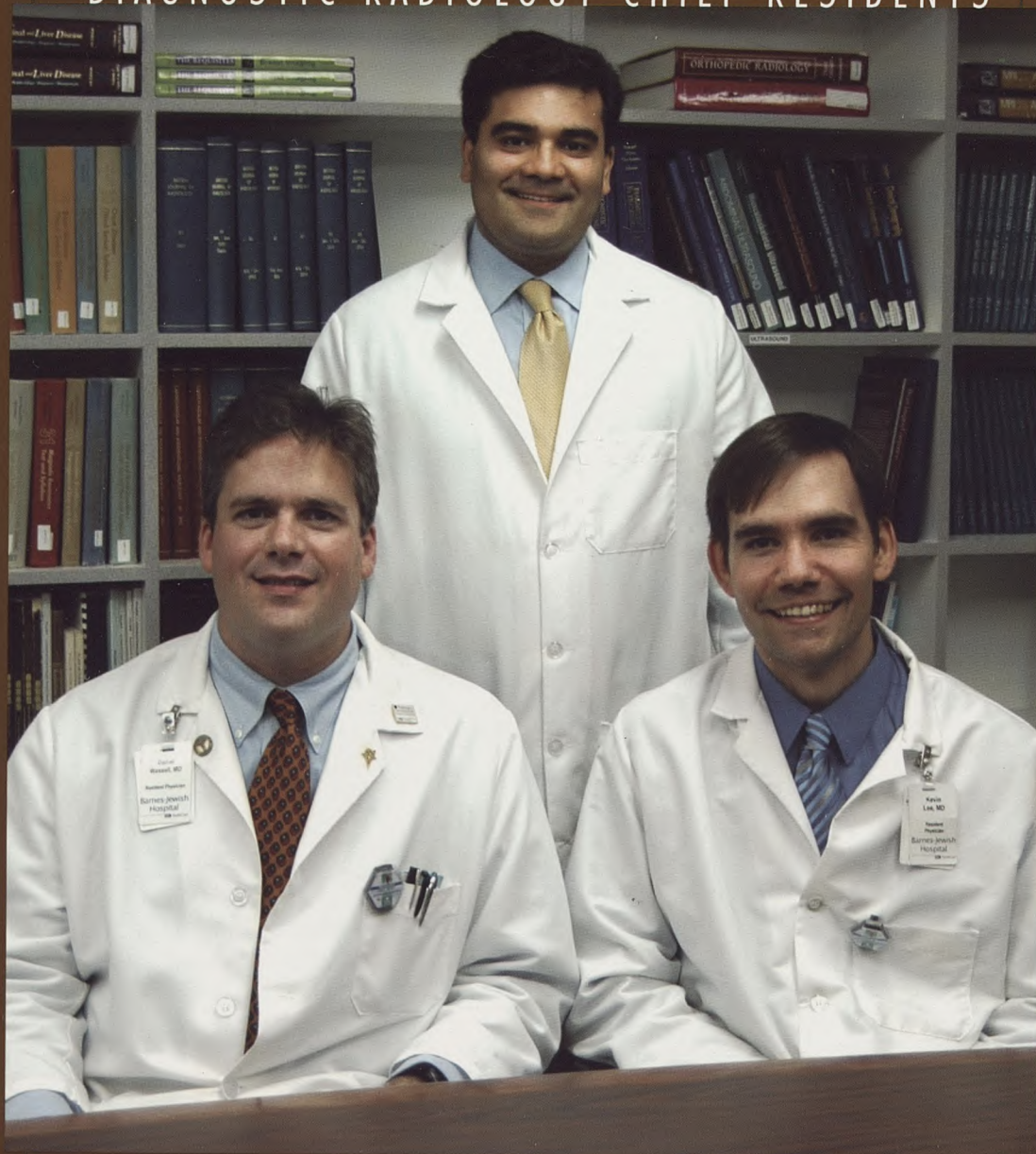


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# 2005-2006

DIAGNOSTIC RADIOLOGY CHIEF RESIDENTS



Doctors Daniel Wessell (left), Karun Sharma, and Kevin Lee



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SUMMER/FALL 2005  
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The National Cancer Institute's *2005 Annual Report to the Nation on the Status of Cancer* shows deaths from all cancers combined dropped 1.1 percent from 1993 to 2002. This decline reflects progress in prevention, early detection, and treatment. That statistic may drop even lower with the use of positron emission tomography to pinpoint the spread of cervical and vaginal cancers.



## MOBILE MAMMOGRAPHY OUTREACH PROGRAM: MAKING A DIFFERENCE IN WOMEN'S LIVES


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Washington University Medical Center physicians and staff are partnering with area churches, neighborhood clinics, and health centers to take mammography screening to women in underserved areas of Missouri. The program is already showing results in raising breast cancer awareness and the importance of mammography in saving women's lives.



**ON THE COVER** Radiation Oncologist Perry Grigsby (left) and Nuclear Medicine Physician Barry Siegel were among the group of doctors who lobbied for Medicare and Medicaid coverage for positron emission tomography staging and restaging of cervical cancer. Photograph by Tim Parker.

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 Mallinckrodt Institute  
of Radiology

Visit the MIR web site at  
[www.mir.wustl.edu](http://www.mir.wustl.edu)



# SPOT NEWS

## Best Doctors in St. Louis—2005

Once again, Mallinckrodt Institute physicians were included in the listing of "Best Doctors in St. Louis," as reported in the August 2005 issue of *St. Louis Magazine*. The extensive list was excerpted from The Best Doctors in America database, which includes more than 30,000 physicians in approximately 40 specialties. Nominations from physicians worldwide are based on patient care rather than academic or research excellence.

### Nuclear Medicine

Farrokh Dehdashti, MD  
Keith Fischer, MD  
Robert Gropler, MD  
Tom Miller, MD, PhD  
Mark Mintun, MD  
Henry Royal, MD  
Barry Siegel, MD

### Radiation Oncology

Perry Grigsby, MD  
David Mansur, MD  
Jeff Michalski, MD  
Robert Myerson, MD, PhD  
Simon Powell, MD, PhD  
Joseph Simpson, MD, PhD  
Marie Taylor, MD

### Radiology

Claire Anderson, MD  
Sanjeev Bhalla, MD  
Daniel Brown, MD  
DeWitte Cross, MD  
Michael Darcy, MD  
Colin Derdeyn, MD  
Fernando Gutierrez, MD  
Jay Heiken, MD  
David Hovsepian, MD  
William Middleton, MD  
Barbara Monsees, MD  
Christopher Moran, MD  
Vamsidhar Narra, MD  
Daniel Picus, MD  
David Rubin, MD  
Stuart Sagel, MD  
Marilyn Siegel, MD  
William Totty, MD  
Suresh Vedantham, MD  
Franz Wippold, MD  
Pamela Woodard, MD

## Clinical research receives ACRIN award

The Institute's Clinical Research Laboratory, under the leadership of Jeffrey Brown, MD, was one of 16 clinical research trial sites to receive the American College of Radiology Imaging Network (ACRIN) 2005 Network Chair's Institutional Achievement Award. The ACRIN Institutional Participants Committee completes an annual performance review of all participating clinical trial sites in the United States. From this evaluation, only those sites exemplifying exceptional performance in all evaluation categories—including ACRIN's goal of advancing clinical care through imaging research—are selected as award winners. Robert Yoffie, RT, research operations manager, accepted the award for MIR at the ACRIN Annual Fall Meeting in Arlington, Virginia.

## MIR earns top rank

For the first time in MIR's history, the Institute achieved the top spot with respect to National Institutes of Health (NIH) funding of radiology departments: 53 total awards (of which 50 are research grants) for a total of \$26.1 million. These figures were posted in late June by NIH and covered the 2004 fiscal year.

## DMIST results announced

The American College of Radiology Imaging Network (ACRIN) recently announced the results of the nationwide Digital Mammographic Imaging Screening Trial, known as DMIST. Overall, conventional film mammography and digital mammography were found to be equally effective. But, digital mammography detects breast cancer better in women who are under the age of 50, who are premenopausal or perimenopausal, or who have dense breasts—and those women represent at least 50 percent of the general population of women.

The study included 32,000 women in the United States and Canada with a total enrollment of nearly 50,000 women. Dione Farrior, MD, assistant professor of radiology, is principal investigator at the Washington University Medical Center site, where more than 3,300 volunteers were enrolled. For more information about DMIST results, call the Siteman Cancer Center at (314)747-7222 or toll-free at 1-800-600-3606. Study results also were published online by *The New England Journal of Medicine* at <http://content.nejm.org>.



## Teacher of the Year

At the residents' and fellows' farewell dinner in June, Katie Vo, MD, assistant professor of radiology, was named the 2005 Diagnostic Radiology Teacher of the Year. Radiology senior residents select the faculty member who has made outstanding contributions to resident education during the academic year.



## Siegel named AFIP distinguished scientist

Marilyn Siegel, MD, professor of radiology and of pediatrics, will serve for six months as the Armed Forces Institute of Pathology's (AFIP's) Distinguished Scientist, assigned to the Department of Radiologic Pathology. Siegel's areas of expertise are in pediatric radiology and cross-sectional imaging, focusing on pediatric solid neoplasms, adolescent diabetes and obesity, and pediatric and adult cardiovascular imaging. Beginning January 1, 2006, she will work on-site at the AFIP, studying the correlation between abnormal radiology images and their underlying pathologic processes.

Established in 1983, the AFIP Distinguished Scientist Program is supported by the American College of Radiology, The Radiological Society of North America, the American Roentgen Ray Society, The Association of University Radiologists, and the American Osteopathic College of Radiology. One academic radiologist is selected annually by the AFIP Joint Committee for Radiologic Pathology.

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NOVEMBER 27 – DECEMBER 2, 2005

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# IMAGING THE PAST





**A** mummified child from Egypt and a shrunken head (known as "tsanta") from the isolated interior of South America were recent "patients" who underwent computed tomography (CT) scanning at Washington University Medical Center. The artifacts were part of a private collection that was donated many years ago to the Saint Louis Science Center (SLSC).

Due to the artifacts' fragility, the SLSC archivists needed a way to study the mummy and the head without causing any damage. And what better way to accomplish this than by radiological imaging? Mallinckrodt Institute researchers from the Electronic Radiology Laboratory will use the CT images to construct three-dimensional models of the ancient artifacts. The information gleaned from these models will be presented at an upcoming session of the SLSC's Lunch & Learn program — a new initiative to share scientific information in an informal setting.

For more information about the SLSC Lunch & Learn program (which will feature several Washington University faculty members), visit [www.slsc.org](http://www.slsc.org).

**Left, top:** Images of the mummy and of the tsanta were produced by the Siemens SOMATOM Sensation 64 scanner housed in Barnes-Jewish Hospital.

**Left, bottom:** The head, believed to be that of an adult male, is now about the size of a baseball.

*Photographs courtesy of Richard Osborn, Saint Louis Science Center.*

## PROJECT TEAM

### Mallinckrodt Institute of Radiology

Charles Hildebolt, DDS, PhD, associate professor of radiology and adjunct associate professor of anthropology

Fred Prior, PhD, research associate professor of radiology and director of the Electronic Radiology Laboratory

Kirk Smith, senior research engineer

### Barnes-Jewish Hospital

Christopher Tincher, RT, radiology technologist and clinical instructor, computed tomography

### Saint Louis Science Center

Al Wiman, vice president for public understanding of science

*Editor's note:* As part of its community outreach service, MIR often collaborates with organizations such as the SLSC, the Saint Louis Art Museum, and the Saint Louis Zoo. All imaging is performed after regular patient hours.



# THE *Chernobyl* SYNDROME:

*Science and the Media after 20 Years*



*Earthquakes* in Italy. The *eruption* of Mount Nyiragongo in the Democratic Republic of Congo. An *oil spill* in the Gulf of Aden. The *bombing* of the World Trade Center. The Asian *earthquakes and tsunamis*. *Hurricane* Katrina. All termed as “disasters”—most were natural, some were man-made. All were devastating in lives taken and affected. We counted on television, radio, and newspapers to give us the news, and most of us took as fact what was reported.

*By Anne Kessen Lowell*

All photos in this article are courtesy of Dr. Henry Royal. Photos of the Ukrainian countryside above were taken in 1989 during Royal's trip to the Chernobyl area.



Any mention of international disasters automatically causes most of us also to think of April 1986, when people around the world awoke to terrifying newspaper headlines: "Soviets Report Nuclear Accident," from the *St. Louis Post-Dispatch*. "Soviet Nuclear Accident Sends Radioactive Cloud Over Europe," The *Washington Post* exclaimed.

