

2008

Department of Radiology-Annual Executive Summary Report-July 1, 2007 to June 30, 2008

Vijay M. Rao M.D.

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Department of Radiology

Annual Executive Summary Report

July 1, 2007 to June 30, 2008

Vijay M. Rao, MD

The David C. Levin Professor and Chair

*Investiture of Vijay M. Rao, M.D.
The David C. Levin Chair of Radiology
June 17, 2008*



DEPARTMENT OF RADIOLOGY

Jefferson Medical College
Thomas Jefferson University
Jefferson University Hospitals

The Mission of the Department of Radiology
is to provide quality diagnostic and
therapeutic imaging services and to
continually improve our services.

Our goals are to:

- Provide quality service to patients and referring physicians
 - Continue to grow successfully in an increasingly competitive market and be the leader
 - Operate in an efficient, productive, and cost effective manner
 - Maintain excellence of our educational programs
 - Continue to advance the science of translational and clinical imaging research
-

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DEPARTMENT OF RADIOLOGY

Vijay M. Rao, M.D.
Professor and Chairman

Geoffrey A. Gardiner, Jr., M.D.	Vice Chair for Clinical Practice
Barry B. Goldberg, M.D.	Vice Chair for Strategic Planning
Ethan J. Halpern, M.D.	Vice Chair for Research
Christopher R.B. Merritt, M.D.	Vice Chair for Performance Improvement
Levon N. Nazarian, M.D.	Vice Chair for Education

2007-2008

DEPARTMENT CLINICAL DIVISIONS AND DIRECTORS

BODY COMPUTED TOMOGRAPHY/ABDOMINAL IMAGING	Laurence Needleman, M.D.
BREAST IMAGING	Barbara C. Cavanaugh, M.D.
CARDIOTHORACIC RADIOLOGY	Narainder Gupta, M.D.
CARDIOVASCULAR/INTERVENTIONAL RADIOLOGY	Kevin L. Sullivan, M.D.
MAGNETIC RESONANCE IMAGING	Donald G. Mitchell, M.D.
MUSCULOSKELETAL AND GENERAL DIAGNOSTIC RADIOLOGY	William B. Morrison, M.D.
NEURORADIOLOGY/HEAD AND NECK RADIOLOGY	Adam E. Flanders, M.D. David P. Friedman, M.D.
NUCLEAR MEDICINE	Charles M. Intenzo, M.D.
ULTRASOUND	Barry B. Goldberg, M.D.
METHODIST HOSPITAL DIVISION	Larry A. Caputo, M.D.

DEPARTMENTAL COMMITTEES AND CHAIRMEN

ADVISORY COMMITTEE	Alfred B. Kurtz, M.D.
CONTRAST COMMITTEE	Laurence Needleman, M.D.
EDUCATION COMMITTEE	Levon N. Nazarian, M.D.
INFORMATICS COMMITTEE	Adam E. Flanders, M.D.
PERFORMANCE IMPROVEMENT COMMITTEE	Christopher R.B. Merritt, M.D.
SCIENTIFIC ADVISORY FOR IMAGING RESEARCH	Barry B. Goldberg, M.D. Ethan J. Halpern, M.D.
RESIDENCY SELECTION COMMITTEE	Levon N. Nazarian, M.D.

**RADIOLOGY DEPARTMENT FACULTY RANK
2007-2008**

PROFESSORS

Daniel Brown, M.D.
Rick I. Feld, M.D.
Adam E. Flanders, M.D.
Flemming Forsberg, Ph.D.
Geoffrey A. Gardiner, Jr., M.D.
Barry B. Goldberg, M.D.
Ethan J. Halpern, M.D., M.S.C.E.
Charles M. Intenzo, M.D.
David Karasick, M.D.
Stephen Karasick, M.D.
Alfred B. Kurtz, M.D.
Christopher R.B. Merritt, M.D.
Donald G. Mitchell, M.D.
Levon N. Nazarian, M.D.
Vijay M. Rao, M.D.
Kevin L. Sullivan, M.D.
Mathew L. Thakur, Ph.D.

RESEARCH PROFESSOR

Ji-Bin Liu, M.D.

EMERITUS PROFESSOR

David C. Levin, M.D.

ASSOCIATE PROFESSORS

Oksana H. Baltarowich, M.D.
David J. Eschelmann, M.D.
David P. Friedman, M.D.
Sung M. Kim, M.D.
Song Lai, Ph.D.
William B. Morrison, M.D.
Laurence Needleman, M.D.
Patrick O'Kane, M.D.
Lisa M. Tartaglino, M.D.

**CLINICAL ASSOCIATE
PROFESSOR**

Barbara C. Cavanuagh, M.D.

ASSISTANT PROFESSORS

Diane Deely, M.D.
Steven G. Finden, D.D.S., M.D.
Carin F. Gonsalves, M.D.
Angela G. Gopez, M.D.
Richard J. Gorniak, M.D.
Narainder K. Gupta, M.D.
Melissa D. Kang, M.D.
Christopher G. Roth, M.D.
Sharon R. Segal, D.O.
Dinesh K. Sharma, M.D.
Zsuzsanna P. Therien, M.D.
Annina N. Wilkes, M.D.
Adam C. Zoga, M.D.

**CLINICAL ASSISTANT
PROFESSORS**

Sandeep Deshmukh, M.D.
Flavius Guglielmo, M.D.
Bentley Hollander, M.D.
Cindy Isaacson Finden, M.D.
Terri Tuckman, M.D.

**RESEARCH ASSISTANT
PROFESSOR**

Eric Gingold, Ph.D.
Laurence Parker, Ph.D.
Shaoxiong Zhang, M.D., Ph.D.

INSTRUCTORS

Susan DeWyngaert, M.D.
Manoharan Muthuvelu, M.D.
Michael J. Wolf, M.D.

FACULTY WITH SECONDARY APPOINTMENTS IN RADIOLOGY

- Demetrius H. Bagley, M.D., Professor of Urology [primary]
Associate Professor of Radiology [secondary]
- Robert L. Brent, M.D., Ph.D., Professor of Pediatrics [primary]
Professor of Radiology [secondary]
- Paul J. DiMuzio, M.D., Assistant Professor of Surgery [primary]
Assistant Professor of Radiology [secondary]
- Christopher L. Hansen, M.D., Professor of Medicine [primary]
Professor of Radiology [secondary]
- Robert H. Rosenwasser, M.D., Professor of Neurosurgery [primary]
Professor of Radiology [secondary]
- Stanton N. Smullens, M.D., Professor of Surgery [primary]
Associate Professor of Radiology [secondary]
- Joseph A. Tracy, Ph.D., Assistant Professor of Neurology [primary]
Associate Professor of Radiology [secondary]
- Paul Walinsky, M.D., Professor of Medicine [primary]
Assistant Professor of Radiology [secondary]

DEPARTMENT OF RADIOLOGY

Vijay M. Rao, M.D., Chairman

CLINICAL DIVISIONS 2007-2008

**Body Computed Tomography/
Abdominal Imaging**

Directed by Laurence Needleman, M.D.
Drs. Oksana Baltarowich, Rick Feld, Cindy Finden, Flavius Guglielmo, Ethan Halpern, Stephen Karasick, Alfred Kurtz, Levon Nazarian, Patrick O'Kane

Breast Imaging

Directed by Barbara C. Cavanuagh, M.D.
Drs. Susan DeWyngaert, Cindy Finden, Bentley Hollander, Zsuzsanna Therien, Annina Wilkes

Cardiothoracic Radiology

Directed by Narainder Gupta, M.D.
Drs. Cindy Finden, Ethan Halpern, David Karasick, Stephen Karasick, Manoharan Muthuvelu, Dinesh Sharma

**Cardiovascular/
Interventional Radiology**

Directed by Kevin L. Sullivan, M.D.
Drs. Daniel Brown, David Eschelmann, Geoffrey Gardiner, Jr., Carin Gonsalves

Magnetic Resonance Imaging

Directed by Donald G. Mitchell, M.D.
Drs. Diane Deely, Angela Gopez, Flavius Guglielmo, William Morrison, Patrick O'Kane, Christopher Roth, Adam Zoga

**Musculoskeletal and
General Diagnostic Radiology**

Directed by William B. Morrison, M.D.
Drs. Diane Deely, Cindy Finden, Angela Gopez, Narainder Gupta, David Karasick, Stephen Karasick, Christopher Roth, Adam Zoga

Neuroradiology/ENT Radiology

**Directed by Adam Flanders, M.D.,
David Friedman, M.D.**
Drs. Sandeep Deshmukh, Steven Finden, Richard Gorniak, Melissa Kang, Vijay Rao, Dinesh Sharma, Lisa Tartaglino, Michael Wolf

Nuclear Medicine

Directed by Charles M. Intenzo, M.D.
Drs. Narainder Gupta, Sung Kim

Ultrasound

Directed by Barry B. Goldberg, M.D.
Drs. Oksana Baltarowich, Rick Feld, Flavius Guglielmo, Ethan Halpern, Alfred Kurtz, Christopher Merritt, Donald Mitchell, Levon Nazarian, Laurence Needleman, Patrick O'Kane, Sharon Segal, Terri Tuckman, Annina Wilkes

Research

Drs. Flemming Forsberg, Eric Gingold, Song Lai, Ji-Bin Liu, Laurence Parker, Mathew Thakur, Shaoxiong Zhang

**DEPARTMENT OF RADIOLOGY
HOUSESTAFF ROSTER
2007-2008**

RESIDENTS

FIRST YEAR RESIDENTS

Anton G. Delpont, M.D.
Phyllis K. Dioguardi, M.D.
Nancy N. Kang, M.D.
Jeffrey J. Mathews, M.D.
Hema S. Nallamshetty, M.D.
Piotr Sadej, M.D.
Michelle G. Sterling, M.D.
Niti Tank, M.D.

THIRD YEAR RESIDENTS

Amy F. Austin, M.D.
Luis Beltran, M.D.
Jennifer Hubert, M.D.
Suzanne S. Long, M.D.
Kristen E. McClure, M.D.
Ami Modi, M.D.
Nirav Patel, M.D.
Tamara Ann Trella, M.D.
Chun Wang, M.D.

SECOND YEAR RESIDENTS

Adeel Hasan Azam, M.D.
Sara E. Brooks-Sienkiewicz, M.D.
Susan Cha, M.D.
Michael J. Gould, M.D.
Elizabeth P. Ives, M.D.
Jonathan I. Lieberman, M.D.
Njogu J. Njuguna, M.D.
Marzban Rad, M.D.
Paul J. Read, M.D.

FOURTH YEAR RESIDENTS

Nitesh Bhagat, M.D.
Garen Boghosian, M.D.
Rashi I. Mehta, M.D.
Ketan Naran, M.D.
Neeta Rao, M.D.
Sudhir Vora, M.D.
Peter Wahba, M.D.

Nuclear Medicine

Ronald B. Goodwich, M.D.
Medina C. Kushen, M.D.

FELLOWS

ABDOMINAL IMAGING

Kevin W. Brown, M.D.
Igor Goykhman, D.O.
J. Christopher Martucci, M.D.
Manoharan Muthuvelu, M.D. (11/07-01/08)
Jason S. Solomon, M.D.
Leslie R. Trien, M.D.
Ross Wank, M.D.

BODY MRI

Joseph O. deJesus, M.D.

BODY/NEURO MRI

Michael V. Dutka, M.D.
Alan R. Hammond, M.D.
Hilary M. Hochberg, M.D.
Bradley G. Leypold, M.D.

BREAST IMAGING

Sorcha M. McNally, M.D.

CARDIOTHORACIC IMAGING

Muthuvelu Manoharan, M.D. (thru 11/07)

CARDIOVASCULAR/INTERVENTIONAL

Jessica E. Fazekas, D.O.
Rajan Puri, M.D.
John D. York, M.D.

