

Summer 2002

Focal Spot, Summer 2002

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SUMMER 2002

VOLUME 33, NUMBER 2

FOCAL SPOT

MALLINCKRODT INSTITUTE OF

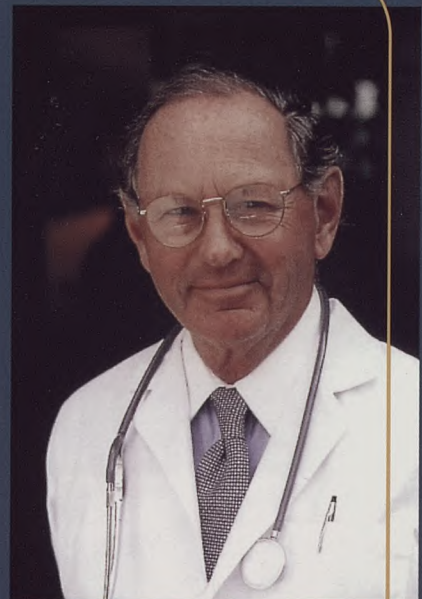


*Giving Patients
A Second Chance*

BEST PHYSICIANS IN ST. LOUIS

The Best Physicians in St. Louis

In the fields of nuclear medicine, radiation oncology, and radiology, Mallinckrodt Institute physicians swept the field of "Best Doctors in St. Louis," as reported in the August 2002 issue of *St. Louis Magazine*. The list of 441 doctors in 37 specialties was compiled by Best Doctors, Inc., a research and information company that maintains The Best Doctors in America database of approximately 30,000 doctors in more than 40 medical specialties. Best Doctors polls thousands of physicians worldwide, asking for nominations to the list based on patient care rather than academic excellence or research.



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
Jeff Michalski, MD
Robert Myerson, MD, PhD
Joseph Simpson, MD, PhD
Marie Taylor, MD
Todd Wasserman, MD

Radiology

Claire Anderson, MD
DeWitte Cross, MD
Michael Darcy, MD
Jay Heiken, MD
David Hovsepian, MD
William McAlister, MD
William Middleton, MD
Barbara Monsees, MD
Christopher Moran, MD
Daniel Picus, MD
David Rubin, MD
Stuart Sagel, MD
Marilyn Siegel, MD
William Totty, MD
Thomas Vesely, MD
Franz Wippold, MD

CONTENTS

FOCAL SPOT
SUMMER 2002
VOLUME 33, NUMBER 2

THE WASSERMAN SYMPOSIUM

4

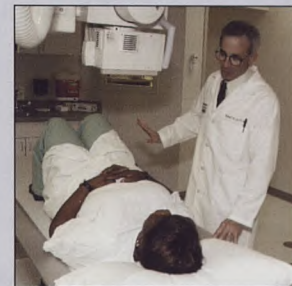
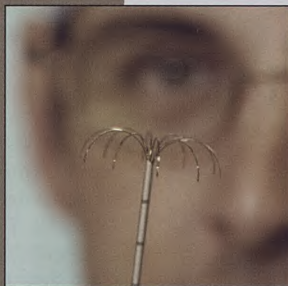
The “Current Topics in Cancer Treatment” symposium honored Dr. Todd Wasserman for his outstanding clinical, academic, and research contributions to the field of radiation oncology.



GIVING PATIENTS A SECOND CHANCE

7

Two nonsurgical vascular procedures—chemoembolization and radiofrequency ablation—combined with the expertise of Mallinckrodt Institute’s interventional radiologists provide a comprehensive approach to liver cancer therapy for critically ill patients.



COMMUNITY-HOSPITAL RADIOLOGY SERVICES

12

The partnership of Mallinckrodt Institute and Barnes-Jewish West County Hospital offers excellent patient care, leading-edge technology, and the convenience of a community hospital.



THE CLINICAL PET CENTER

16

With more than a century of collective experience in nuclear medicine and positron emission tomography, the physicians of the Clinical PET Center now have the added advantage of the area’s only PET/CT scanner to aid in the detection and localization of disease.

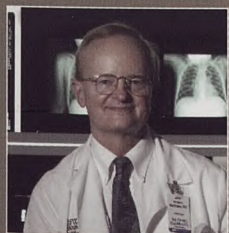


A SON’S TRIBUTE

20

The pink granite monolith that rests in the atrium of the Eric P. Newman Education Center was lovingly created by artist Ian Gilula as a lasting tribute to his father, Dr. Louis Gilula.

2.....SPOT NEWS



22.....FYI

ON THE COVER Daniel Brown, MD, performs a targeted treatment called radiofrequency ablation that destroys liver tumor cells with less tissue destruction. Photograph by Tim Parker.

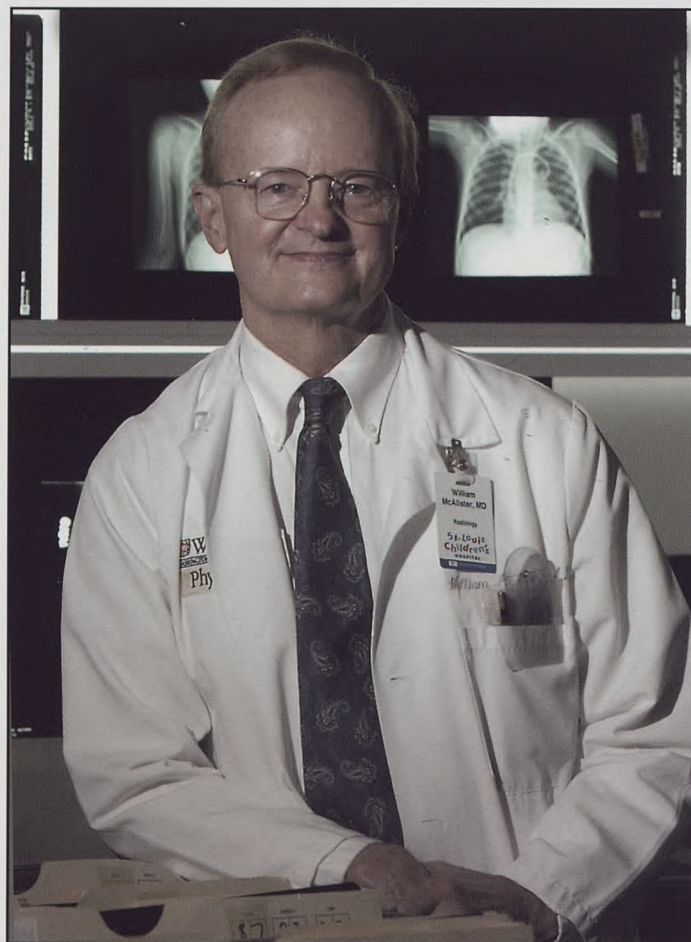
SPOT NEWS

McAlister named Teacher of the Year

This year the senior diagnostic radiology residents elected William McAlister, MD, chief of pediatric radiology and radiologist-in-chief at St. Louis Childrens Hospital (SLCH), as the Mallinckrodt Institute faculty member who made the most outstanding contributions to resident education through course study, conferences, and clinical activities. The presentation was made in June at the annual farewell dinner for residents and fellows, which is sponsored by Eastman Kodak Company.

McAlister was named chief of pediatric radiology in 1965 and professor of radiology and of pediatrics in 1968. He also serves as consulting radiologist for Shriners Hospitals for Children, St. Louis.

In addition to an active clinical practice, he is involved in ongoing research of metabolic bone disease and skeletal dysplasia with Michael Whyte, MD, at Shriners Hospital. McAlister's seminal research on the adverse effects of tannic acid on the liver prompted the FDA to ban the use of tannic acid in barium enemas. His NIH-funded research focused on the microvasculature of transplanted tumors in mice, the



histologic effects of contrast media and ways to modify those effects, and alterations of the microvasculature in experimental renal vein obstruction.

He has served on the SLCH Clinical Management Committee since 1993 and the American College of

Radiology's (ACR's) Committees on Standards and Appropriateness since 1994. McAlister is a fellow of the ACR and a diplomate of the American Board of Radiology. He is past president of the Society for Pediatric Radiology (SPR), past chairman of the SPR Board of Directors, and the 1998 recipient of the SPR Gold Medal Award.

34th Annual Wilson Award presented

In recognition of his outstanding work in basic radiological sciences, Shao-Pow Lin received the Hugh M. Wilson Award for Meritorious Work in Radiology. The award is presented in honor of Doctor Hugh Wilson, Mallinckrodt Institute's second director and an advocate of the advancement of education.

Under the mentorship of Jeffrey Neil, MD, PhD, associate professor of neurology, of pediatrics, and of radiology, Lin, who received a medical degree and a doctoral degree in May, worked on several research projects in MIR's neuroimaging laboratory. According to Neil, Lin's strong background in electrical engineering "enabled him to quickly learn the nuances of RF coil design for magnetic resonance experiments." Lin designed and constructed two devices that are now being used in the neuroimaging lab: a transmit/receive coil (which Neil says is equivalent to those coils available commercially) and a power supply that interfaces with the MR spectrometer console.

After completing an internship at a St. Louis hospital, Lin will return to Mallinckrodt Institute to join the Research Residency Program.

Ruhrwien named to WHO'S WHO

Laura Ruhrwien, director of information systems for Mallinckrodt Institute, was inducted into the WHO'S WHO Historical Society. She will be listed in the 2002-2003 edition of *International WHO'S WHO of Information Technology*, one of a series of highly selective and prestigious international reference books published by the North Carolina-based Gibraltar Publishing, Inc.

Ruhrwien joined the staff of MIR in 1997. She previously worked in the corporate sector as a senior manager at Ernst & Young, a global financial services corporation.

The History Society, which has been documenting multi-indexed unabbreviated biographies of successful individuals since 1928, provides an international forum for networking and reference. More than 90,000 members in 150 countries comprise this professional organization.

Jost appointed to ARR, joins IS³R

Gilbert Jost, MD, professor of radiology and director of Mallinckrodt Institute, was appointed to the Executive Committee of the Academy of Radiology Research Board of Directors. In 2000, the Academy was instrumental in creating a milestone for radiology and the imaging sciences: the National Institute of Biomedical Imaging and Bioengineering (NIBIB), the newest of the National Institutes of Health research institutes and centers. The NIBIB will create opportunities for research that accelerates the development of new imaging tech-

niques and technologies with clinical and research applications.

Jost was invited to join the prestigious International Society for Strategic Studies in Radiology (IS³R). The 22-member society "serves as a marketplace for the exchange of ideas and experience and has brought together the most renowned experts [in radiology practice and research] in the world." The biannual IS³R meetings focus on challenges to radiologists worldwide, current trends in radiology, future developments in radiological sciences, and collaboration with leading industrial companies.

Chief residents appointed

The clinical faculty of the Department of Radiation Oncology appointed Robert Malyapa, MD, PhD, as the 2002-2003 radiation oncology chief resident and Angel Blanco, MD, as assistant chief resident. Malyapa received an undergraduate degree from Loyola University, India, and a medical degree from the Jawaharlal Institute for Postgraduate Medical Research. Blanco received an undergraduate degree from Emory University and a medical degree from Baylor College of Medicine.

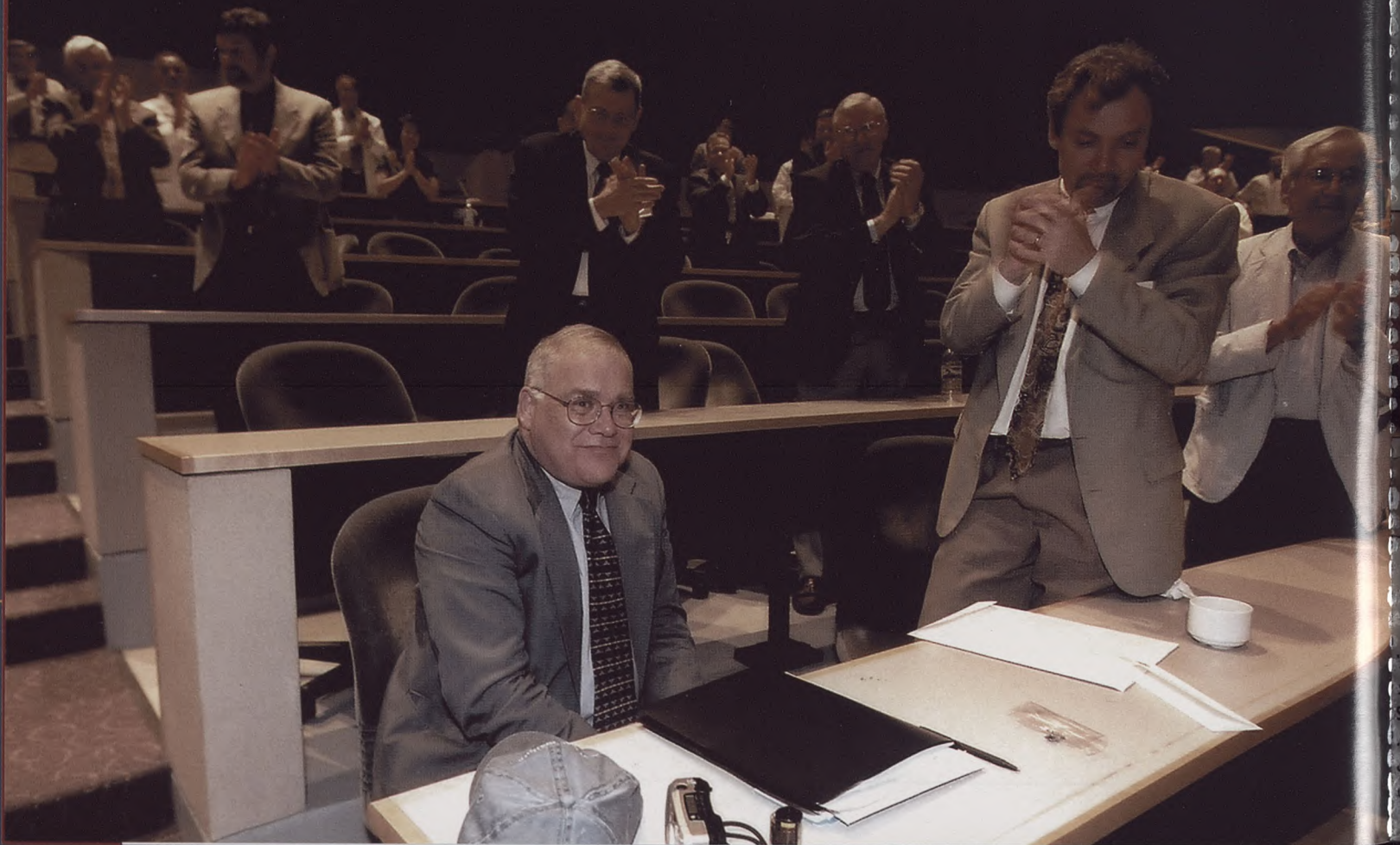


At the residents and fellows farewell dinner in June, Gilbert Jost, MD, director of the Institute, (right) congratulated Gary Shackelford, MD, professor of radiology and of pediatrics, on being named emeritus professor of radiology.