Over the next several days, hampered by Soviet secrecy during the Cold War Era, the world press reported emerging details of the worst nuclear power plant accident in history. Without any hard information, reporters could only speculate about the impact on citizens in the Soviet Union or on people in their own countries. A public fearful of all things radioactive was demanding immediate, definitive information about short-term and long-term impacts of the accident on April 26 at the Chernobyl nuclear power plant near Prip'yat, about 60 miles from the Ukrainian capital of Kiev.

Early press reports of thousands of deaths at Chernobyl on the day of the accident fueled apprehension about the safety of nuclear power. In the two decades since, scientific and medical professionals have extensively studied and reported Chernobyl's impact on health and the environment. Yet even as scientific studies revealed new and more hopeful news about the health of people exposed to radiation from the accident, the popular media perpetuated earlier unsubstantiated statistics. Discrepancies persisted through the tenth anniversary of the event and

beyond. The dissonance between reporting from the scientific community and what is fed to the general public raises thought-provoking questions about the ability of news media to report complex science. How do Americans form opinions about health effects of radiation? What do we know about it, and whom do we trust in the wake of an event such as Chernobyl?

Henry Royal, MD, professor of radiology and associate director of the Division of Nuclear Medicine, encourages a hard look at the media coverage of Chernobyl and

of radiation-related issues in general. An expert in radiation exposure, Royal was one of the first physicians from the Western world to travel to the Chernobyl area to evaluate health effects of the accident. He was a co-leader of a multinational team of physicians invited by the Soviet government under the auspices of the International Atomic Energy Association (IAEA). Royal continues his involvement with Chernobyl as a member of the U.S. delegation to the United Nations Scientific Committee on the Effects of Atomic

*Smoking, obesity, and alcoholism, combined with increasing poverty,* were taking their toll in Russia, contributing to a decline in life expectancy. The World Health Organization (WHO) reported male *life expectancy in Russia in 2003 to be 58 years.*



Henry Royal, MD, as part of the United States 2003 delegation to UNSCEAR.



Overview of the 2003 UNSCEAR meeting at the United Nations. Interpreters are behind the glass panels. The UN, along with the International Atomic Energy Agency, are housed in the Vienna International Center.



# THE *Chernobyl* SYNDROME:

Science and the Media after 20 Years



1989: Henry Royal, MD, outside the gates to the Chernobyl nuclear power plant.

Radiation (UNSCEAR), established by the United Nations to “assess and report levels and effects of exposure to ionizing radiation.”

The Chernobyl accident was catastrophic and terrifying. In the early morning hours of April 26, explosions caused by errors in the control room, the bypassing of safety systems, and a faulty reactor design blew the top off the reactor building (its architectural design was no match for the intensity of the blast). Crews struggled to contain the escaping radiation, finally capping the ruined reactor building after ten days. By then, clouds of radioactive substances— primarily iodine and cesium—had been car-

ried by the wind across the Ukraine, Belarus, Russia, and on to Scandinavia. It was only when Swedish officials detected a spike in radiation that the Soviet government admitted, on April 28, that there had been an accident at Chernobyl.

Press reports in the days following the event were based on conjecture and rumor, assisted by a tight-lipped Soviet government and an American distrust of the same. When the Soviets announced there had been two deaths at the plant in the days following the accident, most Western reports were quick to dispute the figure. “Report of Just Two Deaths is Called Prepos-

terous,” proclaimed the *Post-Dispatch* on April 30. That day, newspapers across the United States relied on a United Press International source and concluded that “the death toll might have surpassed 2,000.”

“There were many inaccuracies in the early press reports,” says Royal. “It’s extremely unlikely that people would die immediately from radiation exposure. Even with a lethal dose, death would probably occur three to four weeks later.” By the end of the first week in May, most news reports acknowledged this as well, relying on statements from U.S. nuclear officials and physicists.

One week following the accident, news accounts moved off the front page of most newspapers. Soviet casualty figures were determined to be correct: two immediate deaths from the blast and 28 more fatalities (primarily firefighters who were among the first to arrive at the scene) in the months following, from acute radiation sickness. The Soviet government evacuated hundreds of thousands of people from a thirty-kilometer zone around the plant. Concern turned to the long-term health of millions of citizens exposed to radiation.

Arriving in Chernobyl in 1989, Royal was struck by conditions in the Ukraine. “The rural scene was a picture out of the 1940s. We saw people farming with horse and cart and cutting wheat by hand with scythes. The children who came to the clinics were dressed in their best clothes. They were adorable.”



The IAEA team found a surprisingly healthy population. (Some news reports in the years following the accident claimed that the Soviets deliberately dispersed the affected population throughout the country in order to hide the health effect on Chernobyl area residents.) However, there were indications, borne out in studies that followed, that thyroid cancer in children was on the rise. Most children became ill from drinking contaminated milk from local cows. Sadly, says Royal, "Ninety percent of this exposure might have been prevented if milk had been quarantined." Stable iodine had been given to some of the population to prevent the absorption of harmful iodine radiation, but this was not done quickly enough.

During the team's visit, other radiation-related health concerns already were being studied, but no disease was apparent at the time.



During Royal's 1989 trip to Chernobyl, he found that the children were surprisingly healthy.

## Popular culture

### INFLUENCE ON SCIENTIFIC REPORTING

*Radiation and nuclear power are subjects of fascination and of fear for the American public for a multitude of reasons. With images from disasters or events (such as the following) as a backdrop, hard science has tough competition for the attention of the American public when discussing nuclear energy.*

- In the 1940s, America's first association with nuclear power was through media coverage of the bombing of Hiroshima and Nagasaki during World War II, with reported fatalities of 120,000 immediately and 240,000 additional deaths over time.
- During the decade following the war, nuclear energy was used to power submarines and to produce plutonium for more nuclear weaponry during the Cold War. Nuclear energy was harnessed in the United States in 1957 for use in power plants, but the distinction between bomb and power plant mattered little to a public for whom "atomic" represented an awesome and destructive power.
- In the 1950s and 60s, a generation of moviegoers were treated to B-movie classics featuring mutant creatures (monsters, bugs, spiders, flies, and more) arising from misguided nuclear experiments.
- The *China Syndrome*, with its plot revolving around a nuclear power plant disaster, hit movie theaters in March 1979—just 12 days before the incident at Three Mile Island, the most serious nuclear power plant accident in U. S. history.
- *Silkwood*, a motion picture released in 1983, told the story of real-life whistle-blower Karen Silkwood, a plutonium-processing plant worker who was a victim of radiation poisoning and later died in a single-vehicle crash that many considered suspicious.
- Perhaps the most famous pop culture icon associated with nuclear power is Homer Simpson, of the popular television series *The Simpsons*, who is a nuclear safety engineer at his hometown nuclear power plant. Homer, among other feats, causes a meltdown in the series' third episode.



# THE *Chernobyl* SYNDROME: Science and the Media after 20 Years



1989: A delivery truck leaving the 30km evacuated zone is stopped at a government checkpoint.

Except for the possibility of thyroid cancer, Royal doubted that any widespread serious illness from radiation exposure would surface. "Background radiation is very hard to understand. Tests showed that few people who lived in the area around Chernobyl had more than an additional two hundred millirems of radiation per year due to the accident." This is equivalent to about one tenth of the radiation dose from diagnostic radiology examinations such as computed tomography and is the amount of radiation most of us receive every year from "background" sources present in the environment. According to Royal, the risk of increased cancer from such low-dose radiation is extremely small

and would be difficult to detect.

During his stay in Russia, Royal witnessed grave public health problems that he believes threaten the population much more acutely than did Chernobyl's effects. Smoking, obesity, and alcoholism, combined with increasing poverty, were taking their toll in Russia, contributing to a decline in life expectancy. The World Health Organization (WHO) reported male life expectancy in Russia in 2003 to be 58 years.

By the tenth anniversary in 1996 of the Chernobyl accident, thousands of scientific studies had been completed and international organizations had concluded that Chernobyl's long-term radiation effects were not as severe as originally predicted. The European

Community, IAEA, and WHO held an international conference on Chernobyl in April 1996 in Vienna. The Conference Summary concluded that in addition to the 30 deaths immediately following the accident, 207 people were hospitalized for radiation-related illness. Of those, 14 adults died from radiation effects in the ensuing decade. Three children died from thyroid cancer. (Thyroid cancer was the one documented radiation-related illness emanating from Chernobyl. Although hundreds more children had developed thyroid cancer, most were expected to survive with treatment.) In the population of 7.1 million in the areas affected by radiation, the report predicted an increase of 6,600 cancer-related deaths over an expected 870,000 non-Chernobyl cancer fatalities.

The conclusions of the scientific community at the 10-year mark were given scant attention in April 1996 print and television news reports. A CNN special program reported that in addition to the early fatalities "thousands more died later from effects of the accident." To support an estimate of 12,000 fatalities, a *Toronto Sun* article quoted a Russian journalist—but no scientists. *USA Today* reported that "Estimates of related deaths in the ten years since the accident range from 6,000 to more than 100,000"—even as it acknowledged no leukemia or other cancers aside from thyroid cancer had yet been found.

Royal expresses frustration with media reporting on radiation topics. "[These reports show why]



most scientists don't have a good opinion of the media, which report from the extremes. Often arguments are presented as scientific controversy when they're not."

Marking the twentieth anniversary of the Chernobyl accident are two updated collaborative reports on health and environmental impacts: UNSCEAR's "Health Effects Due to Radiation from the Chernobyl Accident" and the Chernobyl Forum's (a group of eight United Nations Agencies) "Chernobyl's Legacy: Health, Environmental, and Socio-Economic Impacts." Both reports, which incorporate results from hundreds of scientific and medical studies, conclude that thyroid cancer has been the most serious health effect of Chernobyl, and the incidence will increase among those exposed to I-131 (a form of radioactive iodine) as children; in adults, an estimated 4,000 deaths may occur in the future from radiation-related illness. To date, say the reports, Chernobyl-related deaths have totaled less than fifty.

At the 20th anniversary, news outlets have an opportunity to report conclusions derived from years of scientific research. (Upon its release in September 2005, the Chernobyl Forum report was widely and accurately reported, although it was dwarfed by coverage of the horrific consequences of Hurricane Katrina.) Radiation is not the only science-heavy topic poorly translated by the media. From Alar to X ray, print and broadcast media have fueled many a scare. Author and health reporter Jane Brody who has a degree in biochemistry, writing for the *Journal of the National Cancer Institute*, discussed a trend in public



In 1989, at the request of the then Soviet government, a team of experts from 25 countries and seven organizations conducted medical assessments of residents in the contaminated areas.

For greater impact, the *scientific community can encourage better and higher-level science education* for citizens and journalists. Understanding science will help the American public interpret and participate in the most important public policy debates of the new millennium.

interest in "health hype"—the latest proclaimed cancer-fighting food or nutrient; the latest health threat, real or imagined, in our food, water, or air, especially if the threat involves cancer; the latest discovery, real or imagined, of a cancer cluster, and so forth."

In a society of increasingly complex technology and decreasing attention spans, scientists and medical specialists have an important role to play as contributors of information to news outlets and as watchdogs as information is broadcast. For greater impact, the scientific community can encourage better and higher-level science education for citizens and journalists. Understanding science will help the American public interpret

and participate in the most important public policy debates of the new millennium. From the front page to the front porch, we all will benefit if science is included in our discussions about health. **MIR**

*Note: In contrast to most early newspaper accounts of the Chernobyl accident that did not detail the science behind radiation, on April 30, 1986, The New York Times ran a front-page story explaining the different types of radiation—gamma and beta—that were implicated in the accident, how these types of radiation are produced, and their effects on the human body.*



# PET, Gynecologic Cancers, and Politics

by Candace O'Connor

## With cervical cancer

*and its oncologic cousin, vaginal cancer, the question is not how to make the initial diagnosis. Pap smears, (also called Pap test, Papanicolaou smear, or cervical smear), a routine part of a woman's annual gynecologic checkup, can detect microscopic cancer cells; once the disease is more established, the physician can see and feel the tumor. Nor is the question how to treat the disease once it is discovered: Surgery, chemotherapy and radiation therapy are all used to combat the cancer and prevent its spread.*

*"The big issue is: Has the cancer already spread anywhere else—and **where** has it spread?" says Perry Grigsby, MD, professor of radiation oncology and of radiology. "Physicians need to know if the cancer has spread so that appropriate treatment can be given. And the larger the cancer is, the more likely it is to have spread."*