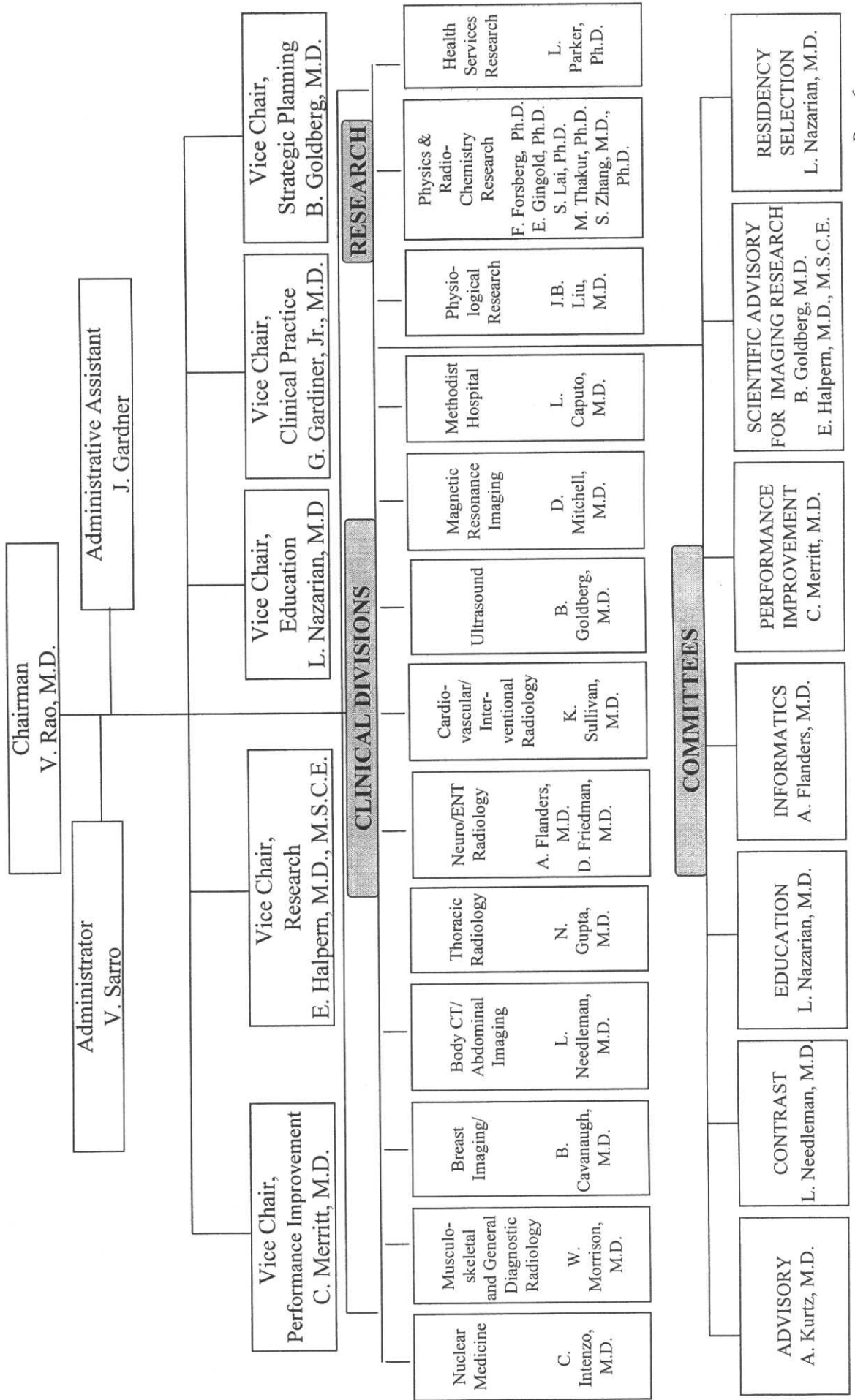
MUSCULOSKELETAL

Conor P. Shortt, M.D.
Donald C. Zajick, Jr., M.D.

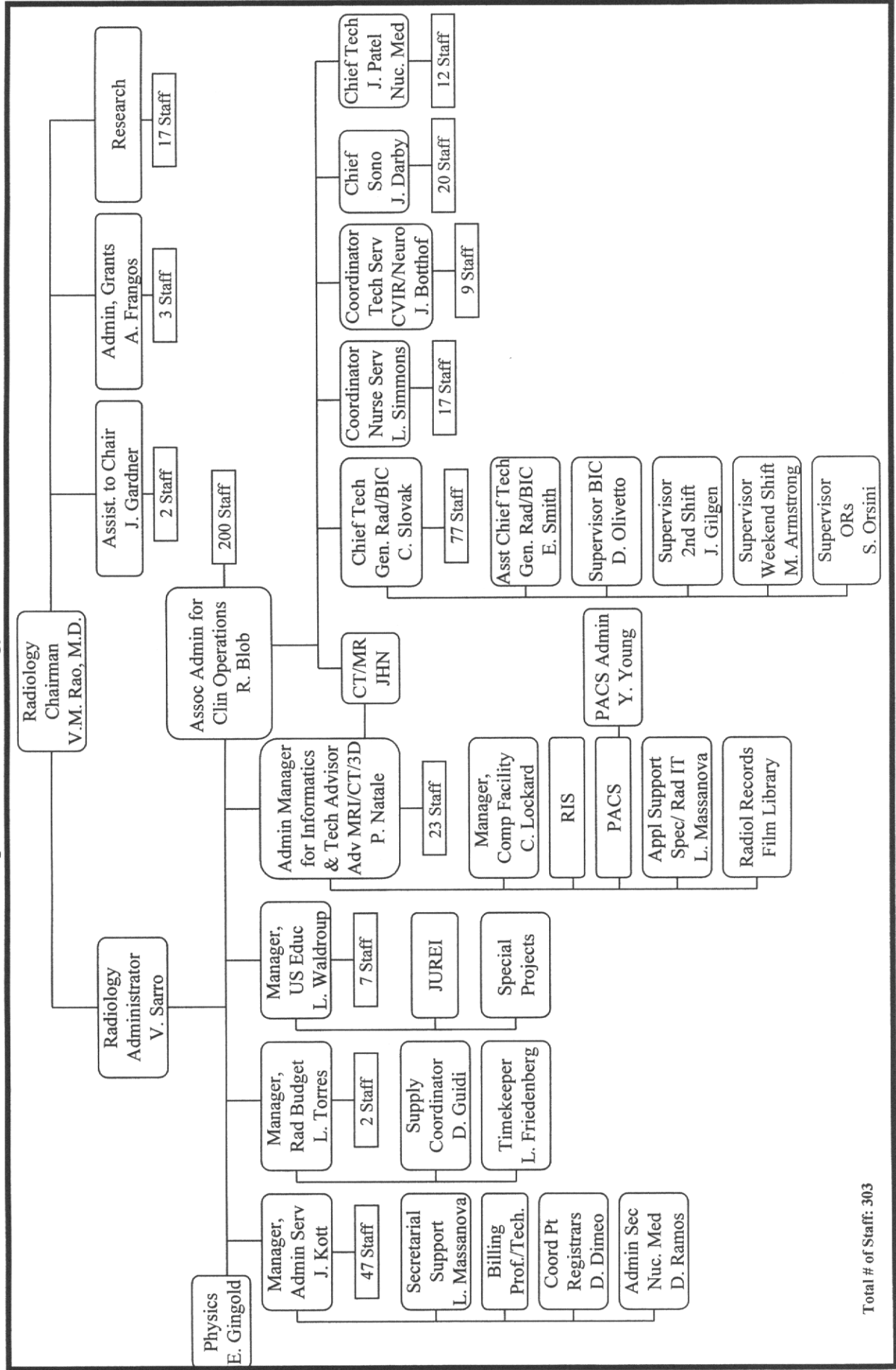
NEURO/ENT

Michael A. Benstock, M.D.
Fraser H. Brown, M.D.
Anitha S. Gonsalves, M.D.
Shital J. Patel, M.D.

Department of Radiology (2007-2008)



Department of Radiology Administration



Total # of Staff: 303

STATE OF THE DEPARTMENT
2007-2008
CHAIRMAN'S REPORT
VIJAY M. RAO, M.D.

I am pleased with the progress made in the academic year 2007-2008. It indeed has been a defining year for the Department of Radiology.

ENDOWED CHAIR

The first endowed chair was established in the department's 100+ year history through a generous gift from Mr. & Mrs. Arthur Penn in honor of the former chairman, David C. Levin. The investiture ceremony was held on June 17, 2008.

CLINICAL ACTIVITIES

The past year was a strong year, with the results of the hard work and dedication of the department continuing to show results. Our clinical practice experienced a 1% growth in the total procedure volume in FY08 compared with FY07. Total work RVU's were 0.5% higher reflecting a continued increase in the complexity of the caseload. Our outpatient imaging center, a joint venture with TJUH had another successful year with 33,425 procedures being performed, representing a 7.5 growth compared with last year. The center continues to be well-managed by Outpatient Imaging Affiliates, LLC, with their aggressive marketing efforts producing positive results.

In 2007-2008, a substantial amount of imaging services expansion occurred in the outpatient imaging center. Outpatient **body CT** was moved to the new space at 850 Walnut Street, improving efficiency and education of our residents and fellows. For **musculoskeletal imaging**, we acquired the ONI 1.0T extremity MRI system, which provides high quality imaging of the hand, wrist, elbow, foot, ankle and knee. Additionally, a Siemens 1.5T wide bore MRI was attained to accommodate patients who are large or claustrophobic. The wide bore magnet replaces the generation of "open" magnets with much higher resolution and improved image quality. These two new systems have expanded **body MRI** and **neuroimaging** availability, increasing daily volume by adding patient slots on the open-bore for patients who require an "open" magnet and moving some of the musculoskeletal cases load onto the ONI system allowing for more body and neuroimaging cases to be performed on the remaining MRI units at the outpatient center and within the hospital.

Several changes within the hospital areas have improved efficiency of the department. With the assistance of a grant from the Pennsylvania Department of Health, a 3 Tesla MRI unit we acquired for the Jefferson Hospital for Neuroscience. The system serves an important need, negating the transfer of JHN patients to the Gibbon Building by ambulance when 3T MR is required. Additionally, reorganization of the reading rooms have led to greater effectiveness and reduced report turnaround, especially for the Emergency Department cases, which are now interpreted in the outpatient area. The increased turnaround for image interpretation, combined with the availability of the CT scanner installed in the Emergency Department, continues to reduce waiting time for

emergency room patients. In addition, **cardiothoracic imaging** continues to offer triple rule out studies to evaluate coronary artery disease, pulmonary embolism, and aortic dissection for selected patients.

In **CVIR**, we have begun to offer portal vein embolization to allow for hypertrophy of functional liver remnants prior to liver resection. Cryoablation and radiofrequency ablation of liver, kidney, bone, and lung tumors are available to our patients. Additionally, we continue to treat patients with unresectable hepatic malignancies Yttrium-90 radiolabeled microspheres, in conjunction with the **nuclear medicine division**.

In **nuclear medicine**, a new pretreatment of differentiated thyroid cancer patients that was recently approved by the FDA is being offered. Low risk patients are being pretreated with human recombinant thyrogen stimulating hormone (rhTSH), thereby reducing the harmful effects of I-131 on non-diseased parts of the body during I-131 thyroid ablation. Similarly, prophylactic short-term steroid therapy with glucocorticoids prior to I-131 therapy in patients with Graves' disease at high risk for developing Graves' ophthalmology is a service being offered and may reduce the incidence of severe Graves' ophthalmology.

In **body MR** we have been begun performing MR enterography. Improvements in the imaging software have now brought the small bowels within the purview of MR imaging. Additionally, the advancements in software have allowed us to perform liver iron quantification, which has been at high demand from the hematologists for some time.

In **musculoskeletal and general radiology** the comprehensive imaging protocols for athletic pubalgia using sensorcaine-arthrography with a specially designed MR imaging protocol have been streamlined and continues to attract significant numbers of referrals from Hahnemann University's Dr. William Myers, a national expert on athletic pubalgia. The division continues to be the only musculoskeletal division in the country that serves as consultant for all four major sports teams in the city – Philadelphia Eagles, Phillies, Flyers and 76ers.

In **body CT**, the Department of Radiology and Thomas Jefferson University Hospital performed a Kaizen Event over several weeks to map existing processes and suggest improvements to improve CT efficiency. As a result, improvements in time management for patients have allowed for opening new outpatient slots to the CT schedule. Additionally, new policies have been implemented to reduce the wait time for Emergency Department patients with premedication protocols and patient safety initiatives have made the staff more sensitive to contrast induced nephropathy.

In **ultrasound**, several of the clinical ultrasound systems were upgraded and two new portable ultrasound units were acquired. The clinical service is working on improving service to the Departments of Otolaryngology and Endocrinology in the area of thyroid imaging and fine needle aspiration guidance, similar to the successful initiative started in 2005. The diagnostic and therapeutic musculoskeletal ultrasound imaging program continues to expand, increasing the number of patients seen by 30% over the past year. Our musculoskeletal ultrasound service is now one of the largest in the country.

SATELLITE CENTERS

In the mid 90's, imaging centers proliferated resulting in a dramatic shift of outpatient imaging to such centers away from the hospitals. Our department contracted with several outside centers to provide professional services. Although our satellite center have been an important part of our clinical practice, the reimbursement cuts due to enactment of the 2005 Deficit Reduction Act (DRA) continued to have an effect on imaging centers during the 2007-2008 fiscal year. Three centers that we have provided services for several years closed during this time: Academy Imaging, Oxford Valley PET, and Oxford Valley Nuclear Medicine.

RAD CONSULT

Imaging utilization nationally is in the crosshairs of the Center for Medicare and Medicaid services and other payors because of skyrocketing costs of imaging. Payors are now contracting with Radiology utilization management firms, such as HealthHelp, to develop guidelines for clinical indications and appropriate utilization of high end imaging studies such as CT, MRI and PET. Over the past year, the department has continued to contract with HealthHelp to participate in their RadConsult Program, providing peer-to-peer consultation to the referring physicians, review clinical indications for CT, CTA, MRI, MRA and PET using guidelines developed by HealthHelp to determine the appropriateness of the requested study.

PLANNED NEW CLINICAL FACILITIES AND PROGRAMS

In the **musculoskeletal and general diagnostic radiology division**, upgrade of the ONI extremity from 1.0 Tesla to 1.5 Tesla will improve the hand disorder service, as well as increase pediatric referrals. The 1.5 Tesla MRI scanner at the Jefferson Hospital for Neuroscience is in dire need of replacement to accommodate the increased volume in the **neuroimaging division**, including advanced MR techniques. The **body MR division** plans to initiate an MR urography program, which will be optimized with the receipt of a new 16-channel phased array coil.

The department will continue to expand in therapeutic areas with the **interventional radiology division** planning to expand their successful radioactive microsphere treatment and cryoablation and radiofrequency ablation programs to more patients. The ultrasound division will implement a program for the examination of obstetrical patients in the delivery room through a joint partnership arrangement with the Department of Obstetrics and Gynecology. Similarly, a joint service will be offered with vascular surgery to provide ultrasound examinations in the vascular surgeons' offices.