THE WASSERMAN SYMPOSIUM

CURRENT TOPICS IN CANCER TREATMENT

A symposium was held on July 12 to honor Todd Wasserman, MD, professor of radiation oncology, for his outstanding contributions to the field of radiation oncology and for his many years of service to the Department of Radiation Oncology, Mallinckrodt Institute, Washington University, and, especially, his patients. The invited speakers, who represented some of the nation's top cancer centers, shared their clinical and research expertise in the treatment of cancer.



Left: Wasserman
Moderator
Standing
Purdy, F
Chief of
Division



At the dinner following the symposium, Amy and Derek Wasserman shared some amusing anecdotes about their father and expressed their pride in his accomplishments.



Symposium attendees gathered in the Eric P. Newman Education Center at Washington University Medical Center to hear Charlotte Jacobs, MD, speak on "Todd Wasserman's achievements."



Left: Wasserman (seated) received a standing ovation from symposium attendees and speakers. Standing directly behind Wasserman is James Purdy, PhD, professor of radiation oncology and chief of the Department of Radiation Oncology's Division of Physics.



David Brizel, MD, spoke on "Radioprotectors in oncology."



At the close of the symposium, Carlos Perez, MD, chairman of the Department of Radiation Oncology, invited symposium guests to a reception and tour of the new radiation oncology facilities in the Alvin J. Siteman Cancer Center on the lower level of the Center for Advanced Medicine.



Jeff Michalski, MD, associate professor of radiation oncology and chief of the Clinical Division of Washington University's Department of Radiation Oncology.



SYMPOSIUM FACULTY

CARLOS PEREZ, MD, SYMPOSIUM CHAIRMAN
Professor and Chairman
Department of Radiation Oncology
Washington University
St. Louis, Missouri

DAVID BRIZEL, MD, PROFESSOR
Department of Radiation Oncology
Duke University Medical Center
Durham, North Carolina

NORMAN COLEMAN, MD, DEPUTY DIRECTOR
Division of Clinical Sciences
National Institutes of Health/National Cancer
Center
Bethesda, Maryland

JAMES COX, MD, CHAIRMAN
Department of Radiation Oncology
M. D. Anderson Cancer Center
Houston, Texas

WALTER CURRAN, MD, CHAIRMAN
Department of Radiation Oncology
Thomas Jefferson University Hospital
Philadelphia, Pennsylvania

TIMOTHY EBERLEIN, MD, DIRECTOR
Alvin J. Siteman Cancer Center
Washington University Medical Center
St. Louis, Missouri

CHARLOTTE JACOBS, MD, DIRECTOR
Clinical Cancer Center
Stanford University Medical Center
Stanford, California

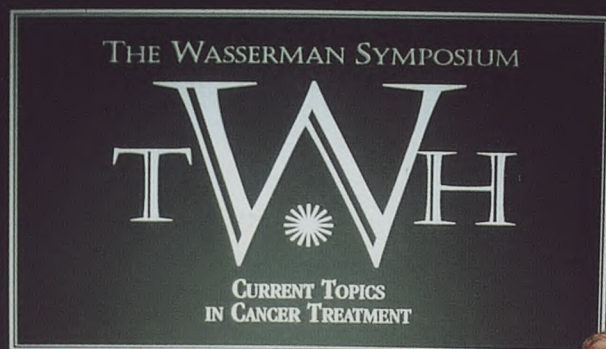
THEODORE PHILLIPS, MD
Department of Radiation Oncology
University of California
San Francisco, California



During the afternoon break, symposium speakers continued their discussions of advances in cancer treatment: (left to right) Timothy Eberlein, MD; Norman Coleman, MD; and Walter Curran, MD.



At the dinner following the symposium, Donald Chapman, PhD, from Fox Chase Cancer Center in Philadelphia, presented a copy of the poem he wrote in honor of his long-time friend Todd Wasserman. Seated, to the right of Wasserman, is Mark Wrighton, PhD, chancellor of Washington University in St. Louis.



(Left to right) Doctors Curran, Cox, Perez, Jacobs, Wasserman, Phillips, and Coleman.

Brown
Noah
fellow
radiolo
RF abl

giving patients a second chance



Brown (foreground) and Noah Appel, MD, clinical fellow in interventional radiology, consult during an RF ablation procedure.

Interventional radiologists use two nonsurgical procedures to destroy tumors in the liver.

by Barbra Rodriguez

Arteries wend their way throughout the body, where they serve as crucial pipelines for bringing nutrients and oxygen to energy-starved tissues. Yet these same vessels can serve a deadlier purpose by nourishing tumors that lie deep within the body, making them difficult to detect.

This difficulty means tumors in the liver and certain other internal organs often cannot be identified until they are too big or too numerous to remove surgically. In recent years, though, several patients with liver cancer have been given a second chance at life as a result of Mallinckrodt Institute interventional radiologists' use of arteries as portals for delivering anti-tumor treatments.

a second chance

"Many patients who come to us for a consultation do not expect to live very long," says Daniel Brown, MD, assistant professor of radiology and of surgery. "Our interventional procedures are a real eye opener for these patients."

Brown treats patients from all parts of the United States who need targeted treatments that leave most of the liver intact. Many patients are likely to need repeated treatments because they are prone to developing new primary hepatocellular carcinomas (HCC) or recurrent liver metastases that result from gastrointestinal carcinoid tumors or other hormone-producing tumors.

The patients benefit from a nonsurgical vascular approach for destroying tumors called chemoembolization or from a more targeted treatment called radiofrequency (RF) ablation that destroys tumor cells with current-induced heat. Neither approach radically alters nearby liver tissue, so the procedure can be repeated if necessary or can be used sequentially to the same patient.

Michael Darcy, MD, professor of radiology and of surgery and chief of Mallinckrodt Institute of Radiology's (MIR's) interventional radiology section, began performing chemoembolization for liver cancer in 1993. Brown joined the MIR faculty in 1999, with extensive experience in liver tumor management.

"We are the only interventional radiology group in the St. Louis area that offers a comprehensive approach to cancer therapy using both vascular and nonvascular intervention," Darcy says, noting that patients receive the most suitable approach as a result.

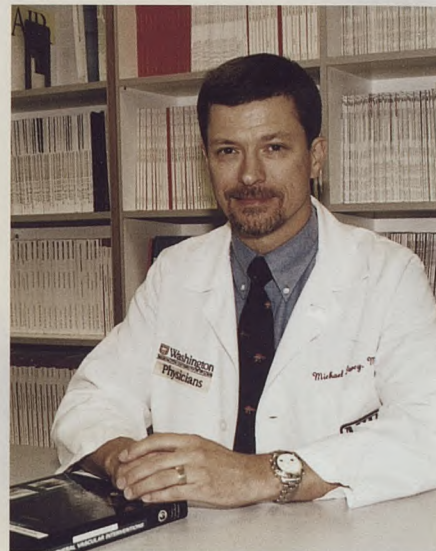
chemoembolization

With chemoembolization, a catheter is placed into the patient's femoral artery. From there, the catheter is selectively advanced into the hepatic artery, which is the main blood supply for the liver. A liquid contrast agent is injected into the catheter to determine how the blood vessels fan out into the liver tissue. The interventional radiologist then injects a mixture of drugs and embolic agents.

An oily substance called Ethiodiol, which is mixed with three chemotherapeutic drugs, is injected and collects in the cancerous tissue. Because these drugs are injected directly into the tumor site, the tumor is exposed to much higher doses than could be achieved via a peripheral infusion. Flow into the tumor bed is obstructed with polyvinyl alcohol (PVA) particles. The combination of PVA and Ethiodiol trap the high doses of chemotherapy in the liver, preventing systemic effects. Researchers have found that Ethiodiol can help lock drugs within the liver for up to a month following chemoembolization.

Healthy liver tissue survives because another vessel, the portal vein, supplies blood to much of the organ. "You can kill the tumor without harming normal liver tissue, and the portal vein will take over the function that the hepatic artery can no longer do," Brown says.

Approximately 60 percent of patients have the classic arrangement of blood vessels feeding the liver, as described in most medical texts. The treating physician must



Michael Darcy, MD

be acutely aware of any variation in a patient to prevent adverse outcomes. In particular, a physician must block the hepatic artery past a vessel that branches off to feed the bowel. Otherwise, the lack of blood flow combined with high-dose chemotherapy to that organ creates severe ulcers.

Another issue is that patients with HCC have cirrhosis, a chronic liver disease that is often a result of alcohol abuse or exposure to other toxic chemicals. Many patients develop cirrhosis from viral hepatitis type C or other infection. Regardless of the cause, the liver, which functions in part to process toxic chemicals, becomes overwhelmed by the insult and tries to repair itself by bumping up its rate of cell division.

That rapid cell division increases the risk of some cells becoming the abnormal, cancerous cells of HCC. And it produces scar tissue that replaces functional tissue involved in maintaining the body's metabolism, blood pressure, and other functions. The cirrhosis

leads to tumor development while it limits treatment options, as the remaining liver is severely diseased. Therefore, patients with HCC and cirrhosis are more at risk of dying if a medical procedure reduces remaining liver function too drastically. Less than 20% of patients are candidates for surgery. Although the interventional radiologists at Mallinckrodt Institute have had great success with liver ablative techniques, patients must be carefully chosen to avoid treating those patients with an inadequate reserve of liver function.

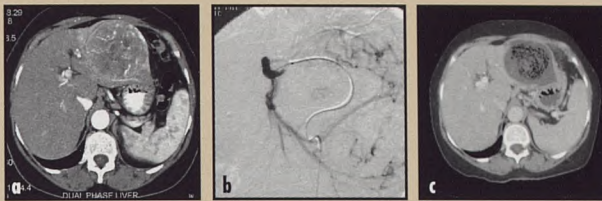
Brown and Darcy have been successful with chemoembolization and other procedures because of their careful selection of patients and their expertise with the techniques. Because of their large volume of referred patients, Brown and Darcy have a better understanding of the boundaries of treatment than do physicians at many medical centers. "We've treated patients at Mallinckrodt Institute that other hospitals have turned away," Brown says.

Under Brown's care, patients with HCC have lived an average of 20 months after diagnosis. Brown, who leads workshops on vascular and interventional oncology for the Society of Interventional Radiology, notes that studies relying on peripheral chemotherapy or supportive management have reported an average survival of only three months.

Patients who receive chemoembolization at Mallinckrodt Institute also benefit from staying only one or two days in the hospital, as compared to the week or so required for traditional surgery.

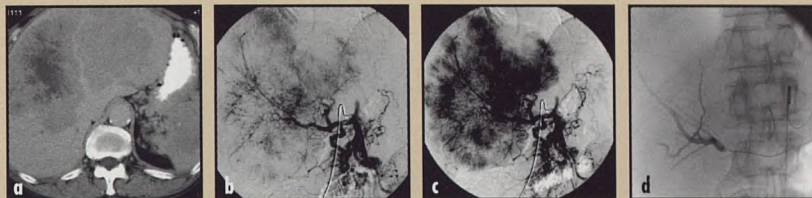
CHEMOEMBOLIZATION

Case 1



- a. There is an enhancing 10 cm hepatocellular carcinoma in the left lobe of the liver.
- b. Arteriography prior to embolization demonstrates the abnormal vessels.
- c. Follow-up CT after chemoembolization demonstrates complete tumor necrosis.

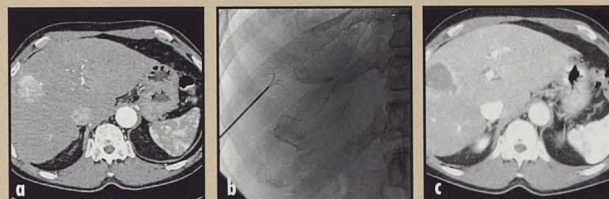
Case 2



- a. Unenhanced CT demonstrates numerous large tumors in a patient with carcinoid syndrome. He was experiencing diarrhea several times a day as well as hot flashes.
- b and c. Early and late phase of angiography reveals the marked hypervascularity of the tumors.
- d. Following embolization the patient's symptoms resolved.

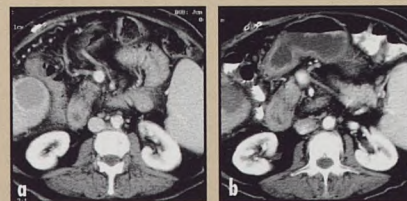
RADIOFREQUENCY ABLATION

Case 1



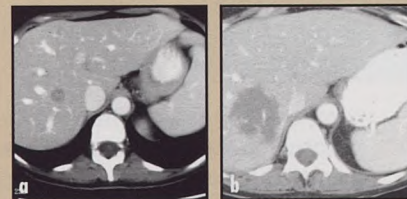
- a. Hypervascular hepatocellular carcinoma of the right lobe of the liver.
- b. The RFA needle is deployed within the tumor.
- c. Following RFA the lesion no longer enhances. Normal inflammatory response is identified surrounding the dead tumor.