# In 2001,

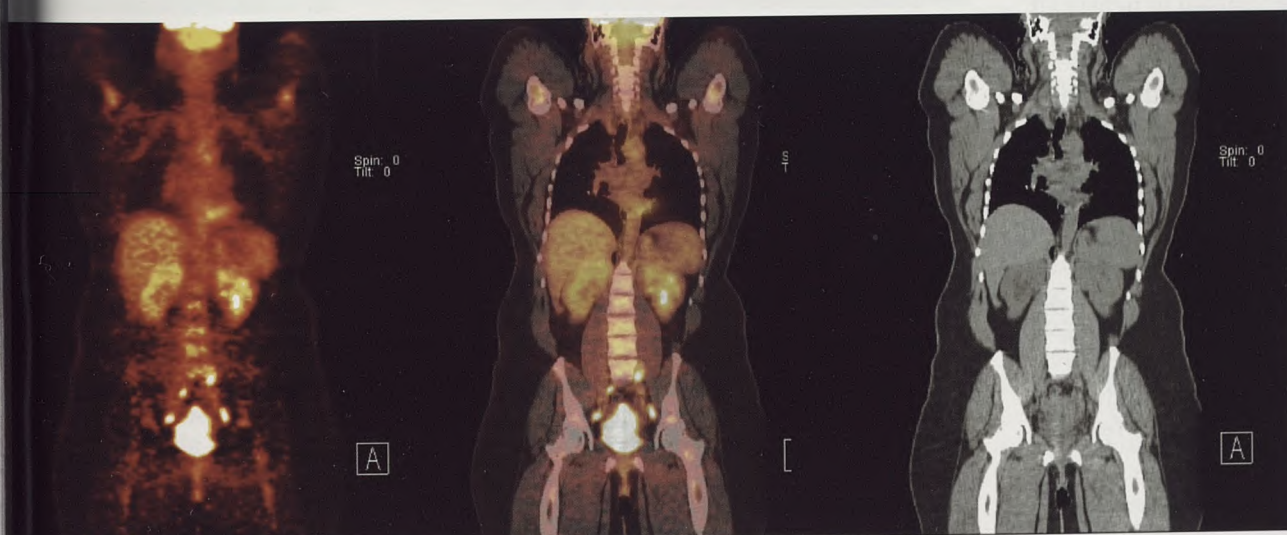
Grigsby and his nuclear medicine colleagues Barry Siegel, MD, professor of radiology and of medicine, and Farrokh Dehdashti, MD, professor of radiology, published a seminal paper in the *Journal of Clinical Oncology* showing that positron emission tomography (PET), an imaging method developed at Mallinckrodt Institute of Radiology (MIR) in the 1970s, is more accurate at pinpointing the spread of cervical cancer than is standard computed tomography (CT). This year, they have published another paper in the *International Journal of Radiation Oncology*, the first study of its kind that shows the same holds true for PET detection of vaginal cancer.

"Our work simply extends the use of PET to another group of

cancers," says Siegel, who also is chief of MIR's Division of Nuclear Medicine. "Already, the principle is very well established in other types of cancer that PET is an effective method for the initial staging and restaging of many different tumors, and it leads to changes in the way the patient is managed from fifteen percent to thirty percent of the time."

Such clear-cut findings create another quandary for researchers and clinicians: How can they help patients gain access to this sophisticated technology? While vaginal cancer is rare, accounting for only two percent of gynecologic malignancies, the stakes are higher in the case of cervical cancer, which is the second-leading cause of cancer deaths in women worldwide.

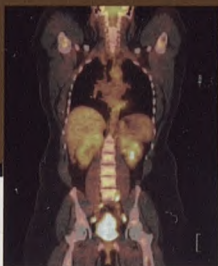
*While vaginal cancer is rare, accounting for only two percent of gynecologic malignancies, the stakes are higher in the case of cervical cancer, which is the second-leading cause of cancer deaths in women worldwide.*



(Left) PET image showing primary tumor and bilateral pelvic lymph node metastases. (Right) CT scan of tumor and metastases. (Center) Fused PET/CT image.



## PET, Gynecologic Cancers, and Politics



In the United States, women with cervical cancer and those with vaginal cancer should have ready access to PET imaging capability, since there were some 1,100 PET machines in U.S. medical centers by the end of 2004.

The problem is that someone has to pay for these PET studies, and a key insurer that needs to be convinced of their efficacy is the federal agency administering the Medicare program. In April 2003, Grigsby and Siegel testified before this government group on behalf of coverage for PET scans to detect cervical cancer; coverage was later approved. But coverage for PET scanning of vaginal cancer has not been approved; the researchers' paper on this subject, though definitive, may not alone constitute sufficient proof.

### *The history of PET scanning and gynecologic cancer*

Today, physicians know that cervical cancer is a sexually transmitted disease, caused in nearly all cases by the human papilloma virus (HPV). Recent studies have shown, says Grigsby, that "when people become sexually active, they are infected with HPV, which acts almost like a cold virus. A woman with HPV has an acute change in her cervix; most of the time the virus goes away on its own," he adds. "But sometimes the infection comes back and cancer develops. Is there a trigger? Do women become sexually active again and are reinfected? We don't have the answer."

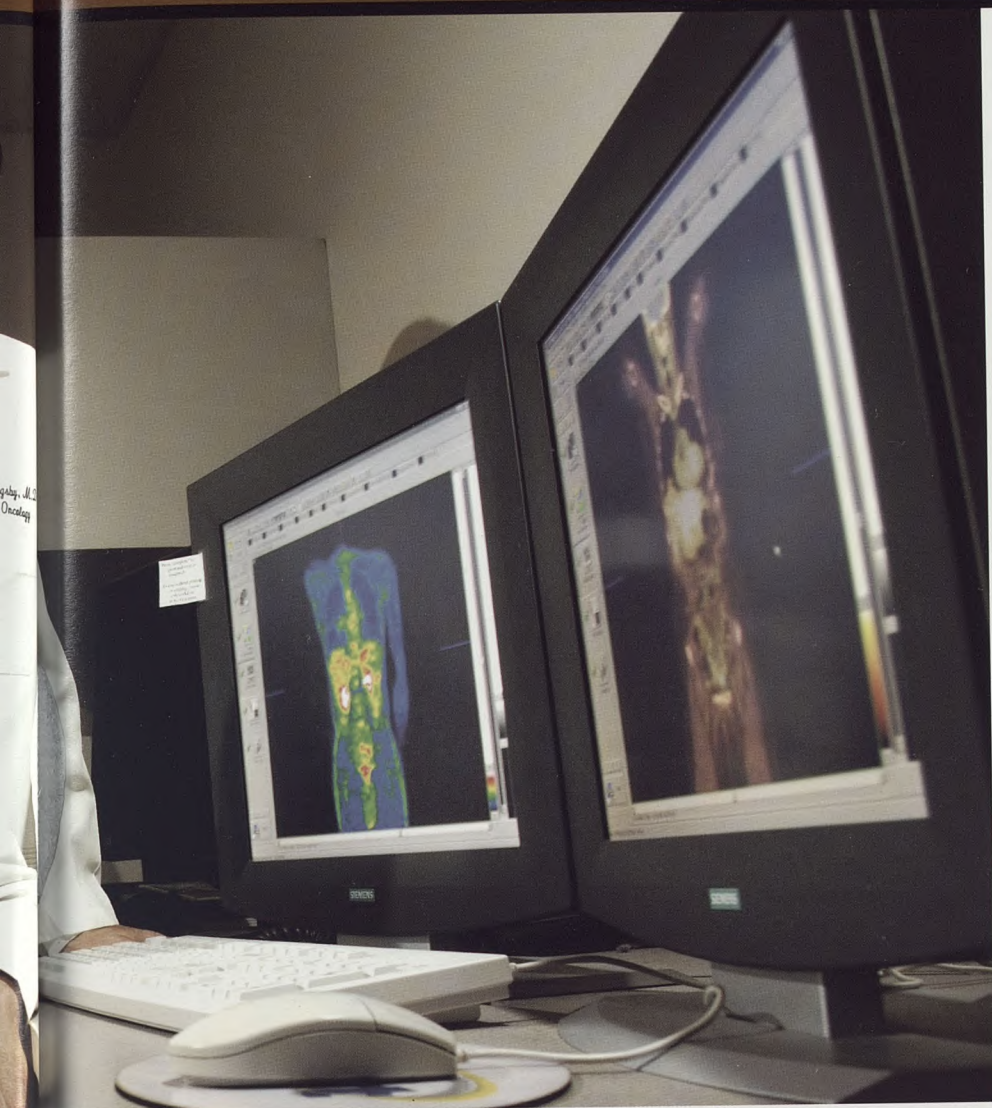


It also is not clear why women tend to develop these two cancers at different times in life. While many patients with cervical cancer are younger women, with a median age of around 40, patients with vaginal cancer are generally older, with a median age of 60 to 70. Still, older women can develop cervical cancer as well; Grigsby has seen patients in their 70s, 80s, or even 90s who have the disease.

In every case, oncologists want to see how far the cancer has

spread, since its presence in different groups of lymph nodes, increasingly high up in the body, will determine the kind of therapy used and the likelihood of the patient's long-term survival. When cervical tumors are localized, they can be surgically removed, and the woman has a 90 percent chance of survival. If the tumor has spread to nodes close to the heart, radiation therapy alone is used and the survival rate dips to 45 percent.





In an effort to find this spread in cervical and vaginal cancer, doctors have used various methods: lymphangiograms, CT scans, even surgery. "But operating on someone to find out whether their cancer has spread is an extreme," says Grigsby. "Having a picture to show that instead is, of course, much better."

### Using PET to *detect the spread of cancer*

Through the 1990s, physicians were using PET scanning more frequently among oncology patients, and in 1998, Siegel began to ask whether it would benefit patients with cervical cancer as well. In collaboration with Siegel and Dehdashti, Grigsby embarked on a study involving 101 women that compared CT scans with PET scans. Images were taken of the cervical tumor itself and of lymph nodes in

Barry Siegel, MD, (seated) and Perry Grigsby, MD, are strong advocates of positron emission tomography (PET) staging and restaging of cervical cancer.

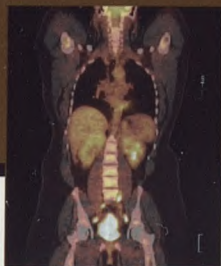
the pelvis, the abdomen, and the base of the neck.

The results were striking: PET scans confirmed the existence of a cervical tumor in 100 of the 101 women, while CT scans identified 77. Using PET, abnormal pelvic lymph nodes were detected in 67 women, while CT scans showed 20. Abnormal abdominal nodes were shown in 21 women; with CT, in seven. Abnormal lymph nodes in the neck were detected in eight women, whereas CT found none. Every abnormality found using CT also was detected by PET imaging.

Further, the investigators repeated the PET scan in patients with cervical cancer three months after radiation treatment and chemotherapy were completed to see whether the cancer had disappeared. "The study clearly showed that if a PET scan done at the three-month interval showed no cervical cancer, the chances were ninety percent that the patient would not have a recurrence," says Grigsby.

In their 2005 study on PET and vaginal cancer, the research group—which grew to include radiation oncologists Wayne Lamoreaux and Imran Zoberi as well as gynecologic oncologists David Mutch, Randall Gibb, Matthew Powell, and Janet Rader—observed 23 patients with various stages of cancer, though the primary tumor was excised before imaging in two cases. Again, the results were unambiguous: Of the 21 patients with an intact tumor, CT visualized the tumor in 43 percent of the patients; PET, in 100 percent. CT imaging showed lymph node spread in 17 percent of patients; PET, in 35 percent.





## Lobbying for *change*

While no one has done a randomized study to prove the hypothesis, improved detection of lymph node spread—and more targeted therapy—will likely lead to better outcomes for patients. With this in mind, Grigsby, Siegel, and physicians from other medical centers traveled to Washington two years ago to appear before the Centers for Medicare and Medicaid Service (CMS) to present their data and request coverage for PET staging and restaging of cervical cancer. CMS is the federal agency that administers the Medicare program and sets policy that private health insurers often follow. In January 2005, CMS approved PET scanning coverage.

Using PET to detect vaginal cancer is a more difficult matter, says Grigsby, since CMS would not fold approval for it into the cervical cancer decision. “If we returned to Washington now to lobby, our case would be based on our paper alone, since there are no other publications dealing with vaginal cancer and PET. And CMS generally doesn’t consider one paper to be ‘evidence-based medicine.’”

Because vaginal cancer is rare, it is hard to accrue enough patients for a study, he says. It took years to get enough patients for the MIR study, and other centers with a smaller population of patients overall might not feel they can undertake this task. So, the future of Medicare approval for using PET to detect vaginal cancer is unclear.

“This falls into the category of an orphan drug; scientists think it is important, but since the number of patients to be treated is so small,

it gets left there by itself,” says Grigsby. “I think that is the way PET scanning of vaginal cancer will go. Everybody says ‘yes, it’s important,’ but there just aren’t enough patients.”

## Implications of the *CMS approval*

Clearly, patients in the United States will benefit by the approval of using PET to screen for cervical cancer, but it also will help patients worldwide. While some 10,000 U.S. women will be diagnosed this year with the disease, that number is dwarfed by the total number internationally. Overall, 500,000 women will develop the disease; in some countries—particularly in India and in Africa—cervical cancer is the most common cause of death in women, due to a virtual absence of screening.