The **breast imaging center** is in the planning stages for a new screening center and a dedicated breast MRI in the Medical Office Building.

The **body CT/abdominal division** will expand the CT colonography service, a procedure which has been recognized by the American Cancer Association as an accepted screening test and is now reimbursed by Medicare. The **musculoskeletal and general diagnostic radiology division** plans on developing the CT service for increasing referrals

arthroplasty and arthrography. A new dedicated interventional scanner will be obtained and help reduce the backlog of interventional musculoskeletal and cardiothoracic procedures.

Cardiothoracic imaging will expand the cardiac CT program with the installation of a new 256 slice CT scanner, the Philips iCT. The system will further refine the expertise in cardiac and intervention imaging. This will also reduce the radiation dose to patients and obviate the need of routine beta blocking for cardiac patients. There are plans to expand the cardiac CT angiography and triple rule-out services for the Emergency Department with round the clock medical and support personnel staffing. If successfully implemented, the program will further reduce waiting time for emergency room patients.

CLINICAL INFORMATICS

The IT section of the Department of Radiology continues to support the clinical needs and mission of the department. During this past academic year, the radiology IT section implemented various IT solutions in the department including an enhancement to the iSite PACS system.

The new fiscal year began with all radiology divisions actively interpreting exams on Philips iSite PACS. The iSite system was a vast improvement of our legacy Canon and AGFA PACS. With the iSite, the radiologists benefited from improvements, including immediate access to historic exams and reports, integrated voice recognition system and Enterprise viewing system. The Enterprise Solution and the iSite Radiology application deploy a comprehensive image history timeline and prior radiology reports in a single repository.

In July of 2007, the radiology IT section implemented a web-based client application called Perldesk for logging radiology IT service requests. Perldesk allows end users to submit service requests online based on various service categories and priorities. Perldesk service tickets are updated online and the application supports email notification back to the end user. The Perldesk application offers various reporting tools which has allowed the radiology IT section and radiology administration to focus support based on statistical analysis.

One of the most intriguing aspects of the Philips iSite PACS system is the application programming interface (API) tool. The PACS supports an open API tool which allows programmers to add enhancements to the base product. Currently three APIs have been created and implemented in the Jefferson Radiology PACS system. These APIs include a teaching file application, an API for monitoring daily case status and most recently a mechanism to pre-fetch ad-hoc historic exams from the iSite patient timeline.

The iSite PACS system has several new application that improve efficiency in performing and interpreting exams, including Protocol Manager and TeraRecon. Protocol Manager allows residents, fellows and attendings to create and modify exams protocols in real time. Protocol Manager allows for better communication between the radiologist and the technologist and decreased errors.

CLINICAL WEAKNESSES

Lack of space remains a limitation for many areas of the department. Nuclear medicine has inadequate space for inpatients with no inpatient waiting area, resulting in inpatients in wheelchairs and stretchers held in the hallways or around the reception desk. This is a particular problem for the cardiac inpatients, whose stretchers span the hallway of 8 Thompson. This area is in dire need of facility expansion to improve the patient's experience, thereby maintaining the strong outpatient practice in this hospital setting.

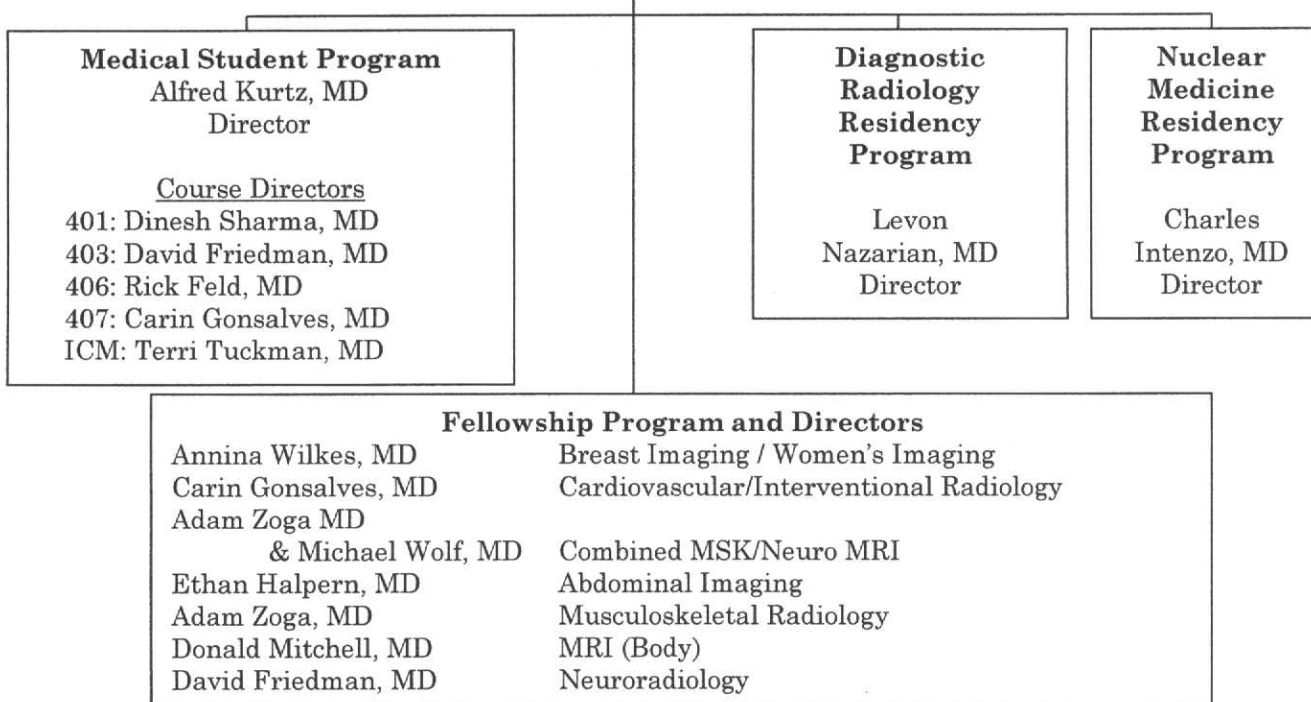
We continue to make strides in upgrading our equipment or bringing in new technology. It is still challenging to keep our equipment from getting out of date due to continued explosion in advanced technology. It behooves us to continually invest capital in Radiology in order to stay current and competitive in the marketplace.

As advanced technologies are implemented, imaging protocols become more complex and training becomes imperative to maintain high quality imaging. Technologists need to be provided training to become superusers. Additionally information management systems for image transmission are becoming more sophisticated requiring enhanced human skills. A plan for 'training the trainers' for technologists needs to be implemented.

Information technology is the lifeline of any radiology operation but unfortunately remains our weakest link. Despite existing talent, dedication and commitment of many individuals in our IT team, it has been an uphill battle to be effective. We need to improve and better define structure and process for enhanced communications with the hospital IS, university IT and Radiology IT. Many enterprise wide initiatives need to be able to get a jump start but have been on the back burner for too long. Radiology Information System needs to be upgraded including both hardware and software.

EDUCATIONAL PROGRAMS

RADIOLOGY EDUCATION



RESIDENCY TRAINING PROGRAM

The educational programs at Thomas Jefferson University Hospital continue to be one of the major strengths of our department. Our residency program recently obtained full 5-year accreditation by the ACGME, and the Radiology RRC approved the increase in number of residents from 28 to 36.

The Radiology residency program is nationally recognized as one of the top programs in the country. All seven of our senior residents passed both the written and the oral portions of the American Board of Radiology Examination. We have a reputation for the highest caliber fellowship programs and we are extremely pleased that this year all seven have chosen to stay on at Jefferson for additional fellowship training. Thanks to our Residency Program Director, Levon Nazarian, M.D., and Associate Program Director, Oksana Baltarowich, M.D., and the Residency Coordinator, Pamela Coyle for an outstanding job.

This year we received approximately 720 applications for eight positions and interviewed approximately 75 candidates. We matched all of our positions from among our top candidates. We also accepted a candidate into our DIRECT interventional radiology pathway. All residents are required to complete at least one project by the end of their third year, though many do more. Many of our residents presented papers at national meetings. One of our graduating seniors, Garen Boghosian, M.D., received the RSNA Research and Education Foundation Roentgen Resident Research Award which was presented to him at graduation. Dr. Njogu Njuguna participated in the RSNA/ARRS/AUR Introduction to Research Program, and Dr. Elizabeth Ives participated in the Seimens-AUR Radiology Resident Academic Development (SARRAD). Residents receive extensive clinical training in all areas of Diagnostic Radiology on Jefferson campus. Residents get an outstanding education spending a total of 3 months at A.I. DuPont in pediatric radiology. Every year the residents recognize one faculty member for their excellence in teaching. This year's A. Edward O'Hara award for excellence in teaching went to Dr. Patrick O'Kane.

TRAINING PROGRAMS FOR FELLOWS

Our fellowship programs had another successful year. There is an increasing number of extremely well qualified applicants in most of the areas offered by our department including: vascular and interventional radiology, body MRI, breast imaging, combined body and neuro MRI, neuroradiology/ENT, US/CT/MRI, and musculoskeletal radiology. In addition, we began the DIRECT pathway program three years ago, which is a 4 year combined Radiology residency and Vascular and Interventional Radiology Fellowship that can be entered after completing two clinical years of training. This program has been met with great interest. Our first DIRECT pathway trainee started July, 2006, and we currently have three DIRECT Pathway residents in our program. The fourth DIRECT Pathway resident will start July, 2009. All of the above programs received very positive year-end critiques from the graduating fellows.

TEACHING PROGRAMS FOR MEDICAL STUDENTS

I am pleased that radiology continues to be included in the core curriculum for sophomore students. I wish to thank Terri Tuckman, M.D. and Oksana Baltarowich, M.D., who

willingly contributed their time to this important teaching exercise for Jefferson medical students.

The junior and senior students can choose to attend one or more of the four separate electives offered by our department, which include General Radiology, CVIR, Neuroradiology, and Ultrasound/CT/MRI. The radiology electives remain quite popular and were completed by 127 members of the senior class, either here or at an outside institution. Our radiology elective courses are also popular with medical students from other institutions with two students in attendance this year.

The Neuroradiology elective was completed by 9 senior medical students. Electives in Cross-Sectional Imaging and CVIR were completed by 8 and three students, respectively. All of these courses received rave reviews from the students. I wish to thank all the course coordinators for a fine job – Dinesh Sharma, M.D. for General Radiology, David Friedman, M.D. for Neuroradiology, Rick Feld, M.D. for Cross-Sectional Imaging, and Carin Gonsalves, M.D. for CVIR.

CONTINUING MEDICAL EDUCATION PROGRAMS

In spite of all the added pressures of increasing clinical responsibilities, our faculty devote an enormous amount of energy and time to educational activities.

Division of Musculoskeletal and General Radiology: The Jefferson Lower Extremity Advanced Imaging Symposium, directed by Adam Zoga, M.D., was held in October 2007 with 115 attendees.

Radiology Grand Rounds and Radiology Research Conferences: Twenty-two weekly conferences were held during the 2007-2008 in Radiology, alternating between Grand Rounds, Radiology Research Conferences and Journal Clubs. Grand Round speakers covered a wide range of interesting topics in all areas of radiology. The Radiology Research Conferences allowed faculty, residents, and fellows in the department the opportunity to present the results of their research activities.

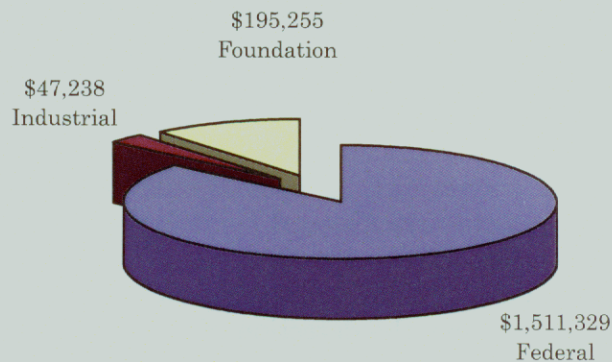
Jefferson Ultrasound Research and Education Institute (JUREI): The Jefferson Ultrasound Research and Education Institute, under the leadership of Barry B. Goldberg, M.D., continued its educational programs with more than 40 courses offered in all aspects of ultrasound. The annual Leading Edge meeting, which was held at the Borgata Casino Resort in Atlantic City, was a success with attendance of greater than 1,300 people.

The RSNA Research & Education Foundation grant “Teach the Teachers Initiative for Ultrasound Training in Latin America,” received a one year extension in order to complete the objectives of the grant. During this time period, JUREI faculty and staff provided ultrasound educational materials suited to the needs of each individual’s center and to provide a donated ultrasound machine with appropriate transducers to the seven newly formed affiliate ultrasound education centers to ensure they meet JUREI standards as teaching facilities. This program was completed by June 30, 2008. The new centers are located in Tegucigalpa, Honduras; Bridgetown, Barbados; Guatemala City, Guatemala; Managua, Nicaragua; La Paz, Bolivia; San Jose, Costa Rica and Maracaibo, Venezuela.