Case 2



- a. 4 cm hepatocellular carcinoma in the right lobe of the liver with nearby bowel
- b. Following RFA with careful needle placement, the tumor no longer enhances and the bowel is uninjured.

Case 3



- a. This patient has a single metastasis to her liver after resection of breast carcinoma. She was not a surgical candidate for liver resection.
- b. Following RFA the entire area surrounding the tumor is necrotic.

a second chance

And patients avoid not only the weeks of treatment required for traditional chemotherapy but also chemotherapy's potential adverse effects, such as hair loss and weakened immune system function.

radiofrequency ablation

Brown also performs the RF ablations for liver cancer done at MIR. To qualify for this high-tech procedure, a patient must have

three or fewer tumors that are less than 4 centimeters in size. The RF approach is favored under these circumstances because it produces less tissue destruction and takes less time than does chemoembolization.

Using ultrasound guidance, the radiologist inserts a needle electrode through a small incision in the skin and directly into the liver tumor. He then pushes a plunger to eject a series of prongs from the needle's tip that fan out like an umbrella frame. Current is sent into the tines and incites ions in tumor cells nearby to follow the flow of current. "The current creates friction, similar to rubbing your hands together," Brown says.

Friction, in turn, creates heat. When the temperature inside the tumor cells surpasses 50° Celsius, the cells begin to die. A much higher temperature

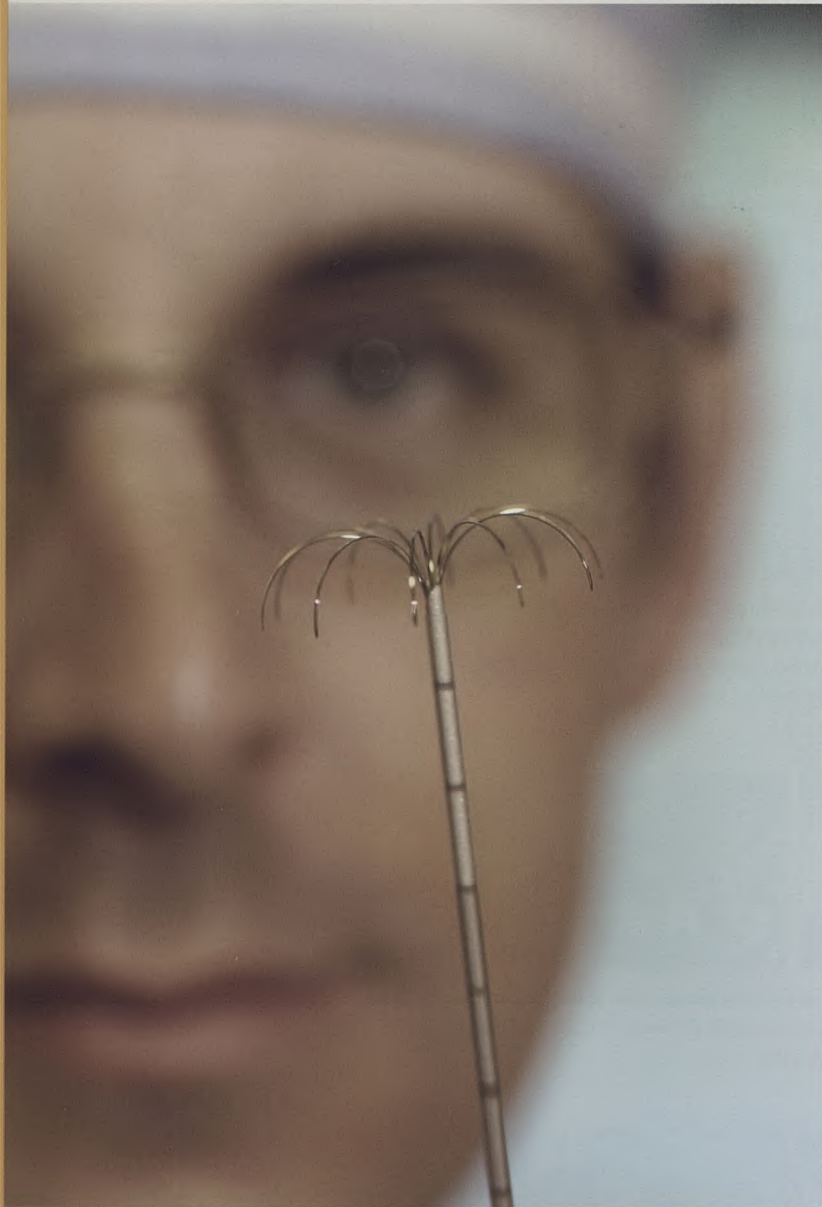
— about 75° Celsius, or roughly 167° Fahrenheit — is reached during RF ablation. The procedure takes about an hour, and patients can go home the same day.

a new lease on life

Best of all, some patients with HCC whose tumor burden is kept in check by chemoembolization and RF ablation may gain a new lease on life as a result. Eligible patients with HCC can remain on a liver transplantation list if they have a single tumor that is kept below 5 centimeters (about 2 inches) in diameter or three tumors less than 3 centimeters in diameter.

An example of this type of patient is Robert Brewer, a 59-year-old St. Louis County resident. He received two courses of chemoembolization and an RF ablation treatment and has remained on the transplantation list for 15 months. Diagnosed with hepatitis C in 1999, Brewer still suffers from joint aches and exhaustion but is kept going by his wife of 38 years, three children, and three grandchildren. Knowing that he might receive a liver transplant also keeps him motivated. "That's what it takes for me to live," Brewer says.

Brown's and Darcy's ministrations have resulted in 13 patients with HCC taking the next step and receiving liver transplants in the past 3 years. But the benefits are not just for these patients. Those patients who have neuroendocrine tumors or other hormonally linked tumors such as insulinomas also benefit. In the case of gastrointestinal carcinoid tumors, patients may



Needle electrode (shown with prongs extended) used in radiofrequency ablation of liver tumors.

live 5 years to 10 years after diagnosis, thanks in part to the repeated removal of liver metastases.

The problem is not the carcinoid liver tumors themselves but what these tumors produce: hormones such as serotonin that the liver can no longer degrade when its tumor burden becomes overwhelming. As a result, excess levels of hormone remain in the bloodstream, causing symptoms such as facial flushing and recurring bouts of diarrhea.

By eliminating the liver tumors, Brown can keep the patient's symptoms in check for a year or more until additional tumors crop up. "We can help patients take back some control and feel normal again — feel good about themselves," Brown says.

additional studies

Brown also is collaborating with Louis Gilula, MD, professor of radiology and of surgery and a member of MIR's musculoskeletal radiology section, to test RF ablation's usefulness in treating bone cancer. As participants in a multicenter trial sponsored by the American College of Radiology Imaging Network, Brown and Gilula are participating in a Phase II trial to determine whether RF ablation provides a good alternative to radiation therapy for treating bone metastases in non-weight-bearing bones and the spine. The limited invasiveness of RF ablation and its ability to provide relief with a single treatment session may make it a better option for the long-term management of bone metastases.

Just as with the patients treated by Brown and Darcy, these patients will have routine checkups

that involve radiological imaging to detect additional or remaining cancerous growths. Building long-term relationships with patients and their families is thus an important facet of what the physicians do. Brown notes that this relationship is also one of his most rewarding responsibilities.

He says that keeping a patient's needs uppermost in his mind is an important facet of this process—that is why he uses RF ablation rather than an alternative version that can require four or more hospital visits to complete treatment. And he talks with the patient's family by phone whenever possible, so they do not have to make extra trips for consultation. And it is why he spends as much time as is necessary with patients to discuss their medical status, something Robert Brewer says he admires about Brown. "He's the kind of doctor who will sit down and talk with you and explain exactly what you need to do," Brewer says.

Brown also includes humor to lighten conversations with families, who use the humor as a way of coping. For example, Brown often refers to the annual embolization in patients with slow-growing gastrointestinal carcinoid tumors as the patients' "once a year tune-up," like the one they get for their car.

Along with Joel Picus, MD, associate professor of medicine, Brown is studying the use of magnets to help attract chemotherapeutic agents to the liver. The drugs are attached to ferromag-

netic particles that will be drawn into the liver by a magnet placed on a patient's abdomen, above the tumor.

Brown also is involved with pilot research evaluating chemotherapy for treating pulmonary metastases that are too advanced for traditional surgery to be effective. The drug of choice, cisplatin, can produce kidney damage before clinical benefit is identified. And he is performing lab studies to determine whether infusing high-dose cisplatin into the pulmonary artery through a balloon catheter is a better option. A chemical injected intravenously soaks up much of the leaked cisplatin and protects the kidneys.

"The technique we use dramatically increases the level of chemotherapy in the pulmonary tissues," says Brown, who plans further studies after promising initial results.

Equally rewarding to Brown are the relationships he has with colleagues from other medical groups and at Mallinckrodt Institute, from secretarial staff to research assistants to faculty, who play an integral role in diagnosing and treating oncology patients. "Without the referrals from my colleagues in hepatology, oncology, and hepatobiliary surgery, I would not be able to help nearly as many patients. Additionally, if I have a radiology question, I can ask the country's most renowned experts," Brown says, "whether it is interventional radiology, ultrasound, body imaging, or any of the other radiology specialties. They are all here at Mallinckrodt Institute." **MIR**

community-hospital RADIOLOGY SERVICES

**Mallinckrodt Institute of Radiology at
Barnes-Jewish West County Hospital
combines quality service with easy
access for patients.**

by Chris Wayland



From weekend warriors to couch potatoes to professional and student athletes, all types of patients come through Mallinckrodt Institute of Radiology's (MIR's) Diagnostic Radiology Department at Barnes-Jewish West County Hospital (BJWCH). The hospital is noted for excellence in orthopedics, especially sports medicine, physical rehabilitation, total joint replacement surgery, and spine surgery. The high level of patient service combined with the convenience of a community hospital and accessible parking is a top draw for patients. That good reputation resulted in the more than 53,000 radiology-related procedures performed last year.

According to Robert Levitt, MD, director of diagnostic radiology at BJWCH, patient services fall into three main categories: outpatient diagnostics, outpatient therapeutics and outpatient/short-stay surgeries.

In the short-stay surgery category, sports injuries and degenerative joint and spine disease result in many hospital admissions for surgical repair or replacement of joints or spinal surgery, but the hospital performs a host of other specialized surgeries including cosmetic, eye, general, and urologic surgery.

"Many patients, with the recommendation of their physicians, are opting for outpatient surgeries," says Levitt. "Our hospital staff includes Washington University surgeons as well as surgeons in private practice, such as the physicians at Missouri Bone and Joint and The Orthopedic Center of St. Louis. All of these groups have offices on the hospital campus."

And technology keeps the pace moving briskly. "We have the 'latest and greatest' of radiological equipment," Levitt notes.

Left: One control room serves both magnetic resonance imaging (MRI) and computed tomography (CT). Tracy Land, RT, a medical imaging technologist, is shown in the CT area. The opposite side of the room accommodates MRI.

Radiology services include magnetic resonance imaging (MRI), bone densitometry, computed tomography (CT), ultrasound, and mammography. Fluoroscopic rooms are available for barium studies and special procedures, such as MR arthrography (injecting a substance into a joint space, which outlines that area on MR images). Nuclear radiology is also available, including bone scans to test for metastatic disease in patients with cancer, thyroid scans to check for nodules, myocardial scans to evaluate coronary artery disease, hepatobiliary imaging to assess gallbladder function, and lung scans to check for pulmonary emboli.

The volume of tests translates into thousands of radiology reports to physicians monthly. Technological advances have decreased the time required by doctors to prepare the reports and has made report transmission easier and faster. Voice-recognition dictation systems type out the report as the physician speaks. A signed report that once took hours

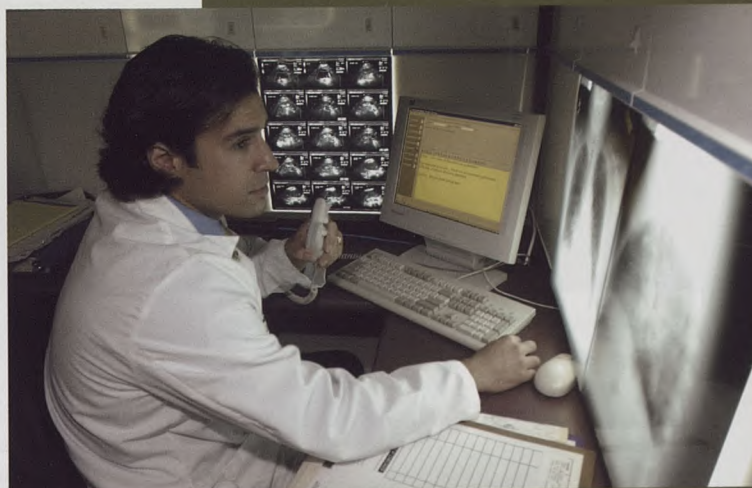
the key to success

The radiologists on staff at BJWCH are Washington University physicians who are faculty members of the world-renowned Mallinckrodt Institute of Radiology.

- Joanna Costello specializes in magnetic resonance and orthopedics.
- William James, Mary Middleton, and Levitt are general diagnostic radiologists.
- Alan Williams, a neuroradiologist in the neuroradiology section at MIR, and David Rubin, William Totty, and William Reinus, all of the musculoskeletal section at MIR, provide on-site specialty interpretations at BJWCH.

According to Levitt, the combination of generalists and subspecialists in the radiology department at BJWCH is key to delivering the high level of professional services expected by referring physicians.

"It is that combination that explains the success of our radiology department at BJWCH," he says.