Before the CMS decision this past January, Grigsby and Siegel heard the same question again and again when they spoke to medical groups in other industrialized countries: When is Medicare going to approve PET for cervical cancer screening? “It was a mystery to me why a physician from Japan or Scotland was asking about Medicare,” says Grigsby. “But they care because their governments are looking to the Medicare system to decide what they are going to do in their own countries.”

In developing countries, this decision will not have repercussions because there is no PET capability. The African continent will soon have its first machines when two are installed in South Africa; in India, where some 250,000 new cases of cervical

cancer are diagnosed each year, there are fewer than five PET scanners. Overall, some 500 PET machines exist outside of the United States.

The difficulty is that CT scanners are more ubiquitous because they only require a quick plug-in for use. PET scanners, on the other hand, work in conjunction with a radioactive glucose, most often <sup>18</sup>FDG that must be produced in a nearby cyclotron because of the radiopharmaceutical’s short half-life of 110 minutes. Thus, countries lacking cyclotrons will be unable to use PET.

Still, PET use worldwide may rise substantially in staging cervical cancers, in large part because of the work at MIR. “I think physicians around the United States have been convinced by our publications that patients with cervical cancer will benefit from the use of PET scanning, and they have just been waiting for Medicare approval. Now that it is approved, more physicians are using PET,” says Grigsby.

The spread of other cancers may soon be traced by PET as well: Grigsby, Siegel, Dehdashti, and others already have published results showing PET’s successful use in detecting uterine cancer, and they are working on a study involving patients with anal cancer. Other centers in the United States and abroad have published positive results in PET detection of ovarian cancer.

“Today, physicians can do far more than perform a Pap smear and tell the patient she has cancer,” adds Grigsby. “We can say exactly where the cancer is, and that is really exciting to me.” **MIR**



As seen in  
U.S. News & World Report



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# Mobile Mammography Outreach Program:

*Making a Difference in Women's Lives*

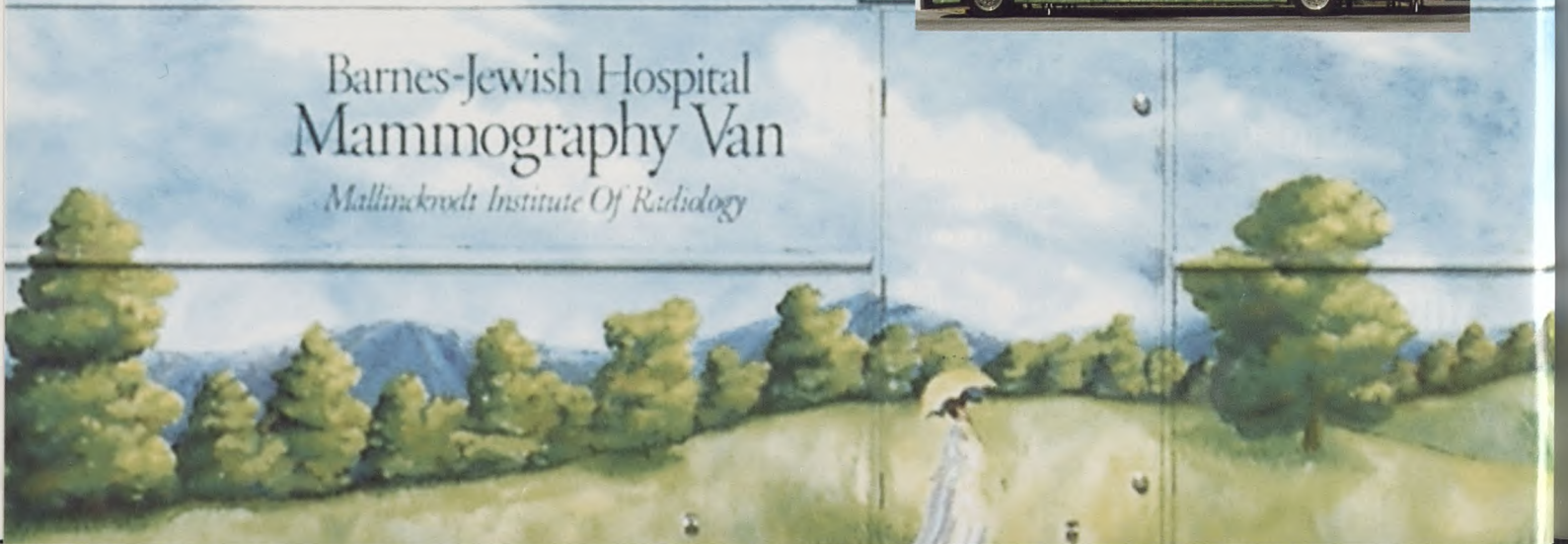
*According to the American Cancer Society, in 2005 an estimated 211,240 new cases of invasive breast cancer will be diagnosed among women in the United States. The chance of developing invasive breast cancer at some time in a woman's life is about one in seven (13% of women). Except for nonmelanoma skin cancers, breast cancer is the most common cancer among women and is second only to lung cancer as the leading cause of cancer deaths in women. Women living in North America have the highest rate of breast cancer worldwide.*

*The good news is that death rates from breast cancer are on the decline—physicians, researchers, and statisticians believe the decline is the result of early detection and improved treatment. And there are more than 2 million breast cancer survivors in the United States.*

*by Adriane Scott and Vicki Kunkler*



Barnes-Jewish Hospital  
Mammography Van  
*Mallinckrodt Institute Of Radiology*





At Washington University Medical Center, the Alvin J. Siteman Cancer Center's Program for the Elimination of Cancer Disparities (PECaD) is partnering with the Mobile Mammography Outreach Program to create a mammography patient registry. Dione Farria, MD, MPH, assistant professor at Mallinckrodt Institute of Radiology, and Katherine Mathews, MD, assistant professor of obstetrics/gynecology, are codirectors of PECaD. They are collaborating with Mario Shootman, PhD, an epidemiologist in the School of Medicine's Division of Internal Medicine, and with data management staff at Barnes-Jewish Hospital to develop a registry focusing on patients who utilize the Mobile Mammography Outreach Program. The registry will facilitate program planning and provide a means for better understanding the mammography needs of underserved women in our community.

According to Farria, "This registry will be a computerized database that helps to identify the main barriers to screening and diagnostic mammography for low-income women in the St. Louis area and surrounding rural communities." Through the registry, reports on such factors as health behaviors, barriers, and customer satisfaction can be generated.

Data, obtained from patient surveys conducted by The Breast Health Center, will be compiled to provide insights into the success of the outreach program as well as to spotlight areas that will prove to be opportunities for growth.

The registry also will serve as a reality check on a number of key issues related to patient care.

Farria explains, "In addition to demographic information, women are asked questions such as the best times for them to get a mammogram, transportation used, reasons they might not return next year for screening, why other women they know don't come for screening, or if this is their first mammogram. If women were screened on the mammography van, they also are asked for their perception of the experience—their patient satisfaction. The census tract for each woman will be based on her home address to determine if the women at highest risk for breast cancer, according to local epidemiology data, are being reached."

Growth and expansion are the key words for the program. Based on Shootman's data analyses, the mammography van is working closely with area churches to screen women in urban areas with the highest incidence of advanced



Above: Dione Farria, MD, MPH, (left) and Katherine Mathews, MD, are partners in taking mammography screening to underserved women in the St. Louis community.

Below: One of the mammography van's stops was at New Madrid, Missouri—the oldest American city west of the Mississippi River.



*Photographs courtesy of the Breast Health Center's volunteer photographer Soon ae Kraenzle and Denise Bizenberger, Siteman Cancer Center.*



# Mobile *Mammography* Outreach Program

## *Did you know?*

- 30% of all women over the age of 50 are not getting regular mammograms.
- 77% of all breast cancer occurs in women aged 50 and older.
- A woman's risk of developing breast cancer increases with age, rising sharply after the age of 40.
- Studies have shown that smoking, alcohol consumption, and high-fat diets increase a woman's chance of developing breast cancer.
- Although studies have been inconsistent, there is an emerging consensus that the use of hormone replacement therapy does increase the risk of breast cancer.
- The key to surviving breast cancer is early detection and treatment. According to the American Cancer Society, when breast cancer is in its earliest stages and confined to the breast the survival rate is close to 100%.
- Beginning at age 20, every woman should practice monthly breast self-examinations.
- Beginning at age 40, all women should have an annual screening mammogram.

stages of breast cancer. "The van also has a growing outreach program for low-income women in the rural Bootheel region of Missouri, as well as immigrant communities in the metropolitan St. Louis area," says Farria.

According to Susan Kraenzle, manager of the Breast Health Center at the Alvin J. Siteman Cancer Center, the mammography van travels to various areas throughout the state of Missouri. Local sites include the following:

- Neighborhood clinics and health centers, such as the Family Care Health Centers (the Carondelet facility on Holly Hills Avenue and the Forest Park Southeast facility on Manchester Avenue)
- St. Louis County Department of Health clinics
- Grace Hill Neighborhood Health Centers
- LaClinica
- Jefferson County and St. Francois County Health departments
- Various neighborhood events and health fairs.

Mammography screenings are provided locally through "Faith on the Move," a faith-based project sponsored in collaboration with the St. Louis affiliate of the Susan G. Komen Breast Cancer Foundation, The Breakfast Club, and Alvin J. Siteman Cancer Center. "The program was developed to meet

the needs of women in epidemically identified 'hot spots' in north Saint Louis City and north Saint Louis County that indicate an incidence of locally advanced breast cancer at more than twice the rate of other areas in the state," says Kraenzle. "We collaborate with local churches to bring the mammography van to neighborhoods within those hot spots to provide screenings to underserved women."

The Mobile Mammography Outreach Program also covers rural areas by collaborating with other projects that are providing screenings for breast cancer and cervical cancer. "Twice annually the mammography van travels to the Missouri Bootheel region—'docking' at Sikeston, then traveling to New Madrid one day, Kennett the next, and back to Sikeston on the third day—to provide screenings for uninsured women," adds Kraenzle.

The Outreach Program also partners with the Southeast Missouri (SEMO) Health Network, a non-profit corporation partially funded by the U.S. Public Health Service to provide comprehensive primary health care for the underserved, uninsured or underinsured, low-income population of Southeast Missouri, and with Show Me Healthy Women (formerly Breast Cervical Cancer Control Project), a program supported by the Missouri Department of Health and Senior Services that provides free breast cancer





and cervical cancer screenings, heart-health risk assessment, and lifestyle education to eligible, low-income, underinsured or uninsured Missouri women aged 35 to 64.

"Through the most recent Outreach Program visit, nearly one hundred fifty women received mammography screening. Seven women have been diagnosed as having breast cancer since the mobile van has been making these trips," says Kraenzle.

The Breast Health Center team often arranges Outreach Program trips so they can care for migrant farm workers. According to the Centers for Disease Control and Prevention, the ratio of female-to-male hired farm workers in the United States is 1:5. The health of these women can be adversely affected by poor living and working conditions, including poverty, exposure to health hazards, and poor utilization of health care and preventive services. The health concerns of female migrant and seasonal farm workers include breast cancer and cervical cancer, which can be prevented or controlled through routine screenings.

"We also work closely with the Siteman Cancer Center's Refugee and New American Program to screen women from a wide variety of cultures. This population includes women from Vietnam, Thailand, Bosnia, West Africa, and Latin America. Multilingual information is available to us, and interpreters from the St. Louis

Registration for mammography screening in New Madrid was held in the County Family Resource Center.

community and Barnes-Jewish Hospital provide valuable assistance," says Kraenzle.

Funding for the various programs are provided by a number of organizations: The Judy Ride Foundation, established in 1998, provides funds so that disadvantaged women in St. Louis have access to mammograms and other measures of early detection. In addition, the organization provides funds for critical follow-up care and related breast health services, including treatment, transportation, prosthetics, and domestic support. The Breakfast Club is a support group that meets monthly in the inner city of St. Louis, providing support and education to women in the African-American community. Among other services, this group provides funds for mammograms to neighborhood women who do not have health insurance.