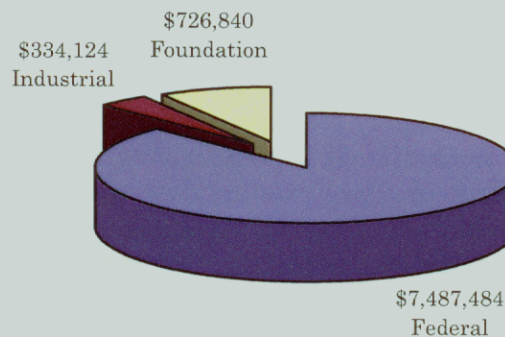
Cardiac CT Training Program: Our department continues to offer a training program in cardiac CT directed by Ethan Halpern, M.D., which includes quarterly didactic courses in addition to weekly hands-on training sessions in coronary CT angiography. The quarterly courses including hands-on sessions are taught by Drs. Ethan Halpern, David Levin and Shaoxiong Zhang and provide information needed for coronary CT angiography as well as evaluation of cardiac function and assessment of cardiac valves. These courses have been popular with both radiologists and cardiologists.

RESEARCH ACCOMPLISHMENTS

2007-2008 Fiscal Year Funding



Total Funding (all budget years)



Although the demands of clinical activities continue to increase, as indicated in our clinical productivity, the department's research productivity remained strong. There were 24 NIH or other federal grants active during the year, in addition to 3 foundation or medical society grants, and another 7 industrial grants. As a group, these grants brought in total current year funding of \$1,753,822, including \$1,210,597 in direct support and \$543,225 in indirect. We had 219 publications in the medical literature (including journal articles, books and book chapters, and published abstracts) over the past fiscal year. Dr. Dinesh Sharma and Ms. Andrea Frangos were awarded Judy Dubbs Research Grant Awards, to support and honor the outstanding work of our successful researchers.

The **Jefferson Molecular and Biomedical Imaging Core Facility**, under the direction of Mathew Thakur, Ph.D., has had another productive year continuing to expand its role in pre-clinical research on campus. This year, the facility was included in the renewal of the Kimmel Cancer Center Institutional Grant and was graded as an "excellent-to-outstanding" imaging facility by the National Cancer Institute, assisting in the successful renewal of the grant. Additionally, the National Center for Research Resources of the NIH awarded Dr.

Thakur an equipment grant to acquire a new high resolution, state-of-the-art animal PET scanner to improve the capabilities of the facility. The addition to the imaging facility is expected to be operational before the end of 2008. Dr. Thakur and his colleagues will then convert the current PET scanner into a SPECT scanner that will enhance the scope of molecular imaging research facility at Jefferson. In order to facilitate such SPECT imaging a tungsten collimator developed through an NIH grant to Drs. Paul Acton and Mathew Thakur has been fabricated and is currently under investigation.

The **MR physics program**, under the leadership of Song Lai, Ph.D., continued to investigate novel MR imaging techniques that provide a new, non-invasive approach to evaluate normal and diseased brain characteristics and functioning. Working with the Departments of Neurosurgery, Neurology, Pathology, and Pediatrics, the program has been productive in the investigation of multiple sclerosis, epilepsy, Parkinson's Disease, Klinefelter's Syndrome, and brain tumors.

Our division of **diagnostic ultrasound**, under the leadership of Dr. Barry Goldberg, continued to be highly productive. A variety of basic science, animal, and clinical research were underway for the development and evaluation of ultrasound contrast agents and novel imaging techniques to improve the detection of diseases. Dr. Goldberg continued his NIH-funded investigation into the use of ultrasound contrast agents for imaging lymphatic channels and sentinel lymph nodes in a swine model. Work on a five-year NCI grant with Dr. Margaret Wheatley at Drexel University to develop novel ultrasound contrast agents continued. Investigation into subharmonic pressure estimation in the heart and portal vein with ultrasound imaging, with funding from the American Heart Association and NIH, respectively, continued in Dr. Flemming Forsberg's lab. Dr. Rick Feld completed his work on real-time elastography for imaging of thyroid lesions, while Dr. Ethan Halpern continued work on his NIH-funded clinical trial to evaluate prostate cancer detection with contrast-enhanced ultrasound following pretreatment with Dutasteride.

In **breast imaging**, the faculty is in the process of completing their efforts on an NCI funded cooperative group clinical trial to define the most effective modalities for breast cancer screening. Results from a multi-center study, with Dr. Christopher Merritt serving as principal investigator at Jefferson, that examined the efficacy of combined screening with ultrasound and mammography compared with mammography alone in women with a high risk of breast cancer were published in the *Journal of the American Medical Association* in May 2008.

In **nuclear medicine**, Dr. Thakur continued his study on the development of probes for imaging oncogene expression, including his NIH-funded work to examine Cu-64 PET imaging of breast cancer and a current investigation of Cu-64 for prostate cancer imaging and plans to begin the human subject feasibility study in the upcoming year. Dr. Intenzo participated in the imaging portion of a trial sponsored by the American College of Radiology Imaging Network and the Radiation Therapy Oncology Group that evaluated PET for assessment of response to therapy in nonsmall cell lung cancer. With PET imaging at the forefront of clinical molecular imaging, Dr. Intenzo participated in a Phase I single-center safety study utilizing a new PET agent, FLT, which has the potential to be more specific than the current clinical agent FDG. The Phase I trial evaluated the agent for imaging malignant gliomas. Several additional clinical trials are planned for the upcoming year to evaluate new PET imaging tracers.

In **body MRI**, Dr. Mitchell continued work with Dr. Navarro in Gastroenterology on an NIH grant that includes rapid MRI for noninvasive monitoring of fatty liver and mesenteric fat in response to treatment with Silymarin. Additionally, Dr. Mitchell began the pre-clinical phase of a study funded by the Pennsylvania Department of Health through the American College of Radiology Imaging Network collaborative group that with monitor colorectal cancer response to treatment with dynamic contrast MRI. A body MR visiting fellow, under the guidance of Dr. Donald Mitchell was awarded the 2008 American Roentgen Ray Society Annual Residents in Radiology Award for his study entitled, "Submucosal Fibroids becoming Endocavitary following Uterine Artery Embolization: Risk Assessment by MRI", as well as the 2008 Member-in-Training Award from the Society of Radiologists in Ultrasound for his study entitled, "Comparison of Sonohysterography and MRI in the Diagnosis of Adenomyosis; the 'Myometrial Cracks' Sign".

In **neuroradiology/ head and neck radiology**, Dr. Flanders continued his work on a grant funded by the NIH to create an integrated biomedical informatics infrastructure for cancer research imaging. Other work was performed to evaluate vendor variability in brain CT perfusion calculations and to describe the experience of the department's neuroradiology division participation in HealthHelp RadConsult.

In **body CT**, Drs. Sharma, Halpern, Levin, Gardiner and Zhang continued their investigation into coronary CT angiography to diagnose coronary disease and for surgical planning, as well as a cadaveric investigation into the extent of the "blooming" effect on coronary imaging. Manuscripts studying indications for CT colonography and predictors of acute appendicitis were published during the past year, adding to the literature on CT imaging.

In the **interventional radiology division**, several clinical trials were conducted with Dr. Brian Carr of the Department of Medical Oncology utilizing Yttrium-90 radiolabeled microspheres. The division also published work on labial ulceration and endocavitary submucosal fibroids following uterine artery embolization, and infection rates of venous ports.

Our **musculoskeletal group** continued to be productive in their research publications, with several books and numerous manuscripts published during the 2007-2008 fiscal year. Studies included investigations into indirect soft-tissue and osseous signs on knee MRI of surgically proven meniscal tears and incidence of pulmonary embolus after joint arthroplasty. Additionally, Dr. Zoga's work in athletic pubalgia continued to be recognized with an award for the best paper at the International Skeletal Society meeting in Budapest, October 2007, and publications on the anatomy, pathology, and MRI findings in the sports hernia. Dr. Morrison completed a multicenter trial funded by the American College of Radiology Imaging Network to develop a standardized method of imaging osteoarthritis of the knee. Additionally, Dr. Morrison is serving as principal investigator at Jefferson for an NIH grant awarded to Drexel University to study the biomechanics of clubfoot deformity.

Our **health services research** group (Dr. Levin, Dr. Parker, Andrea Frangos and I) continued to be highly productive in studying practice patterns and utilization trends in diagnostic imaging and interventions. We received continued funding from the American College of Radiology. Over the past year, our Center for Research on Utilization of Imaging Services (CRUISE) has had 11 abstract published and 10 papers published. We expanded

our work to examine patient level data and have applied for two grants based on the findings. There is no doubt that this work will further enhance the national reputation of our department.

RESEARCH WEAKNESSES

Although we managed to continue our research success, proper research infrastructure (funds and personnel) is necessary to be successful in research today. Continued governmental budgetary restraints make obtaining federal support increasingly difficult, with the majority of projects requiring two or three resubmissions to be awarded funding, and funds, when awarded, to be cut drastically. There needs to be financial support to allow investigators to collect pilot data to be considered for funding, including support personnel to work on unfunded pilot clinical trials. Additionally, the university pilot grants need to be expanded to include funding mechanisms for health services research projects. This is an area with a great potential for funding, yet pilot projects in this area have been overlooked by the university award mechanisms.

The department has been productive in clinical research, but the effort required for the new era of complex clinical trials are limited by the amount of time that can be committed by faculty. The clinical workload has been increasing, eroding the academic time to carry out research. The NIH and FDA are promoting the use of radiological endpoints for a wide range of clinical trials, such as oncology and neurology studies. Often the sponsors require complex image evaluations by radiologists, thereby adding research work on studies being conducted by investigators in other departments to our department's clinical workload. More financial support is required to increase the number of faculty members, thereby restoring time to perform our research and assist with the multitude of other studies being carried out at Jefferson.

Trained clinician-researchers are needed to attract both industrial and federal funding. Translational research is a major part of the new NIH roadmap and requires qualified, capable researchers to carry out this work. With an overall shortage of radiologists nationwide, trained clinician-researchers are in great demand. In this competitive marketplace, we must be able to compete with other institutions to attract these specially trained clinician-researchers.

OPPORTUNITIES FOR EXTRAMURAL FUNDING

The department has 13 pending grant proposals, which are listed in Table 2 of the appendix. There are six pending proposals for federal grants and/or subcontracts and two proposals to foundations, and five pending industry grants. The proposals cover a broad spectrum of radiology research.

The American College of Radiology Imaging Network (ACRIN), an NCI funded cooperative group, remains a good source of extramural funding for the department. The department has been involved in eleven projects since the cooperative group's inception. There are additional projects, which are under development at ACRIN, which we hope to participate in. Additionally, ACRIN has recently been awarded a grant from the Pennsylvania Department of Health. We have already been awarded two of these projects and will be involved with at least one more pending project. While we will continue to pursue grant

funds through the NIH and radiology foundations, many of which provide seed grants to gather pilot data for larger grant submissions, we also plan on pursuing funding from industry to sponsor our investigator initiated projects.

With the NIH and FDA promoting the use of radiological endpoints in clinical trials, and amount spent on imaging increasing drastically over the past decade, evaluation of new imaging technologies with outcome and cost-benefit analyses are areas of radiology research that need to be explored. Breast and prostate cancer detection and treatment remain areas of interest to funding agencies and sources of funding in these areas need be explored. Additionally, with the high costs of cardiovascular disease to insurers, coronary CT and cardiac MR have a lot of potential for research funding. Other avenues of funding and research support are partnerships with industry. Partnerships are a rich source of financial support, but more importantly, allow us to serve as beta sites for equipment and bring attention to our research endeavors. We have formed collaborative relationships with Philips Healthcare and MicroMRI for evaluation and optimization of imaging equipment and techniques.

AFFILIATIONS AND INTERDEPARTMENTAL ACTIVITIES

Virtually every clinical department relies heavily on a strong radiology department to provide quality imaging for clinical care of patients as well as research. Joint endeavors between departments build on the strengths of both the departments to produce mutually beneficial programs.

Our physicians continue to work with faculty in other departments across Jefferson campus for both clinical and research endeavors. The department has collaborated with the Emergency Department in several areas to increase the efficiency and effectiveness of the patient flow. Dr. Halpern has worked with the Emergency Department to create a protocol for acute chest pain with patients presenting with chest pain. Drs. Merritt and Needleman have been working with the Emergency Department on ways to improve emergency service using the Failure Mode and Effects Analysis (FMEA) model for evaluation of patients with abdominal pain. This led to a detailed evaluation of Emergency Department issues, including CT and ultrasound, and has resulted in several important redesigns in patient preparation protocols and physician ordering.

Neuroradiologists continue to collaborate with researchers in the Departments of Otolaryngology, Neurosurgery, Orthopedic Surgery, Neurology, Rehabilitation Medicine, and the Farber Institute. Our physicians in CVIR have the most robust radioembolization program in the Delaware Valley, due mainly in part to an outstanding collaborative relationship with Takami Sato from oncology and Rani Anne from radiation oncology. In musculoskeletal radiology, we are working closely with the Department of Orthopedic Surgery, Sports Medicine, Family Medicine, and Rheumatology on clinical and research projects including the shoulder, hip, foot, and spine imaging.

In body MR, collaboration with the gastroenterology, particularly in the area of hepatology, has led to NIH funding. Drs. Halpern, Sharma, Mitchell, Gardiner, and Zhang have been working with cardiology in evaluating cardiac CT angiography and MR angiography. Additionally, Dr. Halpern continues his joint effort with the Department of Urology and the Jefferson Prostate Center. In the breast imaging group, the new Jefferson Breast Care

Center has helped to develop collaborations with various members of the multidisciplinary team. In nuclear medicine we are currently involved in two ACRIN-RTOG jointly sponsored projects. Additionally, almost all of our divisions participate in multidisciplinary conferences in many disciplines including chest, breast, gastroenterology, musculoskeletal, neurosciences and head and neck conferences.