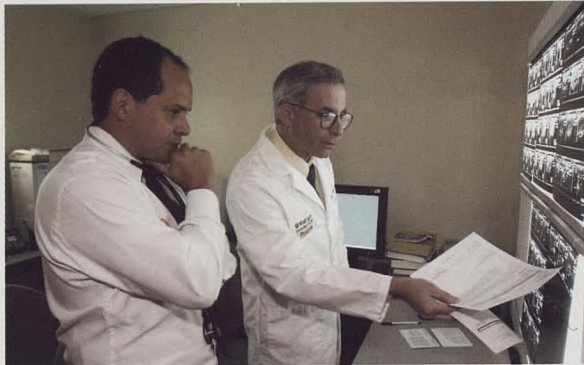


William James, MD, instructor in radiology, dictates a case, using the voice-recognition system.

to complete now can be done in five minutes, Levitt says.

Patient care is enhanced by the use of a Picture Archiving and Communication System (PACS). Many of the tests, such as nuclear medicine, CT, ultrasound, and MRI can be transmitted electronically among hospitals in the BJC HealthCareSM system as well as physician offices.

"PACS is a series of computers designed to store and display diagnostic images," explains David Melson, MIR's manager of imaging applications. "By providing on-line access to both current and prior studies, PACS enables the radiology department to work more efficiently. Referring physicians will also have access to the images electronically, using a BJC applica-



tion called Clinical Desktop that links the referring physician's computers to an MIR image server. These factors lead to better service for referring physicians and, ultimately, better patient care".

Using teleradiology, MIR radiologists at BJWCH can interpret imaging studies 24 hours a day, seven days a week. The images can be sent electronically to a radiologist's home computer or laptop. After interpreting the image, the radiologist then telephones the interpretation to the referring physician.

Levitt is particularly proud of The BJWCH Imaging Center (at 969 Mason Road, across the street from the hospital) that opened in October 2001. It is

equipped with leading-edge technology, including a state-of-the-art spiral CT scanner with 3-D imaging capabilities that can help detect conditions such as coronary artery disease through calcium scoring and lung carcinoma by thin section



examination of the lung fields.

Magnetic resonance imaging, plain film X rays, and ultrasound are also available at the Imaging Center. Many physicians have their offices in the Imaging Center, which is also equipped with a computerized reading room. When a patient comes to the Imaging Center, physicians can access the patient's previous test results from Barnes-Jewish Hospital (BJH) at Washington University Medical Center, BJWCH, or the Imaging Center by using PACS. The radiologist can then view the past and current tests and compare them side-by-side on the computer monitor. The findings of the new test are dictated into the voice-activated typing system, and the report is archived. Once the test is in the PACS system, it can be read at either BJH, BJWCH, or the Imaging Center.

Other facilities on the BJWCH campus include physicians' office buildings (POBs): POB 1 houses private practice and Washington University-affiliated physicians in the specialties of urology, cosmetic surgery, allergy/immunology, pulmonary medicine, ophthalmology, pain management, and dermatol-



The Imaging Center offers easy access for all patients.

[easy access]

[quality service]



Far Left: Levitt (right) and Daniel Gaitan, MD, an endocrinologist, review a current case.

Left Center: Joanna Costello, MD, instructor in radiology, is shown in the MRI procedure area.

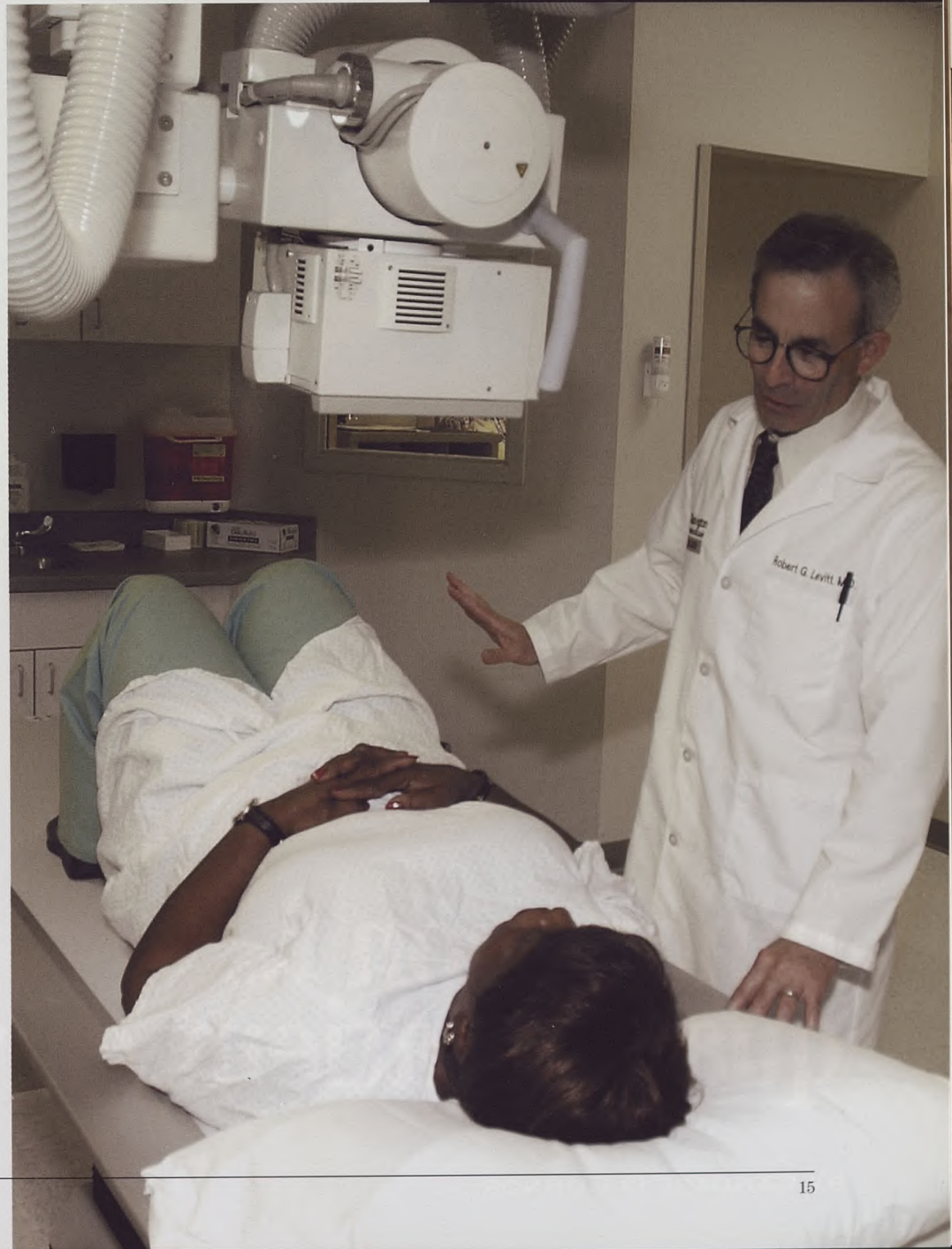
Left: Mary Middleton, MD, assistant professor of radiology, reviews CT cases with David Johnston, MD, a third-year diagnostic radiology resident.

ogy. POB 2 houses Missouri Bone and Joint and The Orthopedic Center of St. Louis, both private-practice groups specializing in orthopedic and spine surgery. In POB 3 is The Heart Care Institute, staffed by Washington University cardiologists, and the Washington University orthopedic and spine surgery offices.

Due to the popularity of BJWCH, the demand for operating-room time has outstripped the capacity of existing operating rooms. An outpatient Ambulatory Surgery Center, slated to open in the spring of 2003, will double the hospital's number of operating rooms.

Levitt is proud of BJWCH and the services MIR offers to the hospital's patients. "We are able to provide the expertise of an academic center in a community setting", he says, and emphasizes that everyone at BJWCH—administrators, Washington University physicians, private physicians, and hospital staff—have a common goal: to provide the highest quality clinical care in a compassionate community-hospital setting. **MIR**

Levitt, who was named director of diagnostic radiology at BJWCH in 1990, meets with a patient who is scheduled to undergo a lumbar spine series.



THE CLINICAL PET CENTER



A HISTORY OF **innovation** AND quality patient care

BY CANDACE O'CONNOR

The CT/PET scanner allows physicians to see both the function and precise location of a lesion in a single study. Photo courtesy of Siemens Medical Solutions.

MOST PATIENTS LOOKING FOR HEALTH CARE EXPECT TOP QUALITY CARE AND EXPERIENCED PHYSICIANS. THEY SHOULD EXPECT NO LESS FROM A DIAGNOSTIC IMAGING FACILITY. AT THE CLINICAL PET CENTER, PATIENTS HAVE THE ADVANTAGE OF WASHINGTON UNIVERSITY NUCLEAR MEDICINE PHYSICIANS, WHO ARE AFFILIATED WITH THE WORLD-RENOWNED MALLINCKRODT INSTITUTE OF RADIOLOGY (MIR) AND THE TOP-RANKED BARNES-JEWISH HOSPITAL (BJH). THESE PHYSICIANS COLLECTIVELY HAVE OVER 145 YEARS OF EXPERIENCE IN NUCLEAR MEDICINE AND 50-PLUS YEARS IN POSITRON EMISSION TOMOGRAPHY (PET) IMAGING. MORE THAN 2,400 COMPREHENSIVE DIAGNOSTIC PET EXAMINATIONS ARE PERFORMED ANNUALLY. AND THIS COMBINATION TRANSLATES INTO A MORE ACCURATE DIAGNOSIS AND A SMOOTHER PROCESS FOR THE PATIENT AND THE REFERRING PHYSICIAN.

The Institute has been a leader in PET technology since the early 1970s, when a team of MIR researchers, led by Michel Ter-Pogossian, PhD, developed the first useable PET device for human studies. A broad PET research program followed. And in 1989, MIR opened the first clinical PET facility in Missouri and one of the first three in the United States. In 1992 BJH took over the technological operations of the Clinical PET Center; MIR's Division of Nuclear Medicine continued to staff the facility.

In October 2002, the Clinical PET Center will mark an exciting new milestone: the arrival of the first combined PET/CT (computed tomography) scanner in the

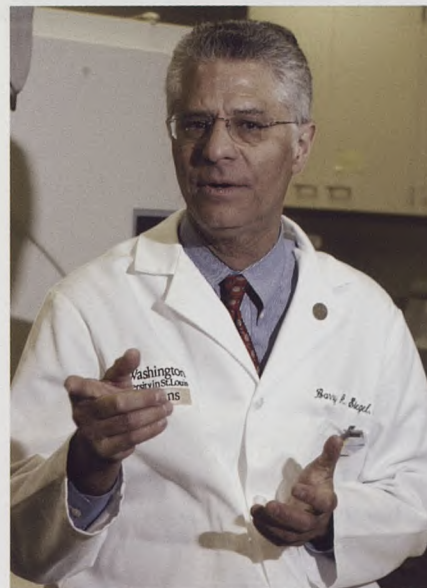
St. Louis metropolitan area. Already, the Center has two dedicated PET scanners that are heavily used. But this new scanner, which *Time* magazine called in 2000 "the invention of the year," represents a major technological breakthrough.

"The Biograph™ PET/CT scanner, which also incorporates a new type of radiation detectors, will offer a faster imaging time and better images," says Barry Siegel, MD, professor of radiology and of medicine and director of the Division of Nuclear Medicine. "It will give us the ability to fuse anatomical data from the CT scanner directly with metabolic data from the PET scanner, making

image interpretation better and the data much easier to use."

For patients with cancer, that will translate into even better care. It is critically necessary for physicians to accurately localize lesions in these patients, says Farrokh Dehdashti, MD—but comparing PET and CT images side-by-side has never been as easy or as accurate as physicians would like. Now the merged images supplied by the PET/CT scanner will allow the medical team to improve detection and localization of disease and better direct biopsy or therapy.

"PET/CT scanners have been shown to be twenty percent more accurate for disease detection than is PET imaging alone," says Dehdashti, associate professor of radiology. "The use of these scanners is expected to reduce the number of invasive and noninvasive procedures in evaluating patients with cancer."



Barry Siegel, MD

BURGEONING CLINICAL USES

This new technology is bolstering a field in which the clinical applications of PET, a tool that



Farrokh Dehdashti, MD

assesses biochemical processes in patients and produces functional images of metabolic activity, have steadily increased over the past decade. With their first PET scanner—the Super PETT-IIB, built at Washington University by Ter-Pogossian in the mid-1980s for research and later converted to clinical use—Siegel and the nuclear medicine team began by focusing on images of the brain and heart.

But this early scanner only allowed physicians to view the metabolic activity in a limited area of the body. Then new equipment came on the market that provided many imaging slices at once over a larger area of the body. In 1991, Siegel's group bought a scanner from CTI, Inc., the ECAT EXACT. MIR's nuclear medicine faculty, in collaboration with CTI scientists, developed practical techniques and the necessary software for whole-body imaging.

These technological advancements allowed MIR's Division of Nuclear Medicine to move into the field of oncology; early work involved scanning of soft-tissue sarcomas, deciding whether a mass

was malignant, and identifying the best place to biopsy. Lung-cancer applications were developed, as PET was used to distinguish benign from malignant lung nodules and to detect metastatic deposits.

"Over the years, PET has slowly grown into a technique that is used for diagnosis, staging, restaging, and, most recently, treatment monitoring for a wide variety of cancers," says Siegel, who currently chairs the Institute of Clinical PET Council of the Academy for Molecular Imaging.

Today at Mallinckrodt Institute, PET is used clinically in many forms of cancer: cervical, colorectal, esophageal, head and neck, lung, malignant melanoma, lymphoma, and breast, especially recurrent and distant metastatic disease. Recently, in collaboration with the University of Michigan and Duke University, Siegel's group completed a large clinical trial to study the effectiveness of PET in evaluating the axillary lymph nodes of women with breast cancer.

"Particularly in the field of oncology, there are several research studies unique to our institution," says Dehdashti, "such as PET imaging of estrogen receptors in breast cancer, androgen receptors in prostate cancer, and tumor hypoxia and multidrug resistance in a variety of cancers.