The Mobile Mammography Outreach Program at Barnes-Jewish Hospital began in 2000, with funds provided by the Susan G. Komen Breast Cancer Foundation. The mammography unit initially was at Schnucks Markets and Saint Louis ConnectCare locations to



## Breast Cancer Awareness

*Annually, October is designated as National Breast Cancer Awareness Month. The Barnes-Jewish Hospital Mammography Van, cosponsored by Mallinckrodt Institute of Radiology, is at local Schnucks Markets monthly to screen women 40 years and older for breast cancer. Van hours are Monday through Friday, 8:00 AM to 4:00 PM. Insurance cards should be brought to the appointment; the fee will be billed to the patient, the insurance company, or to Medicare. To schedule an appointment, call 314-TOP-DOCS (toll free at 1-866-867-3627).*

*The van schedule is online at [www.barnesjewish.org](http://www.barnesjewish.org) (type in "mammography van" in the search box in the upper right-hand section of the Web site).*



# Mobile *Mammography* Outreach Program

## For more information

*For more information about the collaborative groups involved in the Mobile Mammography Outreach Program, visit these Web sites.*

- *Alvin J. Siteman Cancer Center:* [www.siteman.wustl.edu](http://www.siteman.wustl.edu)
- *Judy Ride Foundation:* [www.judyride.org](http://www.judyride.org)
- *Susan G. Komen Breast Cancer Foundation:* [www.komen.org](http://www.komen.org)
- *Saint Louis ConnectCare:* <http://stlconnectcare.org>
- *Southeast Missouri (SEMO) Health Network:* [www.semohealthnetwork.org](http://www.semohealthnetwork.org)
- *Show Me Healthy Women:* [www.dhss.mo.gov/BreastCervCancer/Eligibility.html](http://www.dhss.mo.gov/BreastCervCancer/Eligibility.html)

*Online information about breast cancer is available at these URLs:*

- *American Cancer Society:* [www.cancer.org](http://www.cancer.org)
- *National Institutes of Health:* [www.nig.gov](http://www.nig.gov)
- *Women's Information Network Against Breast Cancer:* [www.winabc.org](http://www.winabc.org)
- *Imaginis:* [www.imaginis.com](http://www.imaginis.com)

The Outreach Program and the Southeast Missouri (SEMO) Health Network bring mammography screening to the Bootheel region: (seated, left to right) Christy Bye, LPN (SEMO); Barbara Cunningham, RNC, FNP (SEMO); Susan Kraenzle, RN; (standing, left to right) Kristina Miller (SEMO); Donna Vent, LPN (SEMO); Ruth Hudson, RN (SEMO).

provide breast cancer screening to women who otherwise would not have access. Over the years the program has grown to include rural and other underserved areas. "There are two areas in need of improvement: north Saint Louis City and north Saint Louis County, where more cases of later-stage breast cancer are prevalent. Our intent is to penetrate those areas," says Mathews. "The second area is the Missouri Bootheel, where there are not many places for women to go for health care."

Mathews helped to establish advisory committees for the original Mammography Outreach Program and has worked with a number of community organizations to build partnerships with projects like Faith on the Move. These partnerships identified new target locations for the Mammography Outreach Program.

Farria wants everyone to recognize the importance of the Mobile Mammography Outreach Program and the strides the program is making in the St. Louis community. "The Breast Health



Another mammography van stop was at Sikeston, Missouri—about 3 hours south of St. Louis—where women registered at the Family Clinic.

Center provides a valuable service to women who otherwise could not obtain mammograms because of their income or the travel distance to a mammography facility," she says. "Although running a program of this magnitude requires a lot of work by the hospital staff, technologists, and radiologists, the difference it makes in so many women's lives is more than worth the effort required." **NIR**





*In this section, the names of employees who are full-time faculty or staff or who have an appointment in the Department of Radiology or Department of Radiation Oncology are highlighted in boldface type.*

## NEW FACULTY

**Joelle Biernacki, MD**, instructor in radiology, Division of Diagnostic Radiology (Barnes-Jewish St. Peters Hospital), Department of Radiology.

**Meredith Byers, MD**, instructor in radiology, Division of Diagnostic Radiology (Barnes-Jewish St. Peters Hospital), Department of Radiology.

**JoAnne Lacey, MD**, instructor in radiology, Neuroradiology Section, Division of Diagnostic Radiology, Department of Radiology.

**Amy Nordmann, MD**, instructor in radiology, Breast Imaging Section, Division of Diagnostic Radiology, Department of Radiology.

**Kooresh Shoghi, PhD**, instructor in radiology, Radiological Chemistry Laboratory, Division of Radiological Sciences, Department of Radiology.

## FIRST-YEAR FELLOWS

**Harry Ameredes, MD**, musculoskeletal radiology clinical fellow, received an undergraduate degree from Bethany College and a medical degree from West Virginia University. He completed an internship at Mercy Hospital, Pittsburgh, and a residency at West Penn Hospital, Pittsburgh.

**Catherine Appleton, MD**, breast imaging clinical fellow, received an undergraduate degree and a medical degree from the University of Florida. She completed a transitional year at Reading Hospital, Pennsylvania, and four years of diagnostic radiology training (2004-2005 chief resident) at Mallinckrodt Institute of Radiology.

**Amanda Bauer, MD**, breast imaging clinical fellow, received an undergraduate degree from the University of Illinois, Urbana, and a medical degree from the University of Michigan. She completed a transitional year at St. John's Mercy Medical Center, St. Louis, and a residency at Saint Louis University.

**Tammie Benzinger, MD, PhD**, neuroradiology clinical fellow, received an undergraduate degree from the University of Chicago and a medical degree from the University of Chicago-Pritzker School of Medicine. She completed a one-year internship at Forest Park Hospital and four years of diagnostic radiology training at Mallinckrodt Institute of Radiology.

**Andrew Bierhals, MD, MPH**, thoracic (cardiopulmonary) imaging clinical fellow, received an undergraduate degree, a Master of Public Health degree, and a medical degree from the University of Pittsburgh. He completed four years of diagnostic radiology training at Mallinckrodt Institute of Radiology.

**Heather Byer, MD**, neuroradiology clinical fellow, received an undergraduate degree from The College of William and Mary and a medical degree from Georgetown University. She completed an internship and one year of diagnostic radiology training at Georgetown University and three years of diagnostic training at Mallinckrodt Institute of Radiology.

**Jon Carmain, MD**, abdominal imaging clinical fellow, received an undergraduate degree from the University of Virginia and a medical degree from the Medical College of Virginia. He completed an internship and a residency at the Medical University of South Carolina.

**Matthew Casey, MD**, interventional radiology clinical fellow, received an undergraduate degree and a medical degree from the University of Iowa. He completed an internship at St. Joseph's Hospital, Chicago, and a residency at Loyola University Medical Center.

**Guilherme Dabus, MD**, interventional neuroradiology (endovascular surgical neurology) clinical fellow, received a medical degree from Santos School of Medical Sciences, Lusiada University, Brazil.

**Nirvikar Dahiya, MD**, abdominal imaging clinical fellow, received a medical degree from Government Medical College, India.

**Dennis Der, MD**, interventional radiology clinical fellow, received an undergraduate degree from the University of California, Riverside, and a medical degree from Mayo Medical School. He completed an internship and a residency at Kaiser Permanente Los Angeles Medical Center.

**Deirdre Duke, MD**, breast imaging clinical fellow, received an undergraduate degree from University College, Dublin, and a medical degree from the National University of Ireland, Galway.

**Christopher Fleener, MD**, abdominal imaging clinical fellow, received an undergraduate degree from Northwestern University and a medical degree from the University of Iowa. He completed an internship at Maine Medical Center, Portland.



## FIRST-YEAR FELLOWS

*Continued from page 23*

**Punita Gupta, MD**, musculoskeletal radiology clinical fellow, received an undergraduate degree from Washington University, Seattle, and a medical degree from the University of Illinois, Peoria. She completed an internship at McGaw Medical Center of Northwestern University and additional training at Tufts-New England Medical Center.

**Jeremy Jagoda, MD**, neuroradiology clinical fellow, received a medical degree from the University of Kansas.

**Tatum Johnson, MD**, pediatric radiology clinical fellow, received an undergraduate degree from Harvard University and a medical degree from Louisiana State University. She completed an internship and a residency at Dartmouth-Hitchcock Medical Center.

**Glenn Kaplan, MD**, magnetic resonance imaging clinical fellow, received an undergraduate degree from the University of Pennsylvania and a medical degree from the University of Miami. He completed an internship at Jackson Memorial Hospital and a residency at Mt. Sinai Medical Center.

**Markus Lammle, MD, PhD**, neuroradiology clinical fellow, received a medical degree from Universität des Saarlandes-Saarbrücken. He completed a one-year internship at Clinique Ste. Therese-Luxembourg, four

## Wasserman Lecture

The Department of Radiation Oncology sponsored the First Todd H. Wasserman Lecture in Translational Research on May 26. John Chapman, PhD, retired senior member and director of tumor biology and biophysics, Fox Chase Cancer Center, Philadelphia, presented: "Laboratory insight into human tumor radioresistance."

Shown (left to right) are Todd Wasserman, MD; Chapman; and Simon Powell, MD, PhD, chairman of the Department of Radiation Oncology.



years of training in diagnostic radiology at University Hospital of Cologne, and two years of training in urology at Hospital Necker Enfants-Malades, University of Paris. He completed four years of diagnostic radiology training at Mallinckrodt Institute of Radiology.

**Matthew Parsons, MD**, neuroradiology clinical fellow, received an undergraduate degree from Miami University and a medical degree from the University of Cincinnati. He completed an internship at The Christ Hospital and a residency at Saint Louis University.

**Nayana Patel, MD**, abdominal imaging clinical fellow, received a medical degree from MS University and SMT NHLM Medical College, India. She completed an internship and a residency at the University of Louisville.

**Christine Peterson, MD**, abdominal imaging clinical fellow, received an undergraduate degree from Washington University in St. Louis and a medical degree from the University of Texas, Houston. She completed a transitional year at CHRISTUS St. Joseph Hospital, Houston, and four years of diagnostic radiology training (2004-2005 chief resident) at Mallinckrodt Institute of Radiology.

**Creed Rucker, MD**, neuroradiology clinical fellow, received an undergraduate degree and a medical degree from the University of Arizona. He completed one year of a surgery residency at Vanderbilt University and four years of diagnostic radiology training at Mallinckrodt Institute of Radiology.

**Gregory Sanders, MD**, magnetic resonance imaging clinical fellow, received an undergraduate degree from the University of Virginia and a medical degree from Washington University in St. Louis. He completed a one-year internship at Forest Park Hospital and four years of diagnostic radiology training (2004-2005 chief resident) at Mallinckrodt Institute of Radiology.

**Angelle Simon, MD**, abdominal imaging clinical fellow, received an undergraduate degree and a medical degree from Louisiana State University. She completed an internship and a residency at Louisiana State University Health and Sciences Center.



**Christopher Somogyi, MD**, neuroradiology clinical fellow, received an undergraduate degree from the United States Air Force Academy/University of Memphis and a medical degree from the University of Tennessee. He completed a transitional year and a residency at Methodist University Hospital.

**Dallas Sorrell, MD**, thoracic (cardiopulmonary) imaging clinical fellow, received an undergraduate degree from Mississippi State University and a medical degree from the University of Mississippi. She completed a one-year internship at Memorial and Community hospitals of the Carilion Health System and four years of diagnostic radiology training at Mallinckrodt Institute of Radiology.

**Ranista Tongdee, MD**, magnetic resonance imaging clinical fellow, received a medical degree from Mahidol University, Bangkok.

**Matthew Wiggins, MD**, musculoskeletal radiology clinical fellow, received an undergraduate degree from Swarthmore College and a medical degree from Vanderbilt University. He completed a one-year internship at St. John's Mercy Medical Center and four years of diagnostic radiology training at Mallinckrodt Institute of Radiology.

## FIRST-YEAR DIAGNOSTIC RADIOLOGY RESIDENTS

**Jonathan Baker, MD**, received an undergraduate degree from Saint Louis University and a medical degree from Washington University in St. Louis. He completed an internship at Forest Park Hospital.

**Seth Cardall, MD**, received an undergraduate degree from Brigham Young University and a medical degree from the David Geffen School of Medicine at the University of California, Los Angeles. He completed a transitional year at Mayo Clinic.

**Robert Cargile, MD**, received an undergraduate degree from Tulane University and a medical degree from Columbia University. He completed a surgical internship at the National Naval Medical Center.

**Paul Frohnert, MD, PhD**, received an undergraduate degree from Macalester College and a medical degree and a doctoral degree from Washington University in St. Louis.

**Kavita Gorantla, MD**, received an undergraduate degree from the University of Illinois, Urbana, and a medical degree from Indiana University. She completed a transitional year at St. Joseph's Hospital.

**Travis Hillen, MD**, received an undergraduate degree from Blackburn University and a medical degree from the University of Missouri, Columbia. He completed preliminary training at University Hospital, Columbia.

**Susan Holley, MD, PhD**, received an undergraduate degree from Yale University and a medical degree and a doctoral degree from Duke University. She completed preliminary training at Barnes-Jewish Hospital.

**Edward Hwang, MD**, received an undergraduate degree and a medical degree from Georgetown University. He completed a transitional year at St. Vincent Hospital.

**Jonathan McConathy, MD, PhD**, received an undergraduate degree from the University of North Carolina, Chapel Hill, and a medical degree and a doctoral degree from Emory University. He completed a transitional year at Emory University.