The Department of Radiology's research collaborations also extend beyond Jefferson. Dr. Zoga worked with Dr. Meyers at Drexel to identify imaging findings of sports hernias and he now refers all his patients to TJU for imaging of this condition. Dr. Morrison worked with Dr. Siegler at Drexel University to evaluate clubfoot deformity. The ultrasound group continues to collaborate on several projects with investigators at the Drexel University and we continue our close relationships with the engineering departments at both Drexel University and the University of Delaware for undergraduate and graduate training and research. We are also bridging continents with breast imaging initiating a relationship with the University of Maiduguri Teaching Hospital in Nigeria to begin research collaborations.

APPENDIX I

PUBLICATIONS

Journal Articles:

1. Amirkhanov N, Dimitrov I, Opitz AW, Wagner NJ, Thakur ML, Wickstrom E: Design of (Gd-DO3A)(n)-polydiamidopropanoyl-peptide nucleic acid-d(Cys-Ser-Lys-Cys) magnetic resonance contrast agents. *Biopolymers* (in press).
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APPENDIX II

FORMAL SCIENTIFIC PRESENTATIONS

OKSANA BALTAROWICH, M.D.

- September 7-9, 2007 5th Annual Radiology After Five 2007: What To Do When You Are On Call Nights & Weekends, Educational Symposia Inc, New York, NY
- “Emergency imaging of the right lower quadrant: The role of ultrasound today”
 - “Ultrasound pitfalls and diagnostic challenges of ectopic pregnancy”
 - “Ultrasound of the right upper abdominal quadrant”
- October 11-14, 2007 2007 Society of Diagnostic Medical Sonographers Annual Conference, Las Vegas, NV
- “Sonography of diffuse liver disease”
 - “Sonography of the biliary system”
 - “Sonography of unusual ectopic pregnancies”
 - “Ultrasound of adnexal masses”
- February 7, 2008 Philadelphia Roentgen Ray Society Blue Ribbon Lecture, Philadelphia, PA
- “Pitfalls and diagnostic challenges of ectopic pregnancy”
- February 15, 2008 Asociacion Nicaraguense de Radiologia e Imagen, Roberto Calderón Hospital, Managua, Nicaragua
- “Sonography of adnexal masses”
 - “Pitfalls and diagnostic challenges of ectopic pregnancy”
- February 18, 2008 Asociacion de Ultrasonido I Sociedad Ginecologia, Guatemala City, Guatemala
- “Sonography of gynecologic causes of right lower quadrant pain”
 - “Pitfalls and diagnostic challenges of ectopic pregnancy”
- March 25-29, 2008 Association of University Radiologists 56th Annual Meeting, in Collaboration with the Radiological Society of North America, Seattle, WA
- “Evaluation of the effectiveness of an ultrasound training program for physicians from developing countries”
- March 29-30, 2008 Minnesota Society of Diagnostic Ultrasound 28th Annual Spring Seminar, Brooklyn Park, MN
- “Ultrasound of adnexal masses”
 - “How to avoid pitfall in transvaginal sonography of the pelvis”
 - “Sonography of renal disorders (excluding masses)”
- April 13-18, 2008 American Roentgen Ray Society 108th Annual Meeting, Washington, DC
- “2008 case-based approach to diagnosis: A case-based imaging review course: Ultrasound gynecology”

- May 7, 2008 1st Annual Ultrasound OB-Gyn Update Conference, sponsored by South Jersey Healthcare Regional Medical Center, Vineland, NJ
- “Diagnostic pitfalls and challenges of ectopic pregnancy”
 - “Ultrasound of adnexal masses”
- May 20-23, 2008 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- “Abdominal ultrasound – Part I (liver, gallbladder, and bile ducts)”
 - “Abdominal ultrasound – Part II (pancreas and spleen)”
 - “Kidneys, adrenal glands, retroperitoneum”
 - “Adnexal masses: When is ultrasound diagnostic?”
 - “Sonohysterography”

DANIEL BROWN, M.D.

- January 17-18, 2008 Renal Cancer and Renal Masses, Society of Interventional Radiology Interventional Oncology Seminar Series, Tampa, FL
- “Complications of renal cryoablation”
 - “Case review”
- March 15-20, 2008 Society of Interventional Radiology 33rd Annual Meeting, Washington, DC
- “Rational approaches to assessing response and problem solving with imaging”
 - “Case based review: Embolization”
 - “Case based review: Interventional oncology”
 - “Should IO split from the SIR? Con: IO’s Home is the SIR”
 - “Radioembolization scientific session” (moderator)
 - “Radioembolization with Y90 microspheres: Basic” (workshop faculty)
- April 13-18, 2008 American Roentgen Ray Society 108th Annual Meeting, Washington, DC
- “Arterial interventions for hepatic malignancy”
- May 8-10, 2008 2008 Society of Interventional Radiologists Spring Practicum, Oak Brook, IL
- “Basic principles and local tumor ablation: Device selection and tips for success”
 - “Renal cancer ablation: How I do it”
 - “My top 10 interventional oncology disasters and how to avoid them”
- June 22-25, 2008 World Congress of Interventional Oncology and Best of ASCO 2008 Annual Meeting, Los Angeles, CA
- “Management of complications of arterial therapies”
 - “Practice building in interventional oncology”

RICK FELD, M.D.

- May 20-23, 2008 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- “Interventional US, including thyroid biopsy: A practical guide”

ADAM FLANDERS, M.D.

- November 25-30, 2007 93rd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- “Using RSNA’s teaching file software and the RSNA my MIRC files service: A hands on course”
 - “Practical informatics for the practicing radiologist: Part two – Advanced processing: 3D and CAD”
 - “Using MIRC for departmental teaching files (basic imaging informatics)”
 - “Practical informatics for the practicing radiologist” (co-moderator)
 - “Using the medical image resource center (MIRC) software (basic imaging informatics)” (moderator)
- December 5-9, 2007 12th International Symposium on Neural Regeneration, Pacific Grove, CA
- “Clinical correlates of human spinal cord injury”
- February 21-24, 2008 American Society for Spine Radiology 2008 Annual Meeting, Indian Wells, CA
- “MRI of spinal trauma and spinal cord injury”
 - “Spinal trauma and spinal cord injury” (moderator)
- March 13-14, 2008 Cerebrovascular Update Conference 2008, sponsored by Thomas Jefferson University Hospital, Philadelphia, PA
- “Update on imaging of cerebrovascular disease”
- March 30-
April 4, 2008 40th International Diagnostic Course in Davos, Davos, Switzerland
- “Spine trauma”
- April 13-18, 2008 American Roentgen Ray Society 108th Annual Meeting, Washington, DC
- “Spinal cord injury: Evaluation with MRI”

FLEMMING FORSBERG, PH.D.

- September 5-8, 2007 2007 Innovative Minds in Prostate Cancer Today (IMPACT) Meeting, Department of Defense Prostate Cancer Research Program, Atlanta, GA
- “Excitation enhanced imaging for prostate cancer detection: In vitro and in vivo results” (poster)

- October 28-31, 2007 2007 IEEE International Ultrasonics Symposium, New York, NY
- “Contrast enhanced US for monitoring the effect of VEGF trap on melanoma tumor vascularity” (poster)
- November 4-7, 2007 American Heart Association 2007 Scientific Sessions, Orlando, FL
- “Subharmonic contrast microbubble signals for noninvasive pressure estimation: An in vitro study”
- November 25-30, 2007 93rd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- “Targeted biopsy of prostate cancer with contrast-enhanced microflow imaging”
 - “Tools and technologies for imaging and intervention in cancer: Ultrasound”
 - “Using radiation force to improve the adherence of targeted US contrast bubbles to blood clots: An in vitro study”
 - “Independent US based computer aided BI-RADS assessment of breast lesions”
- November 27-
December 1, 2007 American College of Veterinary Radiology 2007 Annual Scientific Meeting, Chicago, IL
- “Animal models for ultrasound contrast imaging research” (keynote address)
- March 12-15, 2008 American Institute of Ultrasound in Medicine Annual Conference, San Diego, CA
- “Monitoring the effect of VEGF TRAP on melanoma tumor vascularity using contrast enhanced ultrasound imaging”
 - “Contrast enhanced ultrasound measures of angiogenesis in rat xenograft models: Comparison to immunohistochemical markers”
 - “Assessing carotid stenoses with a new semi-automated 4D Doppler system”
- April 7-9, 2008 37th Annual Ultrasonic Industry Association Symposium, Washington, DC
- “Quantitative measurements and therapeutic applications using ultrasound contrast microbubbles”
- April 24, 2008 Visiting Professor, Department of Radiology, Foothills Medical Center, Calgary, Alberta, Canada
- “Advances in ultrasound imaging: Marketing or reality?”
- April 25, 2008 Visiting Professor, Southern Alberta Cancer Research Institute, Calgary, Alberta, Canada
- “Monitoring tumor angiogenesis with ultrasound imaging”
- April 30, 2008 Visiting Professor, GE Global Research, Niskayuna, NY
- “Microbubbles: At the nexus of ultrasound diagnosis and therapy”

- May 20-23, 2008 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- "Using radiation force for improved attachment of targeted microbubbles"
 - "Subharmonic bubble signals for pressure estimation"
 - "Principles of elastography and tissue strain imaging"
- May 28, 2008 Visiting Professor, New York University College of Dentistry, New York, NY
- "Ultrasound in medicine and biology"
- June 25-28, 2008 Era of Hope Meeting, Department of Defense Breast Cancer Research Program, Baltimore, MD
- "Subharmonic ultrasound contrast imaging of breast masses: Preliminary results"
 - "Excitation enhanced imaging for breast cancer detection: In vitro and in vivo results" (poster)
 - "Subharmonic ultrasound contrast imaging of breast masses: Preliminary results" (poster)

DAVID FRIEDMAN, M.D.

- August 23-25, 2007 Eastern Neuroradiology Society 19th Annual Meeting, Stowe, VT
- "Providing academic neuroradiologic consultative services for a radiology utilization management program"
- November 25-30, 2007 93rd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Experience of an academic neuroradiology division participating in a radiology peer-to-peer ordering support program (HealthHelp RadConsult)"
 - "Impact on imaging costs and patient care associated with the participation of an academic neuroradiology division in a radiology peer-to-peer ordering support program (HealthHelp RadConsult)"

ERIC GINGOLD, PH.D.

- February 9-13, 2008 Winter Institute of Medical Physics, Frisco, CO
- "The role of CT in imaging patients with chest pain"

BARRY GOLDBERG, M.D.

- September 28-29, 2007 American College of Radiology Imaging Network (ACRIN) Fall Meeting, Arlington, VA
- "New developments in ultrasound"

- October 26-28, 2007 17th Annual Meeting and Postgraduate Course of the Society of Radiologists in Ultrasound, Chicago, IL
- “Contrast-enhanced sonographic detection of sentinel lymph nodes in swine with melanomas: Comparison to nuclear medicine with blue dye-guided surgery as the gold standard”
 - “Effectiveness of the ‘teaching the teachers’ ultrasound physician training program: A summary of three programs”
- November 25-30, 2007 93rd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- “Contrast-enhanced sonographic detection of sentinel lymph nodes in swine with melanomas: Comparison to nuclear medicine with blue dye-guided surgery as the gold standard”
 - “Effectiveness of the ‘teaching the teachers’ ultrasound physician training program: A summary of three programs”
- March 12-15, 2008 American Institute of Ultrasound in Medicine Annual Conference, San Diego, CA
- “Effectiveness of the ‘teaching the teachers’ ultrasound physician training program: A summary of three programs”
 - “Sentinel lymph node detection in swine with melanomas: Comparison of lymphosonography to lymphoscintigraphy”
 - “Basic science: Contrast agents” (co-moderator)
- March 25-29, 2008 27th Mexican Society Annual Meeting in Medical Ultrasound, Cancun, Mexico
- “Sonohysterography”
 - “Contrast agents in gynecology”
 - “Advances in ultrasound”
- May 20-23, 2008 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- “Comparing lymphosonography & RNA analysis”
 - “Advances in ultrasound imaging”
- June 20-22, 2008 12th Annual Conference of the American Nepal Medical Foundation, Valley Forge, PA
- “The use of ultrasound in infectious diseases”
 - “JUREI ultrasound training programs for developing and emerging countries”

CARIN GONSALVES, M.D.

- March 15-20, 2008 Society of Interventional Radiology 33rd Annual Meeting, Washington, DC
- “Treatment of uveal melanoma liver metastases using Y-90 SIR-spheres: Imaging and clinical response”

NARAINDER GUPTA, M.D.

- October 6-7, 2007 Computerized Tomography (CT) Case Review for the Nuclear Medicine Physician Workshop, sponsored by the Society of Nuclear Medicine Philadelphia, PA
- “Thoracic CT anatomy”

ETHAN HALPERN, M.D.

- September 5-8, 2007 2007 Innovative Minds in Prostate Cancer Today (IMPACT) Meeting, Department of Defense Prostate Cancer Research Program, Atlanta, GA
- “Detection of prostate cancer with contrast-enhanced microflow imaging”
- September 16-18, 2007 Fourth Annual AdMeTech Foundation Conference on Prostate Imaging, Washington, DC
- “Innovations in the ultrasound detection of prostate cancer”
- November 25-30, 2007 93rd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- “Pretreatment with Dutasteride prior to prostate biopsy: Effect on Doppler flow patterns”
 - “Triple rule-out MDCT for low-to-moderate risk emergency department patients suspected of having acute coronary syndrome”
 - “Anatomic variants of coronary artery anatomy diagnosed with multidetector CT angiography”
 - “Biopsy of prostate cancer with contrast-enhanced microflow imaging”
- June 23-25, 2008 Issues in Clinical Prostate Cancer: Role of Imaging Workshop, National Cancer Institute, Rockville, MD
- “Contrast-enhanced sonographic detection of prostate cancer”

CHARLES INTENZO, M.D.