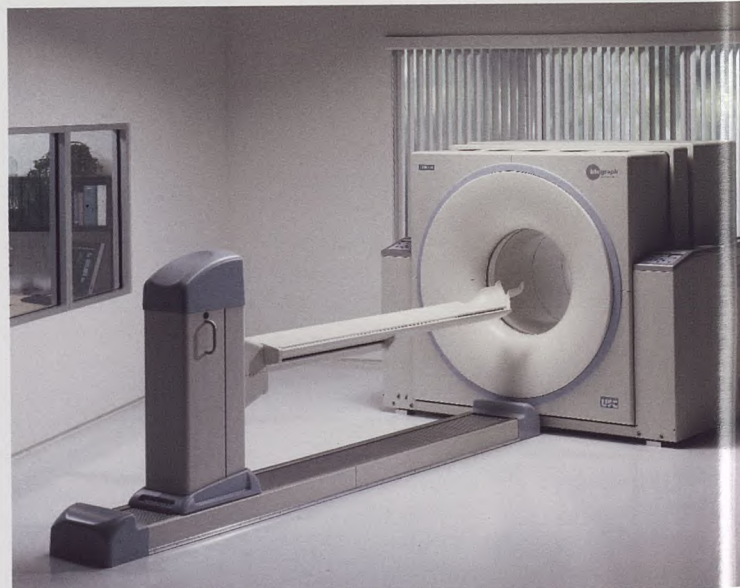
We are also involved in several multicenter clinical trials, such as those evaluating the uses of PET in lung and esophageal cancers."

Historically, MIR's nuclear medicine physicians have believed so strongly in this research that they have provided many of these scans free-of-charge. Mallinckrodt Institute and Barnes-Jewish Hospital have underwritten scans, and continue to do so, when Medicare or insurance companies refused to cover them and patients could not afford to pay. "We don't turn patients down for appropriately indicated studies," says Siegel.

INCREASING DEMAND

Over the past several years, the eight-member nuclear medicine team has seen its PET workload increase dramatically. In 1989, around 100 studies were performed altogether; now the average is 10 to 12 per day. Patient totals have been rising at a rate of 30 percent to 40 percent annually.

As other PET centers open in the region, those physicians often come to Mallinckrodt Institute for training, because of MIR's reputation in this field. "We have been



The Siemens Biograph™ CT/PET scanner can significantly reduce scan time and enhance cancer treatment and detection. Photo courtesy of Siemens Medical Solutions.

working with PET for a long time, and we devote a lot of time to it," Siegel says. "This experience and dedication translates into highly trained physicians and technologists who screen examinations carefully, assuring that the PET study we are going to do is sensible and answers the question the referring physician is asking. We make sure that we have anticipated every possible problem."

The Clinical PET Center's two existing PET units (the ECAT EXACT and the more recently acquired C-PET) are located on MIR's seventh floor. When the PET/CT scanner arrives, it will be installed in the radiology area adjacent to the new Center for Advanced Medicine and the Siteman Cancer Center. There are four other PET scanners around the medical center, all owned by Washington University and all used for research: a scanner on the seventh floor for cancer and cardiac studies; another in the neurological intensive care unit for brain research, often in cases of head injury or stroke; a third, also for brain studies, in the East Building; and a fourth, a micro-PET scanner for imaging laboratory rodents, in the Clinical Sciences Research Building.

MIR also owns three cyclotrons—and that is a bonus for the Institute's PET program. While other PET centers must buy commercially marketed fluorodeoxyglucose (FDG), the main radiopharmaceutical used in PET studies, Siegel's group has FDG prepared on campus.

USING PET IN CERVICAL CANCER CASES

Perry Grigsby, MD, is one of the physicians who refers patients to the nuclear medicine group for PET evaluation. Most of his practice involves gynecologic cancers, especially cancer of the cervix.

When these women come to him for treatment, Grigsby must first evaluate where the cancer is and how far it has spread. Is it limited to the cervix? Or has it moved into the pelvic lymph nodes, para-aortic lymph nodes, or other sites?

For the past four years, PET has been used to make most of these determinations. Before then, the gynecologic oncology team used other imaging tools, such as CT. "PET has been advantageous because it is better at showing the tumor spread than are other modalities," says Grigsby, professor of radiation oncology and of radiology. "It is fair to say that from one quarter to one half of women with cervical cancer have had their treatments changed because of PET. It has had a great impact."

THE FUTURE

As Siegel sees it, PET has a bright future. In the past, small-scale studies had already shown that PET prevented some 10 percent to 15 percent of unnecessary surgeries in patients with lung cancer. Now a larger, rigorously controlled study from the Netherlands has indicated that those figures may be too low—that PET is even more effective than previously thought.

PET has some limitations, Siegel admits. It has limited application in prostate cancer, for example, and is not yet fully accurate in determining whether a suspicious breast mass is malignant. New radiopharmaceutical "tracers" used in PET scans, some of them in development at Washington University, may open avenues for PET in these areas. Meanwhile, Siegel and others have also been active in urging Medicare, which currently pays for some PET exams, to cover more kinds of studies.

But overall, there is no longer any question as to PET's clinical utility. "At this point, the PET and

oncologic communities are convinced that PET should be a generally available imaging tool for problem-solving in patients with cancer," says Siegel. "We will still want to use MRI [*magnetic resonance imaging*] or CT for certain things, but it is clear that, for initial staging of most cancers, PET is better than CT and MR, and is the test that should be used."

In the future, Mallinckrodt Institute's PET program is likely to continue expanding. Siegel is already looking toward the next generation of PET/CT scanners, with a larger imaging field and different design. For patients, that will mean a faster exam—perhaps 15 minutes or less, as compared to the current 45 minutes to an hour. A



Perry Grigsby, MD

new micro-PET scanner may also be in the offing.

"PET is our premier metabolic imaging tool, and the paradigm of the coming era of molecular imaging," says Siegel. **MIR**

A SON'S TRIBUTE

ART IS A LANGUAGE,
AN EXPRESSION OF
LIFE THAT EASES THE
MIND AND COMFORTS
THE SOUL, MUCH IN
THE WAY MY FATHER'S
COMPASSIONATE
CARE FOR HIS
PATIENTS COMFORTED
THEIR BODIES.

Ian Gilula is a soft-spoken, contemplative young man whose hidden strength and passion is revealed in his artistic creations. One of his most cherished works is housed in the Eric P. Newman Education Center on the Washington University Medical Center campus. The 800-pound monolith is a tribute to Ian's father, Dr. Louis Gilula, professor of radiology and of surgery and a member of Mallinckrodt Institute's musculoskeletal radiology-section.

At the dedication on June 17—appropriately, the Monday following Father's Day—William Peck, MD, executive vice chancellor for medical affairs and dean of the School of Medicine, said that the pink granite monolith makes a “strong statement, indicative of Louis Gilula and of Washington University School of Medicine.”

According to Ian, his monolith was inspired by the ancient Mayan stela, an upright slab of stone with a low-relief carving found in or near temples throughout the Yucatan Peninsula. Stelas served as storyboards for the 3,000-year-old Mayan civilization.

“Art is a language, an expression of life that eases the mind and comforts the soul, much in the way my father's compassionate care for his patients comforted their bodies,” Ian says.

He hopes this monolith, his stela, will be a modern-day storyboard, a tribute to the work ethic, the compassion, and the dedication of his father, Louis Gilula.



Dean William Peck (right) commended Dr. Louis Gilula for his many contributions to the care of patients at Washington University Medical Center.



Molten glass, which was cast and created by Ian Gilula at Alfred University School of Art and Design in New York, is infused into carved spaces on the front of the monolith.

In honor of Louis A. Gilula, M.D.
His years of service and many contributions to
Washington University School of Medicine.

Ian Gilula



Louis and Ian Gilula

FYI

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.

CHANGE IN STATUS

Gary Shackelford, MD, professor of radiology and of pediatrics, was appointed emeritus professor of radiology.

PROMOTIONS

Sanjeev Bhalla, MD, instructor in radiology, was promoted to assistant professor of radiology, Division of Diagnostic Radiology, Department of Radiology.

Joanna Costello, MD, instructor in radiology, was promoted to assistant professor of radiology, Division of Diagnostic Radiology, Department of Radiology.

William James, MD, instructor in radiology, was promoted to assistant professor of radiology, Division of Diagnostic Radiology, Department of Radiology.

Richard Kronemer, MD, instructor in radiology, was promoted to assistant professor of radiology, Division of Diagnostic Radiology, Department of Radiology.

Gary Luker, MD, instructor in radiology, was promoted to assistant professor of radiology, Division of Diagnostic Radiology, Department of Radiology.

Christine Menias, MD, instructor in radiology, was promoted to assistant professor of radiology, Division of Diagnostic Radiology, Department of Radiology.

NEW FACULTY

Wenhua Chu, PhD, research instructor in radiology, Division of Radiological Sciences, Department of Radiology.

Michael Gelbart, MD, instructor in radiology, Division of Diagnostic Radiology, Department of Radiology.

Richard Kraus, MD, assistant professor of radiology, Division of Diagnostic Radiology, Department of Radiology.

Robert Mach, PhD, professor of radiology, Division of Radiological Sciences, Department of Radiology.

Vamsidhar Narra, MD, assistant professor of radiology, Division of Diagnostic Radiology, Department of Radiology.

Mehdi Poustchi-Amin, MD, instructor in radiology, Division of Diagnostic Radiology, Department of Radiology.

Zhude Tu, PhD, MD, research instructor, Division of Radiological Sciences, Department of Radiology.

Pamela Woodard, MD, assistant professor of radiology, Division of Diagnostic Radiology, Department of Radiology.

FIRST-YEAR FELLOWS

Ajeet Gordhan, MD, clinical fellow in neuroradiology, received an undergraduate degree and a medical degree from the University of Witwatersrand. He completed an internship and a residency at Saint Louis University.

Steven Hong, MD, clinical fellow in abdominal radiology, received an undergraduate degree from Yale University and a medical degree from Baylor College of Medicine. He completed an internship and a residency at Baylor College of Medicine.

Robert Lesniak, MD, clinical fellow in interventional radiology, received an undergraduate degree from St. Norbert College and a medical degree from the Medical College of Wisconsin. He completed an internship at St. Luke's Medical Center and a residency at the Medical College of Wisconsin.

Archie McGowan, MD, clinical fellow in neuroradiology, received an undergraduate degree from the University of Pennsylvania and a medical degree from Dartmouth. He completed an internship at Mt. Auburn Hospital and a residency at Brigham and Women's Hospital.

Jordan Page, DO, clinical fellow in neuroradiology, received an undergraduate degree from the University of Missouri at Kansas City and a medical degree from The University of Health Sciences—College of Osteopathic Medicine. He completed an internship at Capital Region Medical Center and a residency at the University of Missouri, Kansas City.

Mandar Pattekar, MD, clinical fellow in abdominal radiology, received an undergraduate degree from the University of Iowa and a medical degree from Krishna Institute of Medical Sciences. He completed an internship and a residency at William Beaumont Hospital.

Michael Rodriguez, MD, clinical fellow in interventional radiology, received an undergraduate degree and a medical degree from the University of South Florida. He completed an internship at the University of Texas, Galveston, and a residency at the University of Texas, Houston.

Mehrdad Sehizadeh, MD, clinical fellow in neuroradiology, received an undergraduate degree from the Gifted Children Educational Center and a medical degree from Tehran University of Medical Sciences. He completed an internship at Detroit Medical Center and a residency at Henry Ford Hospital.

Lina Sierra Sierra, MD, clinical fellow in abdominal radiology, received a medical degree from the Universidad Pontificia Bolivariana. She completed an internship at Clinica Leon XIII and a residency at Instituto de Ciencias de la Salud.

Paula Slack, DO, clinical fellow in breast imaging, received an undergraduate degree from Washington State University and a medical degree from Des Moines University. She completed an internship and a general surgery residency at Doctor's Hospital, Columbus, and a diagnostic radiology residency at Botsford Hospital.

Susannah Thurman, DO, clinical fellow in breast imaging, received an undergraduate degree from Southwest Missouri State University and a medical degree from The University of Health Sciences—College of Osteopathic Medicine. She completed an internship and a residency at Doctors Hospital.

John Yu, MD, clinical fellow in abdominal radiology, received an undergraduate degree and a medical degree from the University of Ottawa. He completed an internship at The Ottawa Hospital.

NEW RESIDENTS

Heather Byer, MD, assistant in radiology, is a second-year diagnostic radiology resident. She received an undergraduate degree from the College of William and Mary and a medical degree from Georgetown University. Byer completed an internship and one-year of diagnostic radiology training at Georgetown University.

Timothy Smullen, MD, assistant in radiology, is a second-year diagnostic radiology resident. He received an undergraduate degree from Miami University, Oxford, and a medical degree from Ohio State University. Smullen completed an internship at Riverside Hospital and one year of diagnostic radiology training at Ohio State University.

FIRST-YEAR DIAGNOSTIC RADIOLOGY RESIDENTS

Scott Bolton, MD, assistant in radiology, received an undergraduate degree from Auburn University and a medical degree from Johns Hopkins University School of Medicine. He completed a one-year internship at Barnes-Jewish Hospital.

David Chang, MD, assistant in radiology, received an undergraduate degree from Yale University and a medical degree from Stanford University. He completed an internship at Yale—New Haven Hospital.

Wincha Chong, MD, assistant in radiology, received an undergraduate degree from Brown University and a medical degree from Washington University in St. Louis. She completed a transitional residency program at the University of Hawaii.

James Colonnello, MD, assistant in radiology, received an undergraduate degree from the University of California, Davis, and a medical degree from Saint Louis University. He completed an internship at Loyola University.

Ryan Cook, MD, assistant in radiology, received an undergraduate degree from Brigham Young University and a medical degree from Saint Louis University. He completed an internship at St. Mary's Health Center.