**Kelsey Moran, MD**, received an undergraduate degree from the University of Nebraska, Lincoln, and a medical degree from Washington University in St. Louis. He completed a transitional year at St. John's Mercy Medical Center.

**Venkatesh Murthy, MD, PhD**, received an undergraduate degree from Massachusetts Institute of Technology and a medical degree and a doctoral degree from Johns Hopkins University. He completed preliminary training at Johns Hopkins University.

**Constantine Raptis, MD**, received an undergraduate degree from the University of Chicago and a medical degree from the University of Pennsylvania. He completed preliminary training at Barnes-Jewish Hospital.

**Jakob Schutz, MD**, received an undergraduate degree from the College of William and Mary and a medical degree from the University of Pennsylvania. He completed a transitional year at Crozer-Chester Medical Center.

**Alexander Sevrakov, MD**, received a medical degree from I.M. Sechenov Moscow Medical Academy. He completed preliminary training at the University of Illinois, Chicago.

**Jason Stephenson, MD**, received an undergraduate degree from Stanford University and a medical degree from Washington University in St. Louis. He completed a transitional year at St. John's Mercy Medical Center.

**Heather Tauschek, MD**, received an undergraduate degree from Seattle Pacific University and a medical degree from Cornell University. She completed preliminary training at the University of Hawaii.

**Amy Thomas, MD**, received an undergraduate degree and a medical degree from the University of Missouri, Columbia. She completed a residency in pediatrics at the University of California, San Diego.



## FIRST-YEAR DIAGNOSTIC RADIOLOGY RESIDENTS

*Continued from page 25*

**Thomas Watson, MD,** received an undergraduate degree and a medical degree from the University of Missouri, Columbia. He completed preliminary surgical training at the University of Missouri, Columbia.

**Catherine Young, MD, JD,** received an undergraduate degree and a law degree from the University of Texas and a medical degree from Tulane University. She completed preliminary training at Tulane University.

## FIRST-YEAR NUCLEAR MEDICINE RESIDENTS

**Richard Held, MD,** received an undergraduate degree from Michigan State University and a medical degree from Ross University. He completed an internship and a residency at Norwalk Hospital.

**Asif Moinuddin, MD,** received an undergraduate degree from D.J. Government Science College, Karachi, and a medical degree from Dow Medical College, Karachi. He completed an internship at Civil Hospital, Karachi.

**Jabi Shriki, MD,** received an undergraduate degree from the University of Texas, Austin, and a medical degree from the University of Texas Health Science Center, San Antonio. He completed an internship at the affiliated hospitals of the University of Texas and a residency at the University of California, Irvine.

**Xia Wang, MD,** received a medical degree from Dalian Medical University, China. She completed an internship at the Jersey Shore University Medical Center and a nuclear medicine residency at the University of California, Los Angeles.

## FIRST-YEAR RADIATION ONCOLOGY RESIDENTS

**Kenneth Biehl, MD,** received an undergraduate degree from Brigham Young University and a medical degree from Washington University in St. Louis.

**Carlo Demandante, MD,** received an undergraduate degree from the United States Air Force Academy; a master's degree from the University of Washington, Seattle; and a medical degree from the University of Texas Health Science Center, San Antonio.

**David Pratt, MD,** received an undergraduate degree from the University of Utah and a medical degree from Saint Louis University.

**Julie Schwarz, MD, PhD,** received an undergraduate degree from Duke University and a medical and a doctoral degree from Washington University in St. Louis.

**Ryan Tierney, MD,** received an undergraduate degree from Indiana University and a medical degree from Washington University in St. Louis.

## GRANTS

**Colin Derdeyn, MD,** associate professor of radiology, as principal investigator, received a \$300,000 grant from the National Institutes of Health/National Institute of Neurological Disorders and Stroke (NIH/NINDS) for research on "Randomized evaluation of carotid occlusion and neurocognition (RECON)." Coinvestigator for the grant is **Tom Videen, PhD,** research associate professor of neurology and neurological surgery and of radiology. As principal investigator, Derdeyn also received an NIH/NINDS grant for "Familial intracranial aneurysm study." Coinvestigators for the \$220,000 grant are **DeWitt Cross, MD,** associate professor of radiology; **Christopher Moran, MD,** professor of radiology; **Ralph Dacey, MD,** professor of neurological surgery; **Keith Rich, MD,** associate professor of neurological surgery; **Robert Grubb, MD,** professor of neurological surgery and of radiology; **Michael Chicoine, MD,** assistant professor of neurological surgery; and **Gregory Zipfel, MD,** assistant professor of neurological surgery.

**William Middleton, MD,** professor of radiology, as principal investigator, received a one-year, \$24,990 grant from the Society of Radiologists in Ultrasound for research on "A multi-institutional analysis of clinical and ultrasound features of benign and malignant thyroid nodules."

**Madelyn Stazzone, MD,** assistant professor of radiology, as principal investigator, received a one-year, \$35,000 grant from the Washington University in St. Louis Office of Technology Management for research on "Rapid interleaved overlap technique (RIOT)."

**Yuan-Chuan Tai, PhD,** assistant professor of radiology, as principal investigator, received a \$1.2 million grant from the National Institutes of Health/National Cancer Institute for research on "A novel device to allow zoom-in imaging for PET scanners." Coinvestigators for the three-year grant are **Richard Laforest, PhD,** assistant professor of radiology, and **Joseph O'Sullivan, PhD,** professor of electrical and systems engineering and of radiology.



**Pamela Woodard, MD**, associate professor of radiology, as principal investigator, received a \$1.1 million grant from the National Institutes of Health/National Heart, Lung, and Blood Institute for research on "Prospective investigation of pulmonary embolism DX-III." Coinvestigators for the four-year grant are **Sanjeev Bhalla, MD**, assistant professor of radiology; **Daniel Brown, MD**, assistant professor of radiology; **Jay Heiken, MD**, professor of radiology; Lawrence Lewis, MD, associate professor of emergency medicine; **Vamsidhar Narra, MD**, assistant professor of radiology; **Henry Royal, MD**, professor of radiology; **Brian Rubin, MD**, associate professor of surgery and of radiology; Roger Yusem, MD, assistant professor of medicine; and **Jie Zheng, PhD**, assistant professor of radiology.

## APPOINTMENTS/ELECTIONS

**Jeffrey Bradley, MD**, assistant professor of radiation oncology, was appointed to the Washington University in St. Louis Disclosure Review Committee.

**Colin Derdeyn, MD**, associate professor of radiology, was appointed to the Editorial Board of the journal *Stroke*.

**Robert Mach, PhD**, professor of radiology, was elected vice president-elect of the Radiopharmaceutical Science Council of the Society of Nuclear Medicine.

**Fred Prior, PhD**, research associate professor of radiology, was appointed as a member of the Board of the Organization for Computational Neuroscience.

## LECTURES

**Jeffrey Bradley, MD**, assistant professor of radiation oncology, presented "Phase I results of RTOG 01217; a phase I/II dose intensification study using 3D CRT and concurrent chemotherapy for patients with inoperable NSCLC" at the American Society of Clinical Oncology, Orlando, Florida, May 16 and 17.

**Carmen Dence, MS**, research associate professor, presented "PET nuclear chemistry practice: How has it evolved, how has it influenced nuclear medicine?" at the University Hospital of Universidad del Norte, Barranquilla, Colombia, July 1.

**Colin Derdeyn, MD**, associate professor of radiology, spoke on "Treatment of intracranial aneurysms: clips and coils" at the St. Francis Medical Center Neuroscience Symposium, Cape Girardeau, Missouri, June 30.

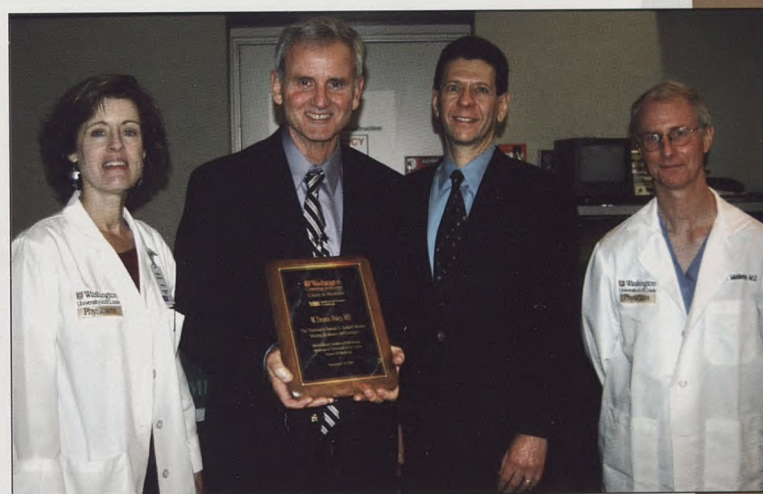
**Louis Gilula, MD**, professor of radiology and of surgery, spoke on "Less common entities of the wrist to know that often aren't" at the University of California, San Diego, May 20. He presented "Overview of musculoskeletal trauma" at the Oregon Health Sciences University, Portland, September 2.

**Jay Heiken, MD**, professor of radiology, spoke on "Contrast optimization in MDCT" and "CT colonography" at MDCT: A Practical Approach, sponsored by the Society of Computed Body Tomography and Magnetic Resonance, St. Louis, Missouri, May 14. He presented

"Building a reliable bolus: dealing with extreme physiologic states"; "Saline flush and variable flow rates: rationale for new injector features"; "Oral contrast agents: when, how, and if"; and "What's new in hepatic metastasis detection" at the 7<sup>th</sup> International Symposium on Multidetector-row CT, sponsored by Stanford University, San Francisco, California, June 15-18. He presented "Diagnosing GI emergencies: appendicitis, diverticulitis and mimics"; "Acute pancreatic neoplasms: diagnosis and management"; "Small bowel obstruction: evaluation with MDCT"; and "CT colonography: an update" at Current Trends in Body Imaging, sponsored by the University of Pennsylvania, Banff, Alberta, Canada, July 25-29. Heiken spoke on "Acute abdomen: appendicitis, diverticulitis and mimics"; "CT evaluation of small bowel obstruction"; and "CT

## Melson Lecture

On September 14, Dennis Foley, MD, professor of radiology and director of digital imaging, Medical College of Wisconsin, Froedtert Memorial Lutheran Hospital, Milwaukee, presented the Thirteenth Annual G. Leland Melson Visiting Professorship and Lecture. He spoke on "Mesenteric ischemia: imaging evaluation."



Shown (left to right) are doctors Sharlene Teefey, head of ultrasonography; Foley; Jay Heiken, chief of abdominal imaging; and William Middleton, professor of radiology.



## LECTURES

*Continued from page 27*

colonography: technique, results, and future directions" at the 15<sup>th</sup> Summer Practicum of the Society of Computed Body Tomography and Magnetic Resonance, Napa, California, August 7-11.

**Charles Hildebolt, DDS, PhD**, associate professor of radiology and adjunct associate professor of anthropology, presented "The Hobbits of Flores" as part of the Distinguished Lecture Series at the Houston Museum of Natural Science, Houston, Texas, August 23.

**Eric Klein, MS**, professor of radiation oncology, spoke on "Dynamic and virtual wedge systems," "Overview of IMRT," and "Planning with virtual simulation" at the International Atomic Energy Agency Workshop on Improving Radiotherapy in Brazil, Sao Paulo, August 17-19.

**Robert McKinstry, MD, PhD**, associate professor of radiology, spoke on "Probing normal and perturbed brain development with diffusion tensor imaging" at the Symposium on New Advances in Pediatric Neuroimaging, The Organization Human Brain Mapping Annual Meeting, Toronto, Canada, June 12-16.

**Robert Mach, PhD**, professor of radiology, presented "The Sigma-2 receptor: a molecular bridge linking proliferation and apoptosis?" to the Department of Radiology, University of Pennsylvania, Philadelphia, May 6. He spoke on "PET radiotracers for imaging apoptosis" at the National Institute of Biomedical Imaging and Bioengineering Grantee Meeting, Washington, DC, August 8.

**Tej Pandita, PhD**, associate professor of radiation oncology, spoke on "ATM and the DNA damage response" at the International Symposium on Ataxia-Telangiectasia, Belgrade, Italy, June 8-11.

**Fred Prior, PhD**, research associate professor of radiology, presented "Research PACS" at the Information Based Medicine PACS Seminar: Deploying PACS Technology across the Enterprise: Security-rich Integrated Technology Systems—On Demand, Indianapolis, Indiana, June 28.

**Stuart Sagel, MD**, professor of radiology, spoke on "CT of focal lung lesions," "Role of CT in bronchogenic carcinoma," and "CT angiography for pulmonary embolism: technique, interpretation and role" at the 15<sup>th</sup> Summer Practicum of the Society of Computed Body Tomography and Magnetic Resonance, Napa, California, August 7-11.