- November 25-30, 2007 93rd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- “Comparison of FDG uptake and tumor markers following immunotherapy in metastatic colon cancer”
 - “Variable scintigraphic patterns of parathyroid gland hyperplasia”
 - “Scintigraphic imaging of body neuroendocrine tumors” (education exhibit)

DAVID KARASICK, M.D.

- October 20-21, 2007 Jefferson Musculoskeletal Imaging Symposium, Thomas Jefferson University, Philadelphia, PA
- “Radiography of benign and malignant osseous lesions”

STEPHEN KARASICK, M.D.

- February 17-22, 2008 Abdominal Radiology Course 2008, presented by the Society of Gastrointestinal Radiologists and the Society of Uroradiology, Rancho Mirage, CA
- “Unknown film panel” (participant)

SUNG KIM, M.D.

- June 14-18, 2008 Society of Nuclear Medicine 55th Annual Meeting, New Orleans, LA
- “Dual-time point PET evaluation of pulmonary malignancy: Determining the likelihood of malignancy” (poster)
 - “Source of rising thyroglobulin level in the patient with recurrent thyroid cancer (TC) and a negative diagnostic iodine whole body scan” (poster)

ALFRED KURTZ, M.D.

- October 26-28, 2007 17th Annual Meeting and Postgraduate Course of the Society of Radiologists in Ultrasound, Chicago, IL
- “Measurement in gynecology”
 - “Plenary session: Signs, symptoms and measurements in ultrasound”
- May 20-23, 2008 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- “Ultrasound general imaging: The requisites” (co-director and moderator)
 - “Obstetrics part I: 1st trimester, ectopic pregnancy”
 - “Obstetrics part II: 2nd and 3rd trimester, ectopic pregnancy”

SONG LAI, PH.D.

- April 12-19, 2008 American Academy of Neurology 60th Annual Meeting, Chicago, IL
- “MRI assessment of structural integrity of the optic nerve and correlation with visual outcome after optic neuritis”
- May 3-9, 2008 International Society for Magnetic Resonance in Medicine 16th Scientific Meeting and Exhibition, Toronto, Ontario, Canada
- “MRI of pre-pubertal boys with Klinefelter syndrome: A voxel-based morphometric study”
 - “A fMRI study of pre-pubertal boys with Klinefelter syndrome”

- “Geometric distortion correction on EPI: An application for diffusion tensor imaging of the human optic nerve”

May 14-17, 2008

2008 5th IEEE International Symposium on Biomedical imaging: From Nano to Macro, Paris, France

- “Geometric distortion correction in EPI by phase labeling using sensitivity encoding (PLUS)”

JI-BIN LIU, M.D.

August 3, 2007

The 4th Western Regional Ultrasound Conference, Erduos, China

- “Ultrasound contrast imaging for interventional applications”

October 13, 2007

Beijing International Musculoskeletal and Advanced Ultrasound Symposium, Beijing, China

- “Prostate cancer detection and treatment with contrast ultrasound imaging”
- “Ultrasound of elbow”

October 19, 2007

Visiting Professor, Harbin Institute of Technology, Harbin, China

- “Contrast ultrasound imaging: The state of the art”

October 22, 2007

Visiting Professor, Third Affiliated Hospital of Sun-Yet San University, Guangzhou, China

- “Contrast ultrasound imaging: Its role for prostate cancer detection and treatment”

November 25-30, 2007

93rd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- “Contrast US-guided RF ablation of canine prostates with urethral and neurovascular cooling” (poster)

April 12, 2008

Annul Congress of Chinese Ultrasound Society, Chongqing, China

- “Contrast-enhanced lymphsonography”

May 20-23, 2008

The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ

- “Monitoring ablation procedures with contrast imaging”
- “Oral ultrasound contrast agents for GI applications”

CHRISTOPHER MERRITT, M.D.

November 15, 2007

Department of Radiology Grand Rounds, Yale University School of Medicine, New Haven, CT

- “A word is worth a thousand pictures”

April 13-18, 2008

American Roentgen Ray Society 108th Annual Meeting, Washington, DC

- “A word is worth a thousand pictures”
- “Doppler update”
- “Carotid and peripheral vascular cases”

- May 20-23, 2008 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- “Breast ultrasound: Physics”
 - “Breast ultrasound: BIRADS”
 - “The requisites – Understanding imaging”
 - “The requisites – Understanding Doppler”
 - “Optimizing imaging and Doppler”
 - “Patient safety and risk management”

DONALD MITCHELL, M.D.

- November 25-30, 2007 93rd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- “Optimal techniques for MRI of the liver at 1.5T”
 - “Case-based review of body MRI”
- March 31-
April 4, 2008 Society of Computed Body Tomography & Magnetic Resonance, 2008 Annual Course, Charleston, SC
- “MRI of renal masses”
 - “Abdominal MRI”
- June 22-24, 2008 The 4th Asia Pacific MR High Field Symposium, Seoul, Korea
- “3.0T protocol challenges for abdominal imaging”
 - “Challenges for evaluating diffuse liver disease”

WILLIAM MORRISON, M.D.

- August 15, 2007 Visiting Professor, Armed Forces Institute of Pathology, Washington, DC
- “MR imaging of the elbow”
- August 26-29, 2007 16th Annual Current Issues of Magnetic Resonance Imaging in Orthopaedics and Sports Medicine, San Francisco, CA
- “Lower extremity osteomyelitis”
 - “MRI ankle and foot” (panel discussion)
- September 11-12, 2007 Visiting Professor, University of Toronto, Toronto, Canada
- “MRI of the diabetic foot”
 - “Imaging of adult hip dysplasia and femoral acetabular impingement”
- October 3-7, 2007 Federacion Mexicana de Radiologia e Imagen Annual Meeting, Guadalajara, Jalisco, Mexico
- “MRI of the wrist and hand”
 - “Imaging of shoulder instability”
 - “MRI of the diabetic foot”
 - “Imaging of infection”

- October 20-21, 2007 Jefferson Musculoskeletal Imaging Symposium, Thomas Jefferson University, Philadelphia, PA
- "Imaging considerations in the injured ankle"
 - "MRI hip and FAI: From the imaging center to the orthopaedics clinic"
 - "Knee menisci and cartilage: From 0.3T to 3T"
 - "MRI of the foot"
- October 31-
November 1, 2007 Department of Radiology Grand Rounds, University of Michigan, Ann Arbor, MI
- "MRI of the diabetic foot"
 - "Boards review"
- November 25-30, 2007 93rd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Postoperative musculoskeletal imaging: MR imaging versus MDCT – Which is best?" (special focus session)
 - "MR and CT arthrography" (refresher course)
- January 11, 2008 1st Annual Meeting Irish Society of Skeletal Radiology, Dublin, Ireland
- "Imaging of femoral acetabular impingement"
 - "Provocative musculoskeletal MRI"
 - "Interesting cases"
- April 13-18, 2008 American Roentgen Ray Society 108th Annual Meeting, Washington, DC
- "Hip imaging and sports hernia" (instructional course)
 - "The post-operative shoulder: A multimodality approach" (keynote lecture)
- April 18-19, 2008 Simposio Internacional de Resonancia Magnetica, International Society for Magnetic Resonance in Medicine International Outreach Program, Cartagena, Colombia
- "Direct and indirect AMR arthrography"
 - "MRI of sports injuries"
 - "Provocative MR imaging"
- May 2-4, 2008 8th Annual MR Advances in Neuroradiology and Sports medicine Imaging, sponsored by Stanford University School of Medicine, Las Vegas, NV
- "MRI of the forefoot"
 - "MRI of the post-op shoulder"
 - "MRI of knee menisci: Tricks and tips"
 - "MR arthrography"
- June 20-22, 2008 Musculoskeletal and Neuroimaging 2008, Colorado Springs, CO
- "Imaging of arthritis"
 - "MR imaging of the ankle"
 - "Imaging of the wrist and hand"
 - "MR imaging of the elbow"
 - "MSK interventional procedures"
 - "MR arthrography"

LEVON N. NAZARIAN, M.D.

- July 13-14, 2007 Hands-on Musculoskeletal Ultrasound: Diagnostic and Interventional Techniques, American Institute of Ultrasound in Medicine Postgraduate Course, Rochester, MN
- Co-director
 - “General applications of musculoskeletal ultrasound”
 - “Ultrasound-guided elbow procedures”
 - “Common foot and ankle disorders”
 - “Ultrasound-guided foot and ankle procedures”
- December 5, 2007 Department of Physical Medicine and Rehabilitation Grand Rounds, Temple University, Moss Rehabilitation Institute, Elkins Park, PA
- “Ultrasound of the shoulder”
- December 5, 2007 Department of Emergency Medicine Grand Rounds, Christiana Care Health System, Newark, DE
- “General musculoskeletal ultrasound”
- March 5, 2008 Neurology Associates Grand Rounds, Christiana Care Health System, Newark, DE
- “Musculoskeletal ultrasound in peripheral neuropathies”
- March 12-15, 2008 American Institute of Ultrasound in Medicine Annual Conference, San Diego, CA
- “Just images: Knee ultrasound”
 - “Shoulder ultrasound: Rotator cuff pathology”
- April 7-9, 2008 37th Annual Ultrasonic Industry Association Symposium, Washington, DC
- “Impact of musculoskeletal ultrasound imaging in guiding minimally invasive treatments”
- April 16, 2008 Visiting Professor, Department of Radiology, Georgetown University Hospital, Washington, DC
- “Ultrasound boards review”
- May 20-23, 2008 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- “Musculoskeletal ultrasound course” (director)
 - “Introduction to musculoskeletal ultrasound”
 - “Ultrasound of the shoulder: Pathology”
 - “Ultrasound of the elbow”
 - “Ultrasound of the foot and ankle”
 - “Interventional musculoskeletal ultrasound”
 - “Musculoskeletal US vs. MRI: Which to choose?”
 - “Musculoskeletal ultrasound: The requisites”
- May 26-27, 2008 The Use of Ultrasound in Diagnosis and Treatment of Disorders in the Tendon, sponsored by Hospital for Rehabilitation, Stavern, Norway
- “Treatment of tendinopathies with dry needling”

- “Ultrasound-guided minimally invasive musculoskeletal surgery”
- “Future of musculoskeletal ultrasound”

LAURENCE NEEDLEMAN, M.D.

- September 28-30, 2007 Registered Physician in Vascular Interpretation Exam Review Course, San Diego, CA
- “Cerebrovascular”
 - “Arterial Duplex”
 - “Venous Duplex”
 - “Liver / kidney transplants”
- September 30-
October 7, 2007 35th Diagnostic Ultrasound Conference in Obstetrics and Gynecology and Abdomen, Musculoskeletal, Pediatric and Vascular Topics, sponsored by Johns Hopkins University School of Medicine, Towson, MD
- “Controversies in venous ultrasound”
 - “Carotid ultrasound: Advanced interpretation and pitfalls”
 - “Visceral imaging: Role of ultrasound, CT and MR”
- October 26-28, 2007 17th Annual Meeting and Postgraduate Course of the Society of Radiologists in Ultrasound, Chicago, IL
- “Acute DVT – An update”
 - “Vascular ultrasound: Difficult interpretations”
- November 16-17, 2007 Advances in Vascular Imaging and Diagnosis, sponsored by the Cleveland Clinic, New York, NY
- “Current approaches and controversial issues in the ultrasound assessment for deep vein thrombosis”
- January 20-24, 2008 20th Anniversary International Symposium on Endovascular Therapy Hollywood, FL
- “Tibial veins: Should we always scan them? How to scan them and what is the significance of the findings?”
 - “Carotid Duplex interpretation: Systolic and diastolic velocities, waveforms, ratios - How to do it right”
 - “Carotid Duplex interpretation: The advanced course (proximal, distal and systemic disease, unusual cases)?”
 - “The role of carotid screening and how to do the exam?”
- March 1-2, 2008 17th Annual Clinical Utilization of Color Doppler Ultrasound Seminar, Chicago, IL
- “How well do you know Doppler: A quiz”
 - “Lower extremity veins, DVT and venous insufficiency”
 - “Carotid arteries: Plaque, stenosis and stents”
 - “Doppler jeopardy”
 - “Quality assurance”
- March 12-15, 2008 American Institute of Ultrasound in Medicine Annual Conference, San Diego, CA
- “Vascular protocols and interpretation”

- March 14-16, 2008 Registered Physician in Vascular Interpretation Exam Review Course, St. Louis, MO
- “Cerebrovascular”
 - “Arterial Duplex”
 - “Venous Duplex”
 - “Liver / kidney transplants”
- May 3-4, 2008 Hot Topics in Body Imaging, sponsored by the Los Angeles Radiological Society, Los Angeles, CA
- “Current approaches and controversial issues in assessment for DVT”
 - “Doppler interpretation”
 - “IV contrast and the kidneys”
- May 20-23, 2008 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- “Calf veins – An update”
 - “Interesting cases I have seen”
 - “Quality assurance step by step”
 - “Requisites: Vascular (arterial and venous)”
- June 21, 2008 28th Annual Advances in Gastroenterology and Hepatology, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- “Advances in imaging of the small bowel and colon”

LAURENCE PARKER, PH.D.