Michelle Dorsey, MD, assistant in radiology, received an undergraduate degree and a medical degree from the University of Wisconsin. She completed an internship at St. Luke's Medical Center.

Nelson Elkins, MD, assistant in radiology, received an undergraduate degree from the University of Texas, Austin, and a medical degree from Texas Tech University. He completed an internship at Presbyterian Hospital.

Sean Higginson, MD, assistant in radiology, received an undergraduate degree from Wilkes University and a medical degree from the Medical College of Pennsylvania—Hahnemann University. He completed an internship at Chestnut Hill Hospital.

Jason Kerr, MD, assistant in radiology, received an undergraduate degree from Brigham Young University and a medical degree from the University of California, San Francisco. He completed an internship at the Mayo Clinic, Scottsdale.

FIRST-YEAR DIAGNOSTIC RADIOLOGY RESIDENTS

Continued from page 23

Yuliya Lakhman, MD, assistant in radiology, received an undergraduate degree from New York University and a medical degree from Johns Hopkins University. She completed an internship at the University of Washington.

Kevin Lee, MD, assistant in radiology, received an undergraduate degree from Pomona College and a medical degree from Washington University in St. Louis. He completed an internship at Barnes-Jewish Hospital.

Judy Liu, MD, assistant in radiology, received an undergraduate degree from the University of California, Los Angeles, and a medical degree from Washington University in St. Louis. She completed an internship at Arrowhead Regional Medical Center.

Ryan Murtagh, MD, assistant in radiology, received an undergraduate degree and a medical degree from the University of South Florida. He completed an internship at Barnes-Jewish Hospital.

Ashesh Parikh, MD, assistant in radiology, received an undergraduate degree and a medical degree from Northwestern University. He completed an internship at the University of California, San Francisco.

Creed Rucker, MD, assistant in radiology, received an undergraduate degree and a medical degree from the University of Arizona. He completed one year of a surgery residency at Vanderbilt University.

Karun Sharma, MD, PhD, assistant in radiology, received an undergraduate degree from the College of William and Mary. He received a medical and a doctoral degree from the Medical College of Virginia. Sharma completed a two-year internship at the Medical College of Virginia.

Krishna Thirumala, MD, assistant in radiology, received an undergraduate degree from Duke University and a medical degree from the University of Alabama. He completed an internship at Baptist Hospital.

Daniel Wessell, MD, PhD, assistant in radiology, received an undergraduate degree and two masters degrees from North Carolina State University. He received a medical degree and a doctoral degree from the University of North Carolina. Wessell completed an internship at Western Pennsylvania Hospital.

NUCLEAR MEDICINE RESIDENTS

Brock McDaniel, MD, assistant in radiology, received an undergraduate degree from California State Polytechnic University and a medical degree from the Medical College of Wisconsin. He completed an internship and a residency at the University of New Mexico Health Sciences Center.

Christian Schmitt, MD, assistant in radiology, received an undergraduate degree from the University of Missouri, Columbia, and a medical degree from Saint Louis University. He completed an internship at Saint Louis University and a residency at the University of South Florida.

Jayson St. Jacques, MD, assistant in radiology, received an undergraduate degree from Boston University and a medical degree from the American University of the Caribbean. He completed an internship at the Hospital of St. Raphael and a residency at Hartford Hospital.

FIRST-YEAR RADIATION ONCOLOGY RESIDENTS

Lilie Lin, MD, assistant in radiation oncology, received an undergraduate degree and a medical degree from Washington University in St. Louis.

Parag Jitendra Parikh, MD, assistant in radiation oncology, received an undergraduate degree from Case Western Reserve University and a medical degree from Washington University in St. Louis.

Catherine Wu, MD, assistant in radiation oncology, received an undergraduate degree and a medical degree from Washington University in St. Louis.

JOINT APPOINTMENTS

Randy Buckner, PhD, associate professor of psychology and of anatomy and neurobiology, was appointed associate professor of radiology, Division of Radiological Sciences, Department of Radiology.

Perry Grigsby, MD, professor of radiation oncology, was appointed professor of radiology, divisions of Nuclear Medicine and Radiological Sciences, Department of Radiology.

GRANTS

Samuel Achilefu, PhD, associate professor of radiology, as principal investigator, received a \$454,938 grant from the U.S. Department of Defense to study "Optical imaging of mammoglobin expression in breast cancer." Coinvestigators are Timothy Fleming, MD, research associate professor of surgery; **John Schotland, MD, PhD**, associate professor of electrical engineering and assistant professor of radiology; and **Carolyn Anderson, PhD**, associate professor of radiology. As principal investigator, **Achilefu** received a Siteman Cancer Center Development Project grant of \$20,000 for research on "Site-specific stealth molecular beacons for imaging cathepsin D expression in tumor cells." **Schotland** and **Achilefu**, as principal investigators, received a Washington University Molecular Imaging Center Pilot Research Award of \$19,714 for research on "Receptor-specific Tat-peptide conjugates."

Jeffrey Bradley, MD, assistant professor of radiation oncology, received a one-year Barnes Research Development Award of \$15,250 to study FDG-PET registration with treatment planning CT scans.

David Gierada, MD, assistant professor of radiology, received a \$12.4 million contract from the National Cancer Institute for the National Lung Screening Trial (NLST), which will measure lung cancer detection rates of single-view X ray as compared to spiral computed tomography. The Mallinckrodt Institute contract is part of a larger Washington University contract coordinated by Gerald Andriole, MD, who is head of the preventive cancer research organization PLCO (prostate, lung, colon, and ovarian). Andriole is principal investigator for PLCO and for NLST; Gierada is NLST leader and co-principal investigator.

Bonnie Joe, MD, PhD, clinical fellow in magnetic resonance imaging, received a Radiological Society of North America Fellowship grant of \$50,000 for research on "Evaluation of MR contrast enhancement and MRS in breast cancer: effect of contrast injection rate and effect of contrast on MRS profile."

Mark Mintun, MD, professor of radiology, as principal investigator, received a \$200,000 grant from the National Institutes of Health for research on "Nicotine-induced dopamine changes in addicted smokers."

Bruce Whiting, PhD, research assistant professor of radiology, as principal investigator, received a \$382,813 grant from the National Cancer Institute for research on "Radiation dose reduction in X-ray computed tomography." Coinvestigators for the two-year grant are **Kyongtae Bae, MD, PhD**, assistant professor of radiology; **Steven Don, MD**, assistant professor of radiology; **Charles Hildebolt, DDS, PhD**, associate professor of radiology; and **Benjamin Lee, MD**, associate professor of radiology.

Jie Zheng, PhD, research assistant professor in radiology, as principal investigator, received a \$121,000 grant from the American Heart Association (Heartland Affiliate) for research on "Myocardial flow reserve measurement by magnetic resonance imaging: a BOLD approach." Coinvestigators are **Robert J. Gropler, MD**, associate professor of radiology, of medicine, and of biomedical engineering; **Dmitriy Yablonskiy, PhD**, assistant professor of radiology; **Dana Abendschein, PhD**, Department of Internal Medicine; **Pamela Woodard, MD**, assistant professor of radiology; **Debiao Li, PhD**, Northwestern University.

APPOINTMENTS/ ELECTIONS

Colin Derdeyn, MD, associate professor of radiology, was elected to a one-year term as chair of the Nominating Committee of the American Society of Interventional and Therapeutic Neuroradiology and was appointed to a one-year term on the Society's Executive Committee. He was appointed to a two-year term on the Research Committee of the American Society of Neuroradiology and to a two-year term on the Membership/Credentials Committee of the American Heart Association Stroke Council.

Dione Farria, MD, MPH, assistant professor of radiology, was appointed chair of the American College of Preventive Medicine Mentorship Program, Young Physician's Section. She was appointed adjunct assistant professor of community health, Saint Louis University School of Public Health, St. Louis, Missouri.

Louis Gilula, MD, professor of radiology and of surgery, was appointed as an musculoskeletal examiner for the American Board of Radiology's oral boards held in Louisville, Kentucky, June 9-12.

APPOINTMENTS/ ELECTIONS

Continued from page 25

Jay Heiken, MD, professor of radiology, chief of abdominal imaging, and codirector of body computed tomography, was appointed moderator of the plenary session on "Abdominal MRI" and as a member of the Unknown Film Reading Panel for the Abdominal Radiology Course 2002. The meeting, which was sponsored by the Society of Gastrointestinal Radiologists and the European Society of Gastrointestinal and Abdominal Radiology, was held in Orlando, Florida, April 14–19.

Robert McKinstry, MD, PhD, assistant professor of radiology, was appointed as a member of the National Institutes of Health Study Section, Center for Scientific Review, Special Emphasis Panel for Innovations in Pediatric Neuroimaging. He was appointed to the editorial board of the journal *Neurology*. McKinstry recently completed a one-year term as chair of the Steering Committee for a multicenter study, "The MRI study of normal brain development."

Eduardo Moros, PhD, associate professor of radiation oncology, was elected to a one-year term as vice president-elect of the North American Hyperthermia Society.

HONORS/ AWARDS

Robert Malyapa, MD, PhD, radiation oncology chief resident, received an American Brachytherapy Society (ABS) Travel Award to attend the ABS 2002 Annual Meeting in Orlando, Florida, May 22–24.

LECTURES/ PRESENTATIONS

Samuel Achilefu, PhD, associate professor of radiology, as guest speaker, presented "The role of exogenous contrast agents in optical imaging of tumors and organ function monitoring" at the The Speed School of Engineering Seminar Series, University of Louisville, Kentucky, April 12.

Jeffrey Bradley, MD, assistant professor of radiation oncology, spoke on "Image-guided radiotherapy utilizing PET fusion in lung carcinoma: a window toward the future" at the State University of New York, Stony Brook, June 5.

Jeffrey Brown, MD, associate professor of radiology, presented "Abdominal MRA" at the Tenth Scientific Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine, Honolulu, Hawaii, May 18–24.

Mickey Clarke, CNMT, division administration, Division of Nuclear Medicine, presented "Current status of nuclear medicine technology in the United States," at the 22nd Annual Meeting of the Japanese Society of Nuclear Medicine Technology, Osaka, Japan, July 27 and 28.

Carmen Dence, MS, research scientist of radiology, presented "[C-11] tracers to quantify myocardial metabolism with PET" at the University of Cambridge, Wolfson Brain Imaging Center, Cambridge, England, May 30.

Colin Derdeyn, MD, associate professor of radiology, spoke on "The carotid occlusion surgery study" and "Carotid angioplasty and stenting" at the Missouri Society of Radiologic Technologists Annual Meeting, Lake of the Ozarks, Missouri, April 18. He presented the plenary lecture "Acute stroke intervention" at the American Society of Neuroradiology Annual Meeting, Vancouver, Canada, May 14.

Radiation Oncology Residents 2001–2002

(Left to right) Doctors Charles Hechtman; Anurag Singh; Gregg Franklin; Jon Anders; Fengming Kong; Jeff Michalski, director, Clinical Division; Ana Botero, radiation oncology chief resident; Jeffrey Bradley, director, Radiation Oncology Residency Program; Robert Malyapa, radiation oncology assistant chief resident; Wayne Lamoreaux.



Louis Gilula, MD, professor of radiology and of surgery, presented "Analysis of complex carpal trauma" at the San Francisco Bay Area Hand Society meeting, San Francisco, California, May 10.

Perry Grigsby, MD, professor of radiation oncology and of radiology, presented "Neoadjuvant chemotherapy and surgery versus standard radiotherapy for locally advanced cervix cancer. A meta-analysis using individual patient data from randomized controlled trials (RCTs)" at the 2nd International Conference on Cervical Cancer, M. D. Anderson Cancer Center, University of Texas, Houston, April 11-14. He spoke on "Place of chemotherapy in locally advanced bulky cervical centers," "Place of radiotherapy in surgically staged endometrial cancers," "Place of radiotherapy in ovarian cancers" at the 8th Annual Meeting of Turkish Gynecologic Oncology Society, Antalya, Turkey, May 1-5.

William Harms, BS, instructor in radiation oncology, spoke on "Technical requirements for participating in advanced technology radiation oncology clinical trials" at the Radiation Therapy Oncology Group semiannual meeting, Philadelphia, Pennsylvania, June 13.

Jay Heiken, MD, professor of radiology, chief of abdominal imaging, and codirector of body computed tomography, spoke on "CT evaluation of pancreatic carcinoma" at the Abdominal Radiology Course 2002, sponsored by the society of Gastrointestinal Radiologists and the European Society of Gastrointestinal and Abdominal Radiology, Orlando, Florida, April 14-19. As visiting professor, he presented "CT colonography: technique, results, issues;" "Multi-slice CT: principles and applications in the abdomen;" and "Characterization of hepatic masses with CT and MRI" at the University of Ottawa, Canada, May 30-31. Heiken presented "New concepts for optimizing contrast medium delivery" at the 4th International Symposium on Multidetector-Row CT, sponsored by Stanford University, San Francisco, California, June 20-23.

Robert Malyapa, MD, PhD, radiation oncology chief resident, presented "Improved brachytherapy treatment planning using positron emission tomography (PET) for cervical cancer" at the 23rd American Brachytherapy Society Meeting, Orlando, Florida, May 22-24.

Elizabeth McFarland, MD, associate professor of radiology, presented "Patient appraisals of CT colonography, conventional colonoscopy, and the bowel preparation" and served as moderator for "Diagnostic performance of CT colonography" at the Third International Symposium of Virtual Colonoscopy, Boston, Massachusetts, April 8-10. She spoke on "CTA: pre and post operative evaluation of endovascular stent grafts;" "CT colonography;" and "Evolving 3D CT body applications" at the Oklahoma State Radiological Society Meeting, Tulsa, April 19 and 20. McFarland presented "Prospective study of CT colonography (air vs. CO₂ insufflation techniques) and colonoscopy: assessments of procedure times and image quality" at the Society of Gastrointestinal Radiology meeting, Orlando, Florida, April 14.