**Barry Siegel, MD**, professor of radiology and of medicine, presented "Clinical applications of PET and PET/CT in oncology" at the 11<sup>th</sup> Annual Meeting of the Association of Cancer Executives, San Antonio, Texas, May 4-7. He spoke on "PET-CT US aspects" at CT: Radiology's Powerhouse, an International CT Symposium, sponsored by Schering AG, Berlin, Germany, June 10-11.

**Marilyn Siegel, MD**, professor of radiology and of pediatrics, spoke on "MRI of pediatric bone marrow" at the Society of Pediatric Radiology Annual Meeting, New Orleans, Louisiana, May 5-7. She spoke on "State-of-the-art chest CT in pediatric patients" at the 7<sup>th</sup> International Somatom CT User Conference, Rome, Italy, May 13 and 14. Siegel presented "MDCT of adult congenital heart disease" and "Intracranial ultrasonography" at the American Roentgen Ray Society meeting, New Orleans, Louisiana, May 15-17. She presented "MDCT in pediatrics: applications and risks" at CT: Radiology's Powerhouse, an International CT Symposium, sponsored by Schering AG, Berlin, Germany, June 10-11. She spoke on "Use of contrast in CTA applications in CHD in adults" at the GE Healthcare CTA Forum, New York City, New York, July 25. She presented "MDCT in pediatrics: applications and risks," "MDCT of congenital lung disease in children and adults," and "CT of pediatric mediastinal masses" at the 15<sup>th</sup> Summer Practicum of the Society of Computed Body Tomography and Magnetic Resonance, Napa, California, August 7-11.

## SYMPOSIA

*In this section of FYI, only those faculty and staff who have Department of Radiology or Department of Radiation Oncology appointments are listed.*

### INTERNATIONAL SOCIETY OF MAGNETIC RESONANCE IN MEDICINE

*13<sup>th</sup> Annual Scientific Meeting  
Miami Beach, Florida  
May 7-13, 2005*

**James Goodman; Christopher Kroenke, PhD; Larry Bretthorst, PhD; Joseph Ackerman, PhD; Jeffrey Neil, MD, PhD**, "Sodium diffusion in healthy and globally ischemic rat brain."

**Dawei Gui; Alpay Ozcan, DSc; Jie Zheng, PhD; Christine Menias, MD; Nikolaos Tsekos, PhD**, "Dynamic volumetric imaging of an area of interest with interleaved acquisition of intra-oblique slices."

**Joong Kim; Sheng-Kwei Song, PhD**, "Extensive axonal damage in the spinal cord of EAE mice detected with in vivo DTI."

**Joong Kim; Hsiao-Fang Liang; Sheng-Kwei Song, PhD**, "Quantification of evolving white matter injury in mouse spinal cord."

**Christopher Kroenke, PhD; Larry Bretthorst, PhD; Jeffrey Neil, MD, PhD**, "Using diffusion anisotropy to monitor development of primate cerebral cortex."



**Robert McKinstry, MD, PhD**, "Pediatric neuroimaging: new developments."

**Marcus Raichle, MD**, Inaugural Lecture: Current Issues of Brain Function Study Group—"Neuroimaging in the 21<sup>st</sup> century: a historical perspective."

**Joshua Shimony, MD, PhD**, "Perfusion imaging concepts."

**Shu-Wei Sun; Sheng-Kwei Song, PhD**, "Axonal and myelin damage to optic nerve and optic tract in EAE mice characterized by DTI."

**Tariq Tanoli; Kyongtae Bae, MD, PhD; Mark Conradi, PhD; Dmitriy Yablonskiy, PhD**, Poster Award: 2<sup>nd</sup> Place: Body/Cardiac Imaging—"Hyperpolarized <sup>3</sup>He diffusion MRI of acinar airways in canines with induced emphysema: comparison with computed tomography."

**Franz Wippold, MD**, "MR applications in the head and neck."

**Dmitriy Yablonskiy, PhD; Mark Conradi, PhD**, "Measuring the progression of emphysema in a canine model with <sup>3</sup>He diffusion MRI."

**Haosen Zhang; Pamela Woodard, MD; Robert Gropler, MD; Jie Zheng, PhD**, "Accurate myocardial T<sub>1</sub> measurements: toward quantification of myocardial blood flow with arterial spin labeling."

**Lin Zhao; Christopher Kroenke, PhD; Joseph Ackerman, PhD; Jeffrey Neil, MD, PhD**, "Intracellular water diffusion of cultured HeLa cells."

## Probstein Lecture

Alvaro Martinez, MD, chairman of the Department of Radiation Oncology, William Beaumont Hospital, Royal Oak, Michigan, was guest speaker for the Norman K. Probstein Oncology Lecture on September 16. He presented "Experience and results with image-guided radiotherapy with HDR brachytherapy and/or external beam with the adaptive radiotherapy process."



Shown (left to right) are Gerald Andriole, MD, chief of the Division of Urologic Surgery; Martinez; and Simon Powell, MD, PhD, chairman of the Department of Radiation Oncology.

**MingMing Zhu; Joseph Ackerman, PhD; Dmitriy Yablonskiy, PhD**, "MR spectroscopic measurement of inhomogeneous temperature distribution in the rat brain."

## AMERICAN SOCIETY OF NEURORADIOLOGY

*43<sup>rd</sup> Annual Meeting  
Toronto, Canada  
May 21-27, 2005*

### PARALLEL SESSIONS

**Colin Derdeyn, MD**, moderator, Adult Brain: Infarction and Vasospasm.

**Colin Derdeyn, MD; DeWitte Cross, MD; Christopher Moran, MD**, "Procedural complications of carotid angioplasty and stenting without cerebral protection devices."

**Benjamin Lee, MD**, "Functional MR imaging diffusion tensor fiber tracking and surgical cortical mapping of pediatric tumors and focal cortical lesions."

**Alan Williams, MD**, moderator, Spinal Cord and Peripheral Nerves: Functional and Advanced Imaging Techniques.

### FOCUS SESSIONS

**Colin Derdeyn, MD**, "Surgical treatment of intracranial arterial stenosis"; "Grantmanship: the art of writing a grant."

### POSTERS/EXHIBITS

**Tammie Benzinger, MD, PhD; Asif Moinuddin, MD; Jeffrey Neil, MD, PhD; Robert McKinstry, MD, PhD**, "Prospective, longitudinal study of the predictive value of early detection of intracranial hemorrhage in premature infants using T2\* (susceptibility)-weighted MR imaging."

**Anil Khosla, MD**, "Lacrimal gland pathology: tumor and tumor-like lesions."

**Benjamin Lee, MD**, "Volumetric imaging of the labyrinth."

**Asif Moinuddin, MD; Abraham Snyder, MD, PhD; Robert McKinstry, MD, PhD**, "Cognitive impairment in sickle cell disease: a diffusion tensor imaging study."

## SOCIETY OF NUCLEAR MEDICINE

*52<sup>nd</sup> Annual Meeting  
Toronto, Canada  
June 18-22, 2005*

**Jerold Wallis, MD**, invited lecturer, "IHE/DICOM."



## SYMPOSIA

Continued from page 29

## SCIENTIFIC SESSIONS

**Pilar Herrero, MS; Joonyoung Kim, PhD; Terry Sharp; John Engelbach; Jason Lewis, PhD; Robert Gropler, MD; Michael Welch, PhD,** "Measurement of myocardial blood flow in rats with small animal PET imaging using  $^{15}\text{O}$ -water and  $1\text{-}^{11}\text{C}$ -acetate."

**Martin Janacek, PhD; Heyu Wu; Yuan-Chuan Tai, PhD,** "Design of a novel insert PET system for breast cancer imaging."

**Wen Ping Li, PhD; Carolyn Anderson, PhD,** "Preparation and biological evaluation of high-specific activity promethium-149-dota-Tyr<sup>3</sup>-octreotate."

**Datta Ponde, PhD; Carmen Dence, MS; Michael Welch, PhD,** "In vitro and in vivo evaluation of  $^{18}\text{F}$ -fluorothymidine for monitoring tumor proliferation of prostate cancer following anticancer therapy with Docetaxel."

**Sally Schwarz, RPh, MS; Ellen Bartel,** "Evaluation of Toxinometer<sup>®</sup> ET-2000 for bacterial endotoxin testing (BET) PET radiopharmaceuticals."

**Yuan-Chuan Tai, PhD; Martin Janacek, PhD; Heyu Wu,** "Initial design considerations of a dedicated hybrid mammotomograph for fully 3D X-ray CT and high resolution PET using object magnification."

**Yuan-Chuan Tai, PhD; Heyu Wu; Martin Janacek, PhD,** "Detector design of a head insert for high-resolution PET imaging."

## RSNA Fellowship

**Joseph Erinjeri, MD,** third-year diagnostic radiology resident, was awarded the Radiological Society of North America (RSNA) Editorial Fellowship for Trainees. The fellowship program was developed in 1998 as an opportunity for young radiologists to further their experience in radiologic journalism. Erinjeri worked with journal editors in the offices of *Radiology* and *Radiographics* and in the RSNA publications office.

## POSTER SESSIONS

**Pilar Herrero, MS; Zulfia Kisrieva-Ware, MD, PhD; Carmen Dence, MS; Paul Eisenbeis; Robert Gropler, MD,** "Impact of lactate uptake and oxidation on non-invasive PET measurements of myocardial glycolysis/oxidation and glycogen storage using 1-carbon-11-glucose and kinetic modeling."

**Michael Welch, PhD,** "Automatic synthesis of  $16\alpha\text{-}[^{18}\text{F}]$ fluoro- $17\beta$ -estradiol using a cassette type FDG synthesizer."

## INTERNATIONAL SYMPOSIUM ON RADIOPHARMACEUTICAL CHEMISTRY

16th Annual Meeting  
Iowa City, Iowa  
June 24-28, 2005

**Wenhua Chu; Jinbin Xu; Robert Mach, PhD,** "Synthesis of N-substituted 9-azabicyclo[3.3.1]nonan- $3\alpha$ -YL phenylcarbamate analogs as sigma-2 receptor ligands."

**Carmen Dence, MS; Xiankai Sun, PhD; Robert Mach, PhD; Michael Welch, PhD,** " $^{11}\text{C}$ -methylated LY2181308, an anti-sense oligonucleotide to survivin: radiochemical synthesis and preliminary rodent biodistribution studies."

**Carmen Dence, MS; Terry Sharp; Robert Mach, PhD; Michael Welch, PhD,** "Sigma-2 selective fluorinated ligands: synthetic method and optimization of decarbonylation for radiolabeling."

**Carmen Dence, MS; Terry Sharp; Michael Welch, PhD,** "Novel fluorine-18 labeled estrogen receptor ligand: fluoroalkyl cyclofenil analogues."

**Carmen Dence, MS; Terry Sharp; Michael Welch, PhD,** "Synthesis and in vivo characterization of  $^{18}\text{F}$  labeled non-steroidal androgens."

**Martin Eiblmaier; Buck Rogers, PhD; Carolyn Anderson, PhD,** "Nuclear localization of two  $^{64}\text{Cu}$ -labeled somatostatin analogs in a cell line stably transfected with SSTR2."

**Scott Harpstrite; Julie Prior; David Piwinca-Worms, MD, PhD; Vijay Sharma, PhD,** "Peptide conjugates for imaging  $\beta$ -amyloid in the brain."

**Hsiaoju Lee; Michael Welch, PhD; Robert Mach, PhD,** "Imaging tumor expression of PPAR $\gamma$  with bromine-76 labeled antagonist."

**Wen Ping Li, PhD; Carolyn Anderson, PhD,** "Dose determination of high specific activity  $^{149}\text{Pm}$ -DOTA-Tyr<sup>3</sup>-octreotate in rats."

**Wen Ping Li, PhD; Laura Meyer; Christopher Sherman; Carolyn Anderson, PhD,** "Targeting epidermal growth factor (EGF) receptor-positive tumors with  $^{64}\text{Cu}$  and  $^{86}\text{Y}$ -labeled monoclonal antibody erbitux."

**Buck Rogers, PhD; Jason Lewis, PhD,** "Evaluation of  $^{64}\text{Cu}$ - and  $^{86}\text{Y}$ -labeled DOTA-(Pro<sup>1</sup>, Tyr<sup>4</sup>)-bombesin(1-14) a bombesin analogue for targeting GRP receptors."

**Raffaella Rossin; Xiankai Sun, PhD; Michael Welch, PhD,** "Small animal PET imaging of MCF-7 tumors in mice with PNA-conjugated nanoparticles targeting the UNR mRNA."

**Douglas Rowland, PhD; Richard Laforest, PhD,** "FDG image derived input function measurement in rats and mice from the left ventricle."