- November 25-30, 2007 93rd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- “Variation across states in magnetic resonance imaging utilization in the Medicare population”
 - “Trends in diagnostic cervicocerebral imaging: Are noninvasive techniques replacing invasive techniques?”

VIJAY RAO, M.D.

- October 18, 2007 Pennsylvania Radiological Society, Philadelphia, PA
- “Finding a job after residency – What are employers looking for?”
- October 24-28, 2007 22nd Annual Economics of Diagnostic Imaging 2007: National Symposium, Arlington, VA
- “Turf wars in radiology – Strategies and tactics for 2008”
 - “Radiologists-hospital collaborative strategies for success: A win-win”
- November 25-30, 2007 93rd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- “Sinonasal infections and chronic inflammatory disease” (refresher course)

- “Recent changes in the utilization rates of noninvasive diagnostic imaging (NDI) among radiologists, cardiologists, and other specialties”
- “Recent utilization trends and practice patterns in abdominal imaging among radiologists and nonradiologist physicians”
- “How rapidly is digital mammography being introduced into clinical practice and how has it affected mammography utilization rates?”
- “Ownership of PET scanners in private offices: Which specialties are buying?”

March 25-29, 2008 56th Annual Meeting of the Association of University Radiologists, Seattle, WA

- “Utilization management in an academic setting”

May 6-7, 2008 Visiting Professor, Department of Radiology, University of Arkansas for Medical Sciences, Little Rock, AR

- “Forces reshaping the future practice of radiology” (Sally Klein Lecture in Radiology)
- “Neck spaces: Approach to differential diagnosis”
- “Temporal bone imaging”
- “ENT board review”

DINESH SHARMA, M.D.

November 25-30, 2007 93rd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- “Anatomic variants of coronary artery anatomy diagnosed with multidetector CT angiography”

MATHEW L. THAKUR, PH.D

July 2, 2007 Visiting Professor, MDS Nordion Inc, Toronto, Ontario, Canada

- “Molecular imaging: Shaping the future”
- “PET imaging of hormone dependent cancers”

July 27, 2007 Visiting Professor, NuView Radiopharmaceuticals Inc, Park City, UT

- “Copper-64 – Breast and prostate diagnostics”

August 15, 2007 Visiting Professor, Johnson & Johnson, Centocor, PA

- “Radiolabeling biomolecules for molecular imaging: Theory and applications”

September 16-18, 2007 Fourth Annual AdMeTech Foundation Conference on Prostate Imaging, Washington, DC

- “Molecular approach to PET imaging of prostate cancer”

- October 13-17, 2007 20th Annual Congress of the European Association of Nuclear Medicine, Copenhagen, Denmark
- “PET imaging of prostate cancer: A new approach to an old problem”
 - “PET targeting of breast cancer: Role of receptor specific peptides”
- December 1, 2007 13th Symposium of the International Society of Radiolabeled Blood Elements, Santa Cruz, Bolivia
- “Stem cells”
 - “Molecular imaging: Future directions”
- December 2-6, 2007 XXI Congreso de ALASBIMN, Santa Cruz, Bolivia
- “Trends in radiopharmaceutical development and use”
 - “Molecular imaging: Future directions”
- December 5-9, 2007 39th Annual Conference of the Society of Nuclear Medicine – India, Lucknow, India
- “Future trends in molecular imaging”
- March 30-
April 2, 2008 Nuclear Medicine Tomorrow International Symposium, Nantes, France
- “Stem cells: A regenerative pharmaceutical”
- May 12-16, 2008 6th International Conference on Isotopes, Seoul, South Korea
- “Radiopharmaceuticals for targeted therapy”
- June 14-18, 2008 55th Annual Meeting of the Board of Directors of the Society of Nuclear Medicine, New Orleans, LA
- “Genomic biomarkers for molecular imaging: Predicting the future”

LISA TARTAGLINO, M.D.

- May 23, 2008 Guest Lecturer, Department of Radiology, Children’s Hospital of Philadelphia, Philadelphia, PA
- “Intracranial applications of CT angiography”

ANNINA WILKES, M.D.

- July 17-20, 2007 XXVI Congreso Centroamericano de Radiología e Imagen, Sula, Honduras
- “Breast MRI-indications”
 - “Ultrasound of pelvic pain”
 - “First trimester fetal ultrasound”
 - “Mammographic-ultrasound correlation”
 - “Ultrasound guided breast biopsy procedures”
- July 26, 2007 Rol de Las Imagenes en Mama y Neurologia, Tequigalpa, Honduras
- “Breast MRI-indications”

- “Ultrasound of pelvic pain”
- “First trimester fetal ultrasound”
- “Mammographic-ultrasound correlation”
- “Ultrasound guided breast biopsy procedures”

November 25-30, 2007 93rd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- “Report of 2007 International Visiting Program – Honduras”

May 20-23, 2008 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ

- “Sonomammography tutorial” (director)
- “Breast ultrasound – Normal anatomy and scanning techniques”

MICHAEL WOLF, M.D.

May 31-
June 5, 2008 American Society of Neuroradiology 46th Annual Meeting and Neuroradiology Education & Research Symposium 2008, New Orleans, LA

- “Participation of an academic neuroradiology division in a peer-to-peer ordering support program: Follow up of ‘procedures not performed’ and the power of the sentinel effect”
- “Cost savings associated with the participation of an academic neuroradiology division in a peer-to-peer ordering support program”

ADAM C. ZOGA, M.D.

September 12, 2007 Department of Radiology Grand Rounds, Hahnemann University Hospital, Philadelphia, PA

- “Summary of knowledge on nephrogenic systemic fibrosis”

September 26, 2007 Department of Radiology Grand Rounds, George Washington University Medical Center, Washington, DC

- “Summary of knowledge on nephrogenic systemic fibrosis”

October 20-21, 2007 Jefferson Musculoskeletal Imaging Symposium, Thomas Jefferson University, Philadelphia, PA

- “MR and MR angiography of superior shoulder pain”
- “Role of imaging in common wrist and elbow pathologies seen in ‘hand clinic’” (MRI wrist and hand expert panel)
- “Groin pain in the young adult: What is the ‘sports hernia?’”

November 6, 2007 Department of Radiology Grand Rounds, Sibley Medical Center, Washington, DC

- “Summary of knowledge on nephrogenic systemic fibrosis”

November 12-13, 2007 Visiting Professor, Department of Radiology, Albany Medical Center, Albany, NY

- “Imaging hip pain in the young adult”

- November 14, 2007 Visiting Professor, Department of Radiology, Children's Hospital of Philadelphia, Philadelphia, PA
- "Summary of knowledge on nephrogenic systemic fibrosis"
- December 12, 2007 Delaware Radiology Society Keynote Lecture, Newark, DE
- "Imaging hip and groin pain in the young adult: What is sports hernia"
- April 13-18, 2008 American Roentgen Ray Society 108th Annual Meeting, Washington, DC
- "Hips and more" (moderator)
 - "MRI of athletic pubalgia and the 'sports hernia'" (educational course)
- May 3-9, 2008 International Society for Magnetic Resonance in Medicine 16th Scientific Meeting and Exhibition, Toronto, Ontario, Canada
- "Current concepts in musculoskeletal MRI" (educational course)
 - "Evaluation of the athlete with groin pain" (case based review course)
- October 1, 2008 Musculoskeletal Imaging Conference, sponsored by Regional Diagnostic Imaging at South Jersey Healthcare, Vineland, NJ
- "Imaging of hip disorders & evaluation of athletic groin injuries"
- September 5, 2008 Grand Rounds, Newport Hospital, Newport, RI
- "The use of MRI in the evaluation of arthritis (inflammatory arthritides)"

APPENDIX III

HONORS, EDITORIAL ACTIVITIES, SERVICE TO REGIONAL OR NATIONAL ORGANIZATIONS

OKSANA H. BALTAROWICH, M.D.

- Member, Thyroid Advisory Group for U.S., Belarus and Ukraine Cooperative Studies of Post-Chernobyl Thyroid Disease, National Cancer Institute, National Institutes of Health
- Member, Executive Committee, Friends of Radiology in Ukraine
- Member, Gynecology Ultrasound Section, American Institute of Ultrasound in Medicine
- Member, Advisory Editorial Board, *Ukrainian Radiological Journal*
- Blue Ribbon Speaker, Philadelphia Roentgen Ray Society Philadelphia

DANIEL B. BROWN, M.D.

- Chair, Professional Education Committee, *Society of Interventional Radiology*
- Chair, Subcommittee on Education, Interventional Oncology Task Force, *Society of Interventional Radiology*
- Associate Editor, *Journal of Vascular and Interventional Radiology*
- Associate Editor, *American Journal of Roentgenology*
- Reviewer, *Cardiovascular and Interventional Radiology*
- Abstractor of Current Literature, *Journal of Vascular and Interventional Radiology*
- Distinguished Reviewer Award, *Journal of Vascular and Interventional Radiology*
- Member, Scientific Program Committee, *Vascular and Interventional Subcommittee, Radiologic Society of North America*
- Named as one of the "Best Doctors in America 2007-2008", *Philadelphia Magazine*
- Named as one of the "Best Doctors 2007", *St. Louis Magazine*

BARBARA C. CAVANAUGH, M.D.

- Member, Subcommittee on Clinical Image Review, American College of Radiology
- Clinical Image Reviewer, Mammography Accreditation Program, American College of Radiology
- Clinical Image Reviewer, Stereotactic Breast Biopsy Accreditation Program, American College of Radiology

DAVID J. ESCHELMAN, M.D.

- Member, Relative Value Update Advisory Committee, Society of Interventional Radiology
- Member, Editorial and Advisory Board, *Journal of Vascular and Interventional Radiology*
- Abstract Reviewer, 33rd Annual Scientific Meeting, Society of Interventional Radiology

RICK I. FELD, M.D.

- President, Philadelphia Roentgen Ray Society
- Chair, Education Committee, Diagnostic Radiology Residency Ultrasound Curriculum, Society of Radiologists in Ultrasound Radiology
- Member, Executive Board, Philadelphia Roentgen Ray Society
- Member, Board of Directors, Pennsylvania Radiological Society
- Member, Program Committee, Philadelphia Roentgen Ray Society
- Alternate Councilor, Pennsylvania, American College of Radiology
- Associate Editor, *Journal of Ultrasound in Medicine*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Clinical Imaging*
- Reviewer, *International Journal of Clinical Practice*
- Reviewer, *Journal of American Medical Association*
- Reviewer, *Journal of Clinical Ultrasound*
- Reviewer, *Journal of Ultrasound in Medicine*
- Reviewer, *Journal of Vascular and Interventional Radiology*

ADAM E. FLANDERS, M.D.

- Consultant Neuroradiologist, Geron Corporation
- Chair, Neuroradiology/ENT Subcommittee, RadLex
- Chair, Research Committee, American Society of Spine Radiology
- Chair, MRI Subcommittee, RadLex
- Co-Chair, Medical Imaging Resource Center, Radiological Society of North America
- Member, Radiology Informatics Subcommittee, Educational Exhibits, Radiological Society of North America
- Member, Informatics Committee, American College of Radiology
- Member, Informatics Committee, American Society of Spine Radiology
- Member, Neuroimaging Committee, Annual Meeting, National Institute on Disability and Rehabilitation Research Measures
- Member, Program Committee, Society for Imaging Informatics in Medicine
- Member, XDS-I Technical Subcommittee, Radiological Society of North America
- Member, SIIM Educational Panel, Radiological Society of North America
- Member, Nominating Committee, American Society of Spine Radiology
- Member, Clinical Practice Committee, American Society of Spine Radiology
- Ad hoc Member, Scientific Review Board, Craig H. Neilson Foundation
- Grant Reviewer, Society Imaging Informatics in Medicine
- Associate Editor, Informatics (infoRAD), *Radiographics*
- Imaging Editor, *Yearbook in Ophthalmology*
- Reviewer, *American Journal of Neuroradiology*
- Reviewer, *Journal of Digital Imaging*
- Reviewer, *The New England Journal of Medicine*
- Reviewer, *Radiological Society of North America Electronic Journal*

FLEMMING FORSBERG, PH.D.

- Member, Technical Standards Committee, *American Institute of Ultrasound in Medicine*
- Member, Advisory Editorial Board, *Ultrasound in Medicine and Biology*
- Member, Advisory Editorial Board, *Journal of Ultrasound in Medicine*

- Reviewer, *Acoustic Research Letters Online*
- Reviewer, *Circulation*
- Reviewer, *Journal of Ultrasound in Medicine*
- Reviewer, *IEEE Transactions on Ultrasonics, Ferroelectrics & Frequency Control*
- Reviewer, *IEEE Transactions on Medical Imaging*
- Reviewer, *International Journal of Cancer*
- Reviewer, *Medical Engineering & Physics*
- Reviewer, *Medical Physics*
- Reviewer, *Radiology*
- Reviewer, *Ultrasonic Imaging*
- Reviewer, *Ultrasound in Medicine and Biology*
- Reviewer, *The Swedish Research Council*
- Reviewer, *Ultrasonics*
- Reviewer, *Veterinary Radiology & Ultrasound*

DAVID P. FRIEDMAN, M.D.

- Editorial Board, *Current Problems in Diagnostic Radiology*
- Reviewer, *American Journal of Roentgenology*

GEOFFREY A. GARDINER, JR., M.D.