Robert McKinstry, MD, PhD, assistant professor of radiology, spoke on "Diffusion tensor MR imaging in neuroradiology" at Radiology Grand Rounds, Medical College of Georgia, Augusta, April 19, and Radiology Grand Rounds, Northwestern University Medical center, Chicago, Illinois, June 12. He spoke on "MR imaging of normal brain maturation" at the Radiology Department, Tripler Army Medical Center, Honolulu, Hawaii, May 21. He presented "Introduction to diffusion imaging," "Diffusion imaging and stroke evolution," "Diffusion imaging pitfalls," and "Cranial nerves" at World Class MR and CT: Achieving Excellence in Neuro/Skeletal Imaging Conference, Minneapolis, Minnesota, July 7.

Jeff Michalski, MD, associate professor of radiation oncology and director of the Clinical Division, presented "Medical updates in oncology practice: prostate cancer: research & practice update" at the First Annual Siteman Oncology Nursing Symposium 2002, St. Louis, Missouri, April 5. He presented "Conformal RT: the USA view; U.S. clinical trials of 3D CRT for prostate cancer" at the MRC RT01 Participants Meeting, London, England, April 26. Michalski spoke on "Clinical trials on 3D conformal radiation therapy" at the Quebec Association of Radiation Oncologists meeting, Trois-Rivieres, Canada, June 9.

LECTURES/
PRESENTATIONS*Continued from page 27*

Tom Miller, MD, PhD, professor of radiology and of biomedical engineering, spoke on "PET in cervical cancer and prostate cancer" at the 5th International Congress of Nuclear Oncology, Kusadasi, Turkey, May 1-3.

Eduardo Moros, PhD, associate professor of radiation oncology, presented "Thermoradiotherapy engineering research, development and support" to the Department of Mechanical Engineering, University of Maryland, Baltimore, May 3.

Nobuyuki Oyama, MD, PhD, visiting assistant professor in radiology, presented "Diagnosis of recurrent prostate cancer using ¹¹C-acetate PET" at the 90th Annual Meeting of the Japanese Urological Association, Tokyo, Japan, April 19. He spoke on "Carbon-11-acetate PET imaging of recurrent prostate cancer" at the 97th Annual Meeting of the American Urological Association, Orlando, Florida, May 26.

Carlos Perez, MD, professor of radiation oncology and chair of the Department of Radiation Oncology, spoke on "Prostate cancer: state of the art" at the 2nd International Prostate Cancer Congress, St. Thomas, U.S. Virgin Islands, July 17. He presented "Breast conserving therapy in T1 and T2 tumors" and "Radiation therapy in locally advanced breast cancer" at the First Interamerican Breast Cancer Conference, Cancun, Mexico, July 27. Perez presented "Radiation for prostate cancer: state of the art" and "Hormone and radiation therapy in localizes prostate cancer" at the AstraZeneca Regional Urology Advisory Board, Mackinac Island, Michigan, August 1 and 2.

David Piwnica-Worms, MD, PhD, professor of radiology and of molecular biology and pharmacology and director of the Molecular Imaging Center, presented "Strategies and development of radiopharmaceuticals for assessment of MDR and gene therapy" at the 7th Annual Oncology Conference: Targeted Diagnostics and Therapy and the 2nd Annual Scientific Session: Cancer-Specific Radiopharmaceuticals, St. Louis, Missouri, April 19-21.

Joseph Roti Roti, PhD, professor of radiology and chief of the Division of Radiation and Cancer Biology, presented "The effect of chronic exposure to 835.62 MHz FMCW or 847.74 CMDA on the incidence of spontaneous tumors in rats" at the 24th Annual Meeting of the Bioelectromagnetics Society, Quebec City, Canada, June 23-27.

Stuart Sagel, MD, professor of radiology, chief of chest radiology, and codirector of body computed tomography, presented "CT of the thoracic aorta" and "Unknown cases" at the Annual Conference on Chest Disease of the Fleischner Society, Brugge, Belgium, May 12-16.

Maria Schmidt, MD, assistant professor of radiology, spoke on "Breast imaging and management guidelines" at Cancer of the Breast: Current Trends and Future Progress, St. Louis, Missouri, May 11.

Joshua Shimony, MD, PhD, instructor in radiology, spoke on "Automated fuzzy clustering of neuronal pathways in diffusion tensor tracking" at the Tenth Scientific Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine, Honolulu, Hawaii, May 18-24.

Barry Siegel, MD, professor of radiology and of medicine and director of the Division of Nuclear Medicine, presented "Applications of FDG-PET in oncology" at the 7th Annual Oncology Conference: Targeted Diagnostics and Therapy and the 2nd Annual Scientific Session: Cancer-Specific Radiopharmaceuticals, St. Louis, Missouri, April 19-21. He presented "PET scanning of cancer: current indications" and served on discussion panels for Thoracic Tumors, and ENT Tumors at The 2002 San Francisco Conference: Radiation Oncology, San Francisco, California, April 19-21. He presented "PET: patient preparation, interpretation pitfalls and reimbursement issues" and "PET in oncology II" and served on the PET Case Review and Expert Panel at the 26th Annual Course of Clinical Nuclear Medicine, Cambridge, Massachusetts, April 29-May 2. Siegel spoke on "PET oncology overview," "PET evaluation of esophageal carcinoma," "PET oncology beyond FDG," and "PET in gynecologic neoplasms" at P.E.T. & Nuclear Cardiology in Dublin, Ireland, July 21-26.

Marilyn Siegel, MD, professor of radiology and of pediatrics, spoke on "Fast MRI of small cell tumors in children: an NCI protocol" at the Children's Oncology Group Meeting, Jacksonville, Florida, April 16, and at the Society of Pediatric Radiology, Philadelphia, Pennsylvania, April 30. As visiting professor, she presented "CT/MR of the liver: techniques and indications;" "CT/MR of retroperitoneal neoplasms: diagnosis and staging;" "Hemorrhagic/ischemic brain injury in infants;" "Ultrasonography of neonatal renal diseases;" "MDCT of the airway;" and "Thymic CT in Children" at Kwong Wah Hospital, Hong Kong, June 17-21. Siegel spoke on "Sonography and CT of acute abdominal pain in children" at the Hong Kong Radiological Society, Hong Kong, June 17.

Michael Welch, PhD, professor of radiology and of chemistry and codirector of the Division of Radiological Sciences, presented "Design and use of PET radiopharmaceuticals (other than FDG) for cancer diagnosis and therapy" at the 7th Annual Oncology Conference: Targeted Diagnostics and Therapy and the 2nd Annual Scientific Session: Cancer-Specific Radiopharmaceuticals, St. Louis, Missouri, April 19-21. As invited speaker, he presented "New radioisotopes for PET" and "Myocardial metabolic imaging using 1-[11-C]-D-glucose,

1-[11-C]-palmitate and 1-[11-C]-acetate" at the Turku PET Symposium, Turku, Finland, May 25-28.

Dmitriy Yablonskiy, PhD, assistant professor of radiology, presented "What ^3He diffusion can tell about lung microstructure," "On the role of blood flow in brain temperature regulation," and "Microstructure of human lung as revealed by hyperpolarized ^3He diffusion MRI" at the Tenth Scientific Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine, Honolulu, Hawaii, May 18-24.

SYMPOSIA

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

RADIATION RESEARCH SOCIETY and NORTH AMERICAN HYPERTHERMIA SOCIETY

*Annual Scientific Meeting
Reno, Nevada
April 20-24, 2002*

Eduardo Moros, PhD, cochair, Non-Invasive Treatment Monitoring and Treatment Planning.

Joseph Roti Roti, PhD, chair, NAHS Hyperthermia and Radiation Sensitivity; cochair, NAHS Defining Thermal Goals for Hyperthermia.

POSTER SESSIONS

Robert VanderWaal, PhD; Beth Pierburg; Joseph Roti Roti, PhD, "Redox sensitive protein(s) are involved with anchoring DNA to the nuclear matrix."

Mai Xu, MD, PhD; Robert Myerson, MD, PhD; Eduardo Moros, PhD; Clayton Hunt, PhD; William Straube, MS; Joseph Roti Roti, PhD, "DNA-dependent protein kinase regulates Werner syndrome protein linking aging to DNA repair."

SCIENTIFIC SYMPOSIA

Clayton Hunt, PhD, "HSP70 is not required for normal mouse development, viability, or fertility."

Eduardo Moros, PhD; Petr Novak, MSc; William Straube, MS; Robert Myerson, MD, PhD, "The making of a clinical SURLAS: finalizing the scanning reflector mechanism."

Eduardo Moros, PhD; Mai Xu, MD, PhD; William Straube, MS; Joseph Roti Roti, PhD, "Dynamics of cell culture media temperature inside flasks kept in laboratory incubators."

Robert Myerson, MD, PhD; Heather Bigott; John Engelbach; Jason Lewis, PhD; Deborah McCarthy, PhD; Terry Sharp; Joonyoung Kim, PhD; Michael Welch, PhD, "Monitoring the effect of mild hyperthermia on tumor hypoxia by Cu-ATSM PET scanning: preliminary studies."

Petr Novak, MSc, "A novel ultrasonic method for non-invasive temperature monitoring during microwave thermotherapy."

William Straube, MS; Eduardo Moros, PhD, "In vitro measurement and analysis of backscattered ultrasound and its change with temperature."

William Straube, MS; Eduardo Moros, PhD, "Noninvasive temperature estimation based on energy of backscattered ultrasound."

SYMPOSIA

Continued from page 29

AMERICAN ROENTGEN RAY SOCIETY

*102nd Annual Meeting
Atlanta, Georgia
April 28–May 3, 2002*

RESIDENT TUTORIAL

Marilyn Siegel, MD, “CT and US of the acute pediatric abdomen.”

CATEGORICAL COURSE – BODY CT

Dennis Balfe, MD, “CT of the biliary tree.”

Jay Heiken, MD, “CT of small bowel obstruction.”

Marilyn Siegel, MD, “Pediatric CT: practice guidelines.”

INSTRUCTIONAL COURSES

Master Tutorial

Marilyn Siegel, MD, “Imaging of the acute pediatric abdomen.”

Pediatrics: CT and MRI — Imaging of the Pediatric Mediastinum

Sanjeev Bhalla, MD, “Nonvascular lesions.”

Fernando Gutierrez, MD, “Vascular lesions.”

Pediatric Genitourinary Tract

Marilyn Siegel, MD, “Renal masses.”

Ultrasound

William Middleton, MD, “US evaluation of portal hypertension.”

Sharlene Teefey, MD, “US evaluation of TIPS.”

New Issues Forum

William Middleton, MD, “Sonography of the shoulder.”

Sharlene Teefey, MD, “Sonography of the wrist.”

SCIENTIFIC EXHIBITS

John Leyendecker, MD; Elizabeth McFarland, MD; Dennis Balfe, MD, “Colorectal polyp screening techniques: current status and panel discussion of barium enema, colonoscopy, CT colonography, and MR colonography.”

NINTH INTERNATIONAL WORKSHOP ON TARGETRY AND TARGET CHEMISTRY

*Turku, Finland
May 23–25, 2002*

SCIENTIFIC SESSIONS

Reports from the Laboratories

Carmen Dence, MS; William Margenau; Christopher Bogner; Stephen Moerlein, PhD; Mohammed Al-Qahtani, PhD; Michael Welch, PhD, “GE PETtrace MEI MICROLAB: six years’ experience with system.”

Gregory Gaehle; Sally Schwarz, MS, RPh; Michael Mueller; Michael Welch, PhD, “The installation of a multi-radiopharmaceutical PET facility at Washington University in St. Louis, MO, USA.”

Deborah McCarthy, PhD; Heather Bigott; Douglas Rowland, PhD; Todd Perkins; Thomas Voller; Richard Laforest, PhD; David Reichert, PhD; Michael Welch, PhD, “A research resource in radionuclide research.”

Other topics: Radiochemistry and Automation

Douglas Rowland, PhD; Richard Laforest, PhD; Michael Welch, PhD, “The present status of a high current inclined target and solid target changer at Washington University.”

Sally Schwarz, MS, RPh; Keith Lechner; Michael Mueller; Gregory Gaehle; Michael Welch, PhD, “Radiopharmaceutical production quality control considerations.”

Lucie Tang; David Reichert, PhD; Deborah McCarthy, PhD; Michael Welch, PhD, “Remote and automated solvent extraction of gallium-66.”

SOCIETY OF NUCLEAR MEDICINE

*49th Annual Meeting
Los Angeles, California
June 15–19, 2002*

Tom Miller, MD, PhD, chair, Scientific Program.

Sally Schwarz, MS, RPh, comoderator, Radiopharmaceutical Chemistry Track—Radiopharmacy II: Radiopharmaceuticals.

Michael Welch, PhD, vice chair, Radiopharmaceutical Chemistry Track: New Chemistry—Oncology; New Chemistry—Neurosciences; New Chemistry—Other; Radiopharmacy; Dosimetry/Radiobiology.

CATEGORICAL SEMINAR

Jason Lewis, PhD, “Cyclotron-produced radionuclides for cancer therapy.”

CONTINUING EDUCATION COURSE

Yuan-Chuan Tai, PhD; Michael Welch, PhD, “Instruments and radiopharmaceuticals needed for modern molecular imaging techniques.”

SCIENTIFIC SESSIONS

Pilar Herrero, MS; Donna Cassady, RN; Zulfa Kisrieva-Ware, MD, PhD; Robert Gropler, MD, “Myocardial fatty acid oxidation is increased in patients with insulin dependent diabetes mellitus.”

Jason Lewis, PhD; Yun-peng Ye, PhD; Joonyoung Kim, PhD; John Engelbach, PhD; Richard Laforest, PhD; Michael Welch, PhD, "Intratatumoral administration of Cu-64-ATSM or Cu-61-ATSM: therapeutic comparison in GW39 tumors."