**Christopher Sherman; Wen Ping Li, PhD; Carolyn Anderson, PhD,** "The use of a beta plate reader for receptor binding studies using  $^{64}\text{Cu}$ ,  $^{177}\text{Lu}$ , and  $^{149}\text{Pm}$ ."



**Jennifer Sprague; Carolyn Anderson, PhD**, "In vivo evaluation of Cu(II)-64-labeled cross-bridged tetraazamacrocyclic-amide complexes as models of peptide conjugates."

**Zhude Tu, PhD; Wenhua Chu; Jinbin Xu; Lynne Jones; Carmen Dence, MS; Robert Mach, PhD**, "Evaluation of a C-11 labeled conformationally-flexible benzamide analog as a dopamine D<sub>3</sub> receptor radiotracer."

**Zhude Tu, PhD; Jinbin Xu; Lynne Jones; Michael Welch, PhD; Robert Mach, PhD**, "[S280] a novel F-18 labeled  $\beta$ 2 receptor ligand for imaging breast cancer."

**Suwanna Vangveravong; Jinbin Xu; Robert Mach, PhD**, "Synthesis of N-substituted 9-azabicyclo[3.3.1]nonan-3 $\alpha$ -YL phenylcarbamate analogs as sigma-2 receptor ligands."

**Amy Vavere; Jason Lewis, PhD**, "Correlation of 1-<sup>14</sup>C acetate uptake to fatty acid synthase expression."

**Thaddeus Wadas; Jennifer Sprague; Carolyn Anderson, PhD**, "Radiochemistry and in vivo evaluation of three novel <sup>64</sup>Cu-labeled cross-bridged macrocyclic complexes."

**Peter Wolohan, PhD; David Reichert, PhD**, "Computational studies of copper complexes."

**Jeongsoo Yoo, PhD; Carmen Dence, MS; Terry Sharp; Michael Welch, PhD**, "16 $\alpha$ -[<sup>18</sup>F]Fluoro-17 $\beta$ -estradiol([<sup>18</sup>F]FES) binds largely to estrogen receptor- $\alpha$  receptors."

**Dong Zhou, PhD; Robert Mach, PhD; Michael Welch, PhD**, "16 $\alpha$ , 17 $\beta$ -dioxolane bromine- and iodine-substituted progestin for breast tumor imaging and radiotherapy: synthesis."

## AMERICAN ASSOCIATION OF PHYSICISTS IN MEDICINE

*47th Annual Meeting  
Seattle, Washington  
July 24-28, 2005*

**Vanessa Clark**, recipient, John Cameron Young Investigator's Award (third place)

## SCIENTIFIC PRESENTATIONS

**Joseph Deasy, PhD**, "Outcome prediction models in radiotherapy: methods for improvement and future uses"; "Advanced topics in INRT treatment planning."

**Robert Drzymala, PhD**, "Optimization of treatment plans for extracranial stereotactic lung radiotherapy—RTOG 0236."

**Robert Drzymala, PhD; Jubei Liu; C. Hampton; Jeffrey Bradley, MD**, "Concept and evaluation of averaged 4-D CT imaging in determining the internal target volume for extracranial stereotactic radiotherapy of lung nodules."

**Issam El Naqa, PhD; Daniel Low, PhD; Jeffrey Bradley, MD; Milos Vasic, PhD; Joseph Deasy, PhD**, "Deblurring of breathing motion artifacts in thoracic PET images."

**Sreekrishna Goddu, PhD; Hui Li; Eric Klein, MS; Roy Wood; Jeff Michalski, MD**, "Intrinsic accuracy of I-beam's coordinate positioning system technology."

**Andrew Hope, MD; James Alaly; Jubei Liu; Joseph Deasy, PhD; Jeffrey Bradley, MD; Robert Drzymala, PhD**, "Importance of pre-fraction helical CT isocenter verification in extracranial stereotactic radiosurgery."

**James Hubenschmidt; Parag Parikh, MD; Daniel Low, PhD**, "A dynamic phantom for 4-dimensional imaging and radiation therapy verification."

**Eric Klein, MS**, "The ASTRO physics curriculum"; "Estimating medical physicist FTE using the 2003 Abt survey and procedure volume in radiation therapy"; "Transition to heterogeneity corrections."

**Eric Klein, MS; Jacqueline Esthappan, PhD; James Hubenschmidt; Daniel Low, PhD**, "Portal imaging capability of motion detection."

**Eric Klein, MS; Roy Wood; Beth Pierburg; Sreekrishna Goddu, PhD; David Mansur, MD**, "Peripheral doses from pediatric IMRT."

**Zuofeng Li, DSc; Daniel Low, PhD; Sasa Mutic, MS; Jacqueline Esthappan, PhD; Imran Zoberi, MD; Perry Grigsby, MD**, "IMRT and brachytherapy for cervical cancer."

**Zuofeng Li, DSc; Daniel Low, PhD; Sasa Mutic, MS; Jacqueline Esthappan, PhD; Imran Zoberi, MD; Perry Grigsby, MD**, "Biological radial dose functions for brachytherapy sources."

**Hu Li, PhD; Sreekrishna Goddu, PhD; Jacqueline Esthappan, PhD; Sasa Mutic, MS**, "Detective quantum efficiency analysis of an electronic portal imaging device."

**Patricia Lindsay, PhD; Issam El Naqa, PhD; Andrew Hope, MD; Jeffrey Bradley, MD; Milos Vasic, PhD; Joseph Deasy, PhD**, "Monte Carlo based retrospective dose calculations for outcomes modeling."

**Jubei Liu; Daniel Low, PhD**, "High resolution film based pencil beam model for MLC defined beamlets."

**Jubei Liu; Robert Drzymala, PhD; Jeffrey Bradley, MD; Wei Lu; Sreekrishna Goddu, PhD; Parag Parikh, MD; Daniel Low, PhD**, "Implementation of averaged 4D CT imaging for extracranial stereotactic radiation therapy."

**Daniel Low, PhD; Parag Parikh, MD; Richard Laforest, PhD; Wei Lu; Sasa Mutic, MS; James Hubenschmidt; Michelle Nystrom; Tom Miller, MD, PhD; Perry Grigsby, MD; Jeffrey Bradley, MD**, "A method for acquiring PET images without breathing motion artifacts."

**Daniel Low, PhD; Parag Parikh, MD; Wei Lu; Sasha Wahab, MD; James Hubenschmidt; Michelle Nystrom; M. Handoko; Jeffrey Bradley, MD**, "A 5-dimensional breathing motion model for radiation therapy."



## SYMPOSIA

*Continued from page 31*

**Daniel Low, PhD**, "Multidimensional dosimetry without film processor."

**Wei Lu; Parag Parikh, MD; Jeffrey Bradley, MD; Daniel Low, PhD**, "A comparison between amplitude sorting and phase sorting using external respiratory measurements for 4D CT."

**Wei Lu; Parag Parikh, MD; James Hubenschmidt; David Politte, DSc; Bruce Whiting, PhD; Jeffrey Bradley, MD; Daniel Low, PhD**, "Reduction of motion blurring artifact using respiratory gated CT: a quantitative evaluation."

**Eduardo Moros, PhD; Petr Novak, PhD; William Straube, MS**, "Options for SURLAS design modification due to the impact of ultrasound nonlinear propagation."

**D. Ma; Parag Parikh, MD; Wei Lu; Michelle Nystrom; James Hubenschmidt; Sasha Wahab, MD; Ana Botero, MD; Robert Myerson, MD, PhD; Daniel Low, PhD**, "Patterns of intraabdominal organ motion as measured by quantitative 4D CT."

**Sasa Mutic, MS; Robert Drzymala, PhD; C. Hampton; Beth Pierburg; Jacqueline Esthappan, PhD; Daniel Low, PhD; Jeffrey Bradley, MD**, "Use of CT-simulation tools located on the CT scanner for localization guidance in extracranial stereotactic radiotherapy: a feasibility study."

**Sasa Mutic, MS**, "CT: single and multislice."

**Michelle Nystrom; Wei Lu; Parag Parikh, MD; Daniel Low, PhD**, "Use of internal body-area as a metric for retrospective 4D CT gating."

**Parag Parikh, MD; James Hubenschmidt; Daniel Low, PhD**, "Dynamic accuracy of an implanted wireless AC electromagnetic sensor for guided radiation therapy: implications for real-time tumor position tracking."

**Strahinja Stojadinovic, PhD; Daniel Low, PhD; Milos Vicic, PhD; Parag Parikh, MD; Sasa Mutic, MS; Joseph Deasy, PhD; Andrew Hope, MD; Perry Grigsby, MD**, "Progress towards a MicroRT small animal conformal irradiator."

**William Straube, MS; John Matthews, DSc; Walter Bosch, DSc**, "DVH analysis consequences for quality assurance of multi-institutional clinical trials."

**Milos Vicic, PhD; Strahinja Stojadinovic, PhD; Daniel Low, PhD**, "Advanced irradiator for the small animal conformal treatment."

**Roy Wood; Sasa Mutic, MS; C. Hampton; Daniel Low, PhD**, "Image quality and dose characteristics of a new 85-Cm multislice CT scanner: a comparison study."

**Konstantin Zakaryan, PhD; James Alaly; Petr Novak, PhD; Joseph Deasy, PhD; Eduardo Moros, PhD**, "Simple acoustic beam model for thermoradiotherapy implemented in an open source treatment planning research system."

**Lisha Zhang, PhD; Sasa Mutic, MS; Parag Parikh, MD; James Hubenschmidt; Daniel Low, PhD**, "Accuracy and precision of implantable radiofrequency transponder localization measurements conducted using multislice CT."

## ALUMNI NEWS

**Bruce McClelland, MD**, of Yale University School of Medicine and former chief of Mallinckrodt Institute's abdominal imaging section, was elected 2005-2006 president of the American Roentgen Ray Society (ARRS). McClelland took office in May during the ARRS 105<sup>th</sup> Annual Meeting in New Orleans. Other MIR alumni were elected to ARRS offices:

- President-elect—**Philip Alderson, MD**, chairman, Department of Radiology, Columbia University Medical Center
- Secretary—**Joseph Lee, MD**, chairman, Department of Radiology, University of North Carolina, Chapel Hill
- Treasurer—**Howard Forman, MD**, associate professor of diagnostic radiology, Yale University

## ARRS Award Winner

At the 105th Annual Meeting of the American Roentgen Ray Society (ARRS) in May, a Silver Medal Award was presented for the scientific exhibit "Segmental disorders of the nephron: histopathologic and imaging perspective." Coauthors of the exhibit included **Vamsidhar Narra, MD**, assistant professor of radiology.

*In the Spring 2005 issue of Focal Spot magazine, page 16, the descriptions for the DEXA scans were inadvertently switched. Image cutline should have read: DEXA scans of an osteoporotic bone (bottom) and a healthy bone (top).*





## Diagnostic Radiology and Nuclear Medicine/Nuclear Radiology Fellows and Residents for 2004-2005

(First row, left to right) Doctors Ambrose Huang, John Anderson, Gilbert Cheung, Delphine Chen, Sara Rohr, Tabassum Ahmed, Robin Yang, Jennifer Demertzis, Tara Anthes, Jeffrey Lin, David Loy, Eric Hutchins, Paolo Marciano. (Second row) Doctors Linda Fletcher; Cynthia Santillan; Heather Byer; Yuliya Lakhman; Lawrence Kotner, residency program assistant director; Sanjeev Bhalla, residency program assistant director; Christine Menias, residency program assistant director; Christine Peterson, diagnostic radiology chief resident; Gilbert Jost, director, Mallinckrodt Institute; Daniel Picus, chief, Division of Diagnostic Radiology; Catherine Appleton, diagnostic radiology chief resident; Karun Sharma; Kevin Lee; Daniel Wessell; Patricia Lew; Wincha Chong; Michael Gelbart; Shawyon Shadman; Jack Jennings. (Third row) Doctors William Holloway, Humberto Rosas, John Loh, Kishan Yalavarthi, Benjamin Aronovitz, Joseph Erinjeri, Shao Lin, Gregory dePrisco, Michelle Lee, Heather Garrett, Michelle Dorsey, Jennifer Lee, Andrew Bierhals, Clay Padginton, Danielle Weems, Stanley Chan, Jason Wagner, Timothy Smullen, Carl Aschkenasi, Russell Roberts, Kevin Johnson, JoAnne Lacey, Tam-mie Benzinger, Meghan Lubner. (Fourth row) Doctors Jonathan Sehy, Ryan Cook, Sean Higginson, Jeffrey Carenza, Amy Oberhelman, Eric Hatfield, Jason Kerr, George Cannon, Vladislav Gorengaut, Paul Staveteig, Nelson Elkins, Jeffrey Brent, Jamie Colonnello, Matthew Wiggins, Anand Singh, Scott Bolton.



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