Wen Ping Li, PhD; Jason Lewis, PhD; Joonyoung Kim, PhD; Carolyn Anderson, PhD, "New somatostatin analog for radiolabeling with metals and halogens: ⁶⁴Cu/61 and ¹²⁵I-labeled DOTA-D-Tyr1-octreotate."

Weng Ping Li, PhD; Jason Lewis, PhD; Carolyn Anderson, PhD, "⁶⁴Cu-DOTA-CTTHWGFTLC, a selective gelatinase inhibitor for tumor imaging."

Tom Miller, MD, PhD; Perry Grigsby, MD, "Improved prognostic value of FDG-PET in patients with cervical cancer using a simple visual analysis of tumor characteristics."

Nobuyuki Oyama, MD, PhD; Datta Ponde, PhD; Joonyoung Kim, PhD; John Engelbach; Nicole Mercer; Lynne Jones; Terry Sharp; Michael Welch, PhD, "MicroPET imaging of prostate cancer using ¹⁸F-FLT: androgen dependent tumor model study."

Jeongsoo Yoo, PhD; David Reichert, PhD; Joonyoung Kim, PhD; Carolyn Anderson, PhD; Michael Welch, PhD, "A lipophilic DO3A-based cyclen complex of ⁶⁴Cu: synthesis, biodistribution study and microPET imaging."

Xiankai Sun, PhD; Joonyoung Kim, PhD; Michael Welch, PhD; Carolyn Anderson, PhD, "Potential bone-imaging agent: ⁶⁴Cu-labeled 1,4,7,10-tetraazacyclododecane-1,4,7-tri(methanephosphonic acid)."

POSTER SESSIONS

Mohammed Al-Qahtani; Michael Welch, PhD, "Radiosynthesis of ¹⁸F-fluoropropylpyrazoletriphenol, a new ligand selective for the estrogen receptor."

Joonyoung Kim, PhD; Robert Myerson, MD, PhD; Heather Bigott; Pilar Herrero, MS; Terry Sharp; Jason Lewis, PhD; Michael Welch, PhD, "Quantitative analysis of ⁶⁴Cu-ATSM kinetics in an animal tumor model."

Deborah McCarthy, PhD; Michael Welch, PhD, "Production of therapeutic ⁶⁴Cu radionuclide, using a ultra-small cyclotron."

Stephen Moerlein, PhD; Joel Perlmutter, MD; Joonyoung Kim, PhD; John Engelbach; Lynne Jones; Nicole Mercer; Richard Laforest, PhD; Michael Welch, PhD, "MicroPET imaging of neuroreceptor binding in rodent brain: comparison with *ex vivo* measurements."

Peter Wolohan, PhD; David Reichert, PhD, "Comfa and docking study of novel estrogen receptor subtype selective ligands."

AMERICAN ASSOCIATION OF PHYSICISTS IN MEDICINE

*44th Annual Meeting
Montreal, Canada
July 14-18, 2002*

Joseph Deasy, PhD, cochair, Radiobiology Scientific Session.

Eric Klein, MS, recipient of the 2002 AAPM-IPEM Medical Physicals Travel Grant; cochair, Treatment Techniques and Delivery Systems Scientific Session.

Zuofeng Li, DSc, cochair, IMRT Delivery 2 Scientific Session.

Daniel Low, PhD, cochair, IMRT Validation/Verification 2 Scientific Session.

Eduardo Moros, PhD, cochair, Therapy—Other Scientific Session.

Sasa Mutic, MS, cochair, Improvements in Conventional Planning Scientific Session.

Jason Sohn, PhD, cochair, Therapy Poster Session: Image-guided Therapy Imaging Techniques and Tools; Particle Based Radiation Therapy; Radiobiology; Stereotactic.

CONTINUING EDUCATION COURSES

Daniel Low, PhD, "Clinical issues for IMRT4: measurement and analysis techniques for IMRT;" "Measurement and analysis techniques for IMRT."

Sasa Mutic, MS, "Imaging radiation oncology: use of CT and PET in radiation therapy;" "Use of CT and PET in radiation therapy."

POSTER SESSIONS

Joseph Deasy, PhD, "CERR: a computational environment for radiotherapy research."

Joseph Deasy, PhD; Konstantin Zakaryan, PhD, "A prototype Monte Carlo-based IMRT treatment planning research system."

Joseph Deasy, PhD; Daniel Low, PhD, "Dose volume projections."

Joseph Deasy, PhD, "An efficient relaxation method for dose-volume constraints in IMRT."

SYMPOSIA

Continued from page 31

Robert Drzymala, PhD; Zuofeng Li, DSc; Eric Klein, MS, "In vivo diode dosimetry and backscatter."

Eric Klein, MS, "Head scatter and surface/buildup dose characteristics for 6, 10, and 18 MV photons from an Elekta Precise accelerator."

Fengming Kong, MD; Jose Garcia-Ramirez, MS; Eric Klein, MS, "A new treatment technique to irradiate internal mammary nodes in breast cancer."

Daniel Low, PhD, "Gel dosimetry by MRI using 3D gradient echo sequences."

Daniel Low, PhD; Sasa Mutic, MS; Tom Miller, MD, PhD; Jeffrey Williamson, PhD; Perry Grigsby, MD, "Can IMRT replace intracavitary brachytherapy?"

Robert Malyapa, MD, PhD; Sasa Mutic, MS; Daniel Low, PhD; Imran Zoberi, MD; Walter Bosch, DSc; Tom Miller, MD, PhD; Perry Grigsby, MD, "FDG-PET guided dose optimization in HDR brachytherapy for treatment of cervical cancer."

Sasa Mutic, MS; Robert Malyapa, MD, PhD; Perry Grigsby, MD; Imran Zoberi, MD; Daniel Low, PhD, "Treatment planning guidelines regarding the use of CT/PET-guided IMRT for carcinoma of the cervix with para-aortic lymph node involvement."

Jason Sohn, PhD, "Comparison of measurements with radiochromic films and Monte Carlo simulation for small beams in heterogeneous phantoms."

Jeffrey Williamson, PhD; Zuofeng Li, DSc, "Thermoluminescent dosimetry of a new type of I-125 seed, SourceTech Medical model STM1251."

SCIENTIFIC SESSIONS

Imad Ali, PhD; Corneliu Costescu, PhD; Milos Vivic, PhD; Jeffrey Williamson, PhD, "Dependence of radiochromic film optical density post-exposure darkening kinetics on dose and dose fractionation."

Corneliu Costescu, PhD; Jeffrey Williamson, PhD; Milos Vivic, PhD, "On the influence of the photon scattering model on Monte Carlo simulation of low energy photon brachytherapy dose distributions."

Joseph Deasy, PhD, "Convexity and multiple local minima issues in IMRT treatment planning."

Zuofeng Li, DSc; Eric Klein, MS; Robert Drzymala, PhD; James Purdy, PhD, "Photoneutron dose levels in a linear accelerator room with lead shielding."

Daniel Low, PhD; Jeffrey Bradley, MD; David Politte, DSc; Sasa Mutic, MS; Joseph Deasy, PhD, "4D (time-dependent) measurements of breathing motion using multislice CT scanning."

Robert Malyapa, MD, PhD; Sasa Mutic, MS; Perry Grigsby, MD; Walter Bosch, DSc; Imran Zoberi, MD; Farrokh Dehdashti, MD; Tom Miller, MD, PhD; Daniel Low, PhD, "PET-guided-IMRT treatment for cervical carcinoma with positive para-aortic lymph nodes—a dose escalation treatment planning study."

Eduardo Moros, PhD; Petr Novak, MSc; William Straube, MS; Robert Myerson, MD, PhD, "Clinical design of a system for simultaneous ultrasound hyperthermia and electron beam therapy."

Jason Sohn, PhD; Daniel Low, PhD, "Characterization of a commercial optical CT scanner for imaging BANG® Polymer Gel Dosimeters."

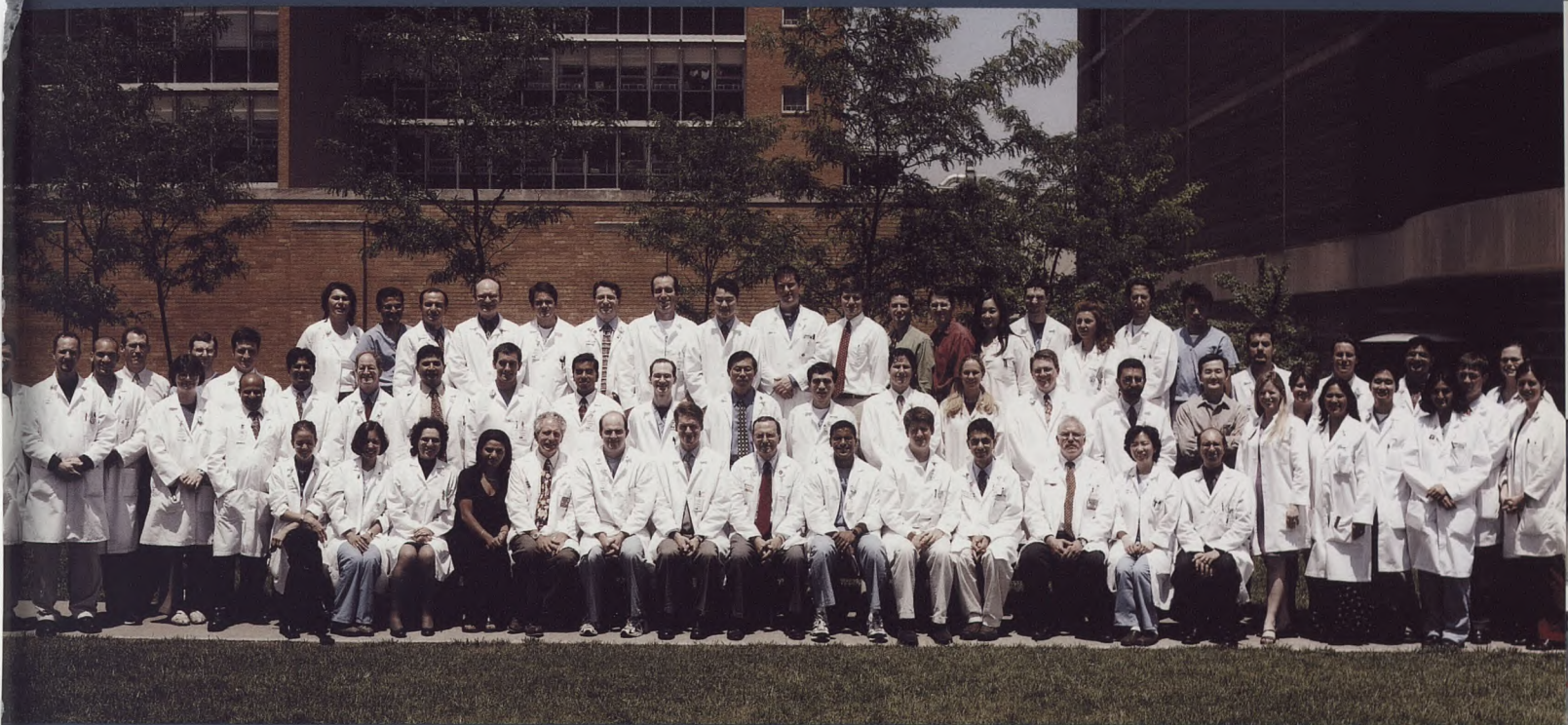
Jason Sohn, PhD; Daniel Low, PhD; Robert Drzymala, PhD; Eric Klein, MS, "Inhomogeneity correction for small beams used during IMRT."

William Straube, MS; Eduardo Moros, PhD, "The effect of temperature change on backscattered ultrasound power."

Milos Vivic, PhD; Jeffrey Williamson, PhD; Joseph Deasy, PhD; Daniel Low, PhD, "Towards sub-minute Monte Carlo based dosimetry."

Jeffrey Williamson, PhD; Sicong Li, DSc; Kyongtae Bae, MD, PhD; John Matthews, DSc; Perry Grigsby, MD; Kim Nguyen, "Dosimetric implications of soft-tissue deformation in intracavitary brachytherapy of cervical cancer."

Konstantin Zakaryan, PhD; Joseph Deasy, PhD, "Wavelet compression of beamlet dose distributions for IMRT treatment planning." 



DIAGNOSTIC RADIOLOGY AND NUCLEAR MEDICINE FELLOWS AND RESIDENTS FOR 2001-2002

(Seated, left to right) Doctors Juliet Fallah; Cynthia Santillan; Thelma Lopes; Christine Menias, assistant director, Diagnostic Radiology Residency Program; Lawrence Kotner, assistant director, Diagnostic Radiology Residency Program; Scott Andersen; James Goddard, diagnostic radiology chief resident; Gilbert Jost, director of the Institute; Sailendra Naidu, diagnostic radiology chief resident; Robert Kadner; Sanjeev Bhalla; Daniel Picus, chief, Division of Diagnostic Radiology; Bonnie Joe; Andrew Bierhals. (Second row) Doctors Paul Broadbent, David Mueller, Gregory Sanders, John Leyendecker, Tammie Benzinger, Vladislav Gorengaut, Markus Lammie, Noel Dias, Joseph Philip, Wrenn Wooten, Vikram Patel, Mark Bakalars, Avi Mazumdar, Franklin Marden, Yuming Yin, Feiyu Xue, Tito Rosas, Dallas Sorrell, Jason Wagner, Amer Farooki, Huy Tran, Joseph Konstantarakis, Catherine Appleton, Christine Peterson, Karen Caudill, John Agles, Ambrose Huang, Anand Singh, Indunil Karunasekera, Matthew Wiggins, Amy Nordman, Gina Bowers. (Third row) Doctors Dana Sampalaneau, Srinivasa Prasad, Mehdi Poutschi-Amin, Ronan McDermott, Ronald Gerstle, Noah Appel, Francisco Rodriguez, Edward Lee, Michael Gelbart, Brett Gratz, Jason Oliphant, David Johnston, Jennifer Lee, Richard Heller, Kianoush Rezaei, Cary Shlimovitz, Peter Chuang.

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