- Associate Editor, Interventional Radiology Section, *Year Book of Diagnostic Radiology*
- Reviewer, *American Journal of Roentgenology*
- Named as one of the "Best Doctors in America 2007-2008", *Philadelphia Magazine*

ERIC GINGOLD, PH.D.

- Member, Radiography and Fluoroscopy Subcommittee, American Association of Physicists in Medicine
- Member, Diagnostic Work and Workforce Study Subcommittee, American Association of Physicists in Medicine
- Member, Task Group 116, Exposure Indicator in Digital Radiography, American Association of Physicists in Medicine
- Member, Task Group 150, Acceptance Testing and Quality Control of Digital Radiograph Systems, American Association of Physicists in Medicine
- Member, Task Group 153, Digital Radiography Glossary, American Association of Physicists in Medicine
- Image Quality Phantom Reviewer, MRI Accreditation Program, American College of Radiography
- Associate Editor, *Medical Physics*
- Reviewer, *Medical Physics*
- Reviewer, *Radiology*

BARRY B. GOLDBERG, M.D.

- President, Radiology Outreach Foundation
- Co-President, International Contrast Ultrasound Society
- Chairman, Archives Committee, American Institute of Ultrasound in Medicine
- Chairman, Archives Committee, World Federation for Ultrasound in Medicine and Biology
- Chairman, Committee on Ultrasound, American College of Radiology Imaging Network
- Chairman, Outstanding Researcher/Outstanding Educator Award Review Panel, Research and Education Foundation, Radiological Society of North America
- Chair, Education Committee, World Federation for Ultrasound in Medicine and Biology
- Chair, Ultrasound Working Group, American College of Radiology Imaging Network
- Consultant, Diagnostic Ultrasound, Nuclear Medicine Service, Veterans Administration
- Medical Advisor, Ultrasonic Procedures, Blue Shield of Pennsylvania
- Resource Advisor, March of Dimes Birth Defects Foundation
- Consultant, United States - Israel Binational Science Foundation
- Consultant, Ultrasound, Philadelphia Zoo, Philadelphia, Pennsylvania
- Professional Consultant, Medicare, Pennsylvania Blue Shield
- Medical Advisor, Ultrasound, World Health Organization
- Member, International Liaison Committee, Ultrasound in Medicine and Biology
- Member, Administrative Council, World Federation for Ultrasound in Medicine and Biology
- Member, Awards Committee, American Institute of Ultrasound in Medicine
- Member, Public Information Advisory Board, Radiological Society of North America
- Member, Research and Education Fund Committee, American Institute of Ultrasound in Medicine
- Member, Global Steering Group for Education and Training in Diagnostic Imaging, World Health Organization
- Member, Outstanding Researcher Award Review Panel, Radiological Society of North America Research and Education Foundation
- Member, Past Presidents Committee, American Institute of Ultrasound in Medicine
- Member, Outstanding Research/Educator Award Review Panel, Radiological Society of North America
- Member, Public Information Advisors Network, Radiological Society of North America
- Member, Corporate Advisory Council, Radiological Society of North America
- Member, Presidential Advisory Council, American Institute of Ultrasound in Medicine
- Member, Education Council, Radiological Society of North America
- Member, Research and Education Foundation Program Committee, Radiological Society of North America
- Member, Endowment for Education and Research Committee, American Institute of Ultrasound in Medicine
- Member, Committee on International Service, American College of Radiology
- Member, Contrast Agents Panel, American Institute of Ultrasound in Medicine
- Member, Future of Ultrasound in Radiology Advisory Committee, Society of Radiologists in Ultrasound
- Member, Advisory Committee on Ultrasound in Developing Countries, Society of Radiologists in Ultrasound
- Member, International Organizing Committee, International Congress of the Ultrasonic Examination of the Breast
- Member Fellows Selections Subcommittee for "Clinical Practice", American Institute For Medical and Biological Engineering
- Representative, Management of Adnexal Masses Technical Expert, American College of Radiology

- Co-Opted Councilor, World Federation for Ultrasound in Medicine and Biology
- Ultrasonography Coordinator, Topics in Radiology, *Journal of American Medical Association*
- Member, Advisory Committee, *Ultrasonidos en Medicina*
- Associate Editor, *Journal of Ultrasound in Medicine*
- Associate Editor, *Surgical Endoscopy, Ultrasound, and Interventional Techniques*
- Editorial Advisor, *Journal d'Echographie et de Medecine par Ultrasons*
- Editorial Consultant, *Applied Radiology*
- Editorial Consultant, *Chest*
- Editorial Consultant, *Medcom Faculty of Medicine*
- Editorial Consultant, *Pediatrics*
- Member, Advisory Editorial Board, *Ultrasound in Medicine and Biology*
- Member, Editorial Board, *Advances in Echo Enhancement*
- Member, Editorial Board, *Archives of Clinical Imaging*
- Member, Editorial Board, *Journal d'Echographie et de Medecine Ultrasonore*
- Member, Editorial Board, *Journal of Clinical Ultrasound in Medicine*
- Member, Editorial Board, *Journal of Ultrasound in Medicine*
- Member, Editorial Board, *Ultrasound International Journal*
- Member, Editorial Board, *Archives in Clinical Imaging*
- Member, Editorial Board, *Clinics in Diagnostic Ultrasound*
- Member, Editorial Board, *Journal of Surgical Ultrasonology*
- Member, Editorial Board, *Journal of Ultrasound in Medicine and Biology*
- Member, Editorial Board, *Radiologia*
- Member, Editorial Board, *Ultrasound International*
- Member, Editorial Board Committee, *Acta Clinica Croatica*
- Member, Editorial Committee, *Journal Ultrasonido*
- Overseas Editorial Adviser, *Borno Medical Journal*
- Member, Editorial Advisory Board, *West African Journal of Ultrasound*
- Member, International Editorial Board, *Giornale Italiano di Ecografia Journal*
- Member, International Editorial Board, *Brazilian Radiology Journal*
- Member, International Consultant Committee, *Revista Argentina de Radiologia*
- Member, International Advisory Board, *Indian Journal of Medical Ultrasound*
- Member, International Advisory Board, *Turkish Journal of Diagnostic and Interventional Radiology*
- Expert Panelist, 2007 Edition of AuntMinnies.com
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Cancer*
- Reviewer, *Gastroenterology*
- Reviewer, *Gastrointestinal Endoscopy*
- Reviewer, *Health Devices*
- Reviewer, *Journal of the National Cancer Institute*
- Reviewer, *The New England Journal of Medicine*
- Reviewer, *Radiology*
- Named as one of the Society of Nuclear Medicine "25 Most Influential in Radiology", *RT-Image*, 2007

CARIN F. GONSALVES, M.D.

- Reviewer, *Journal of Vascular and Interventional Radiology*

ETHAN J. HALPERN, M.D.

- Member, Ultrasound Committee, American College of Radiology Imaging Network
- Member, Public Information Advisors Network, Radiological Society of North America
- Grant Reviewer, Image Guided Interventions, National Institutes of Health
- Reviewer, *Radiology*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Annals of Internal Medicine*
- Reviewer, *Ultrasound in Medicine and Biology*
- Editors Certificate of Recognition, Review Special Distinction, *Radiology*

CHARLES M. INTENZO, M.D.

- Member, Academic Council, Society of Nuclear Medicine
- Member, Oncology Council, Society of Nuclear Medicine
- Member, Therapy Council, Society of Nuclear Medicine
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Radiology*
- Reviewer, *Radiographics*

DAVID KARASICK, M.D.

- Editor-in-Chief, *Seminars in Musculoskeletal Radiology*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Radiology*
- Reviewer, *Skeletal Radiology*

SUNG M. KIM, M.D.

- Member, Executive Council, Program Development Education Funding, Society of Nuclear Medicine
- Member, Computer and Instrument Council, Society of Nuclear Medicine
- Member, Brain Imaging Council, Society of Nuclear Medicine
- Member, Correlative Imaging Council, Society Nuclear Medicine
- Member, Membership Committee, Society of Nuclear Medicine
- Reviewer, Nuclear Medicine Subcommittee, Education Exhibit Committee, Radiological Society of North America
- Reviewer, *Journal of Nuclear Medicine*

ALFRED B. KURTZ, M.D.

- Member, Clinical Standards Committee, American Institute of Ultrasound in Medicine
- Member, Endowment for Research and Education Committee, American Institute for Ultrasound in Medicine
- Member, Editorial Board, *Journal of Ultrasound in Medicine*
- Member, Editorial Advisory Board, *Diagnostico Journal*
- Reviewer, *Radiology*
- Reviewer, *Radiographics*

SONG LAI, PH.D.

- Grant Reviewer, Brain Disorders and Clinical Neuroscience Study Section, National Institutes of Health
- Grant Reviewer, Development of Methods for in vivo Imaging and Bioengineering Research Study Section, National Institutes of Health
- Grant Reviewer, National Sciences and Engineering Research Council of Canada
- Reviewer, *Human Brain Mapping*
- Reviewer, *IEEE Transactions on Medical Imaging*
- Reviewer, *Journal of Magnetic Resonance Imaging*
- Reviewer, *Magnetic Resonance Imaging*
- Reviewer, *Magnetic Resonance in Medicine*
- Reviewer, *Magnetic Resonance Materials in Biology, Physics and Medicine*
- Reviewer, *Medical Physics*
- Reviewer, *NMR in Biomedicine*
- Reviewer, *NeuroImage*
- Reviewer, *Pediatric Research*
- Reviewer, *Stroke*

JI-BIN LIU, M.D.

- Member, Medical Advisory Board, International Certification and Education Accreditation Foundation
- Member, Editorial Board, *Chinese Journal of Medical Imaging Technology*
- Member, Editorial Board, *Journal of Ultrasound in Clinical Medicine*
- Grant Reviewer, National Natural Science Foundation of China
- Reviewer, *Chinese Journal of Ultrasonography*
- Reviewer, *Journal of Clinical Ultrasound*
- Reviewer, *Journal of Ultrasound in Medicine*
- Reviewer, *Ultrasonics*
- Reviewer, *Ultrasound in Medicine and Biology*

CHRISTOPHER R.B. MERRITT, M.D.

- Gold Medalist, American Roentgen Ray Society
- Examiner, American Board of Radiology
- Member, Strategic Planning Committee, College of Physicians
- Member, Committee on Administration, College of Physicians
- Member, Ultrasound Curriculum Committee, Society of Radiologists in Ultrasound
- Contributing Editor, *Breast Diseases Quarterly*
- Advisory Editor, *Ultrasound in Medicine and Biology*
- Advisory Editor, *Ultrasound Quarterly*
- Reviewer, *Academic Radiology*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Radiology*

DONALD G. MITCHELL, M.D.

- Chair, Gynecology Disease Site Committee, American College of Radiology Imaging Network
- Chair, MRI Committee, RADLEX
- Member, Gynecologic Cancer Steering Committee, National Cancer Institute
- Member, Steering Committee, American College of Radiology Imaging Network
- Member, Publications Committee, International Society for Magnetic Resonance in Medicine
- Member, Abdominal Committee, RADLEX
- Managing Editor, MRI Teaching File Resident and Fellow Section, American College of Radiology
- Associate Editor, *Journal of Magnetic Resonance Imaging*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Radiographics*
- Certificate of Appreciation, Managing Editor if ACR Resident and Fellow Section, *MRI Teaching File*

WILLIAM B. MORRISON, M.D.

- Chairman, Finance Committee, Society of Skeletal Radiology
- Treasurer, Executive Committee, Society of Skeletal Radiology
- Corporate Liason, Society of Skeletal Radiology
- Member, Expert Panel on Musculoskeletal Radiology, American College of Radiology Appropriateness Criteria, American College of Radiology
- Member, Expert Panel on Musculoskeletal Radiology, Continuous Professional Improvement Series, American College of Radiology
- Member, Program Subcommittee, American Roentgen Ray Society
- Associate Editor, Musculoskeletal Section, *Radiology*
- Member, Editorial Board, *Seminars in Musculoskeletal Radiology*
- Member, Consulting Editorial Board, *Skeletal Radiology*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Journal of the American Medical Association*
- Reviewer, *Osteoarthritis and Related Research*
- Reviewer, *Radiology*
- Reviewer, *Skeletal Radiology*

LEVON N. NAZARIAN, M.D.

- Presidential Recognition Award, American Institute of Ultrasound in Medicine
- Member, Board of Governors, American Institute of Ultrasound in Medicine
- Member, CME Committee, American Institute of Ultrasound in Medicine
- Member, Nominating Committee, American Institute of Ultrasound in Medicine
- Member, Editorial Search Committee, *American Journal of Roentgenology*, American Roentgen Ray Society
- Named as one of the "Best Doctors in America 2007-2008", *Philadelphia Magazine*

LAURENCE NEEDLEMAN, M.D.

- Chair, Program Committee, Society of Radiologists in Ultrasound
- Member, Board of Directors, Pennsylvania Radiological Society
- Secretary, Board of Directors, Intersocietal Commission on Accreditation of Vascular Laboratories
- Member, Ultrasound Guidelines and Standard Committee, American College of Radiology
- Member, Practice Guideline Collaborative Subcommittee for the Performance of Neurosonography in Neonates and Infants, American College of Radiology and American Institute of Ultrasound in Medicine
- Member, Public Information Advisors Network, Radiological Society of North America
- Member, Editorial Board, *Journal of Ultrasound in Medicine*
- Abstract Reviewer, Annual Meeting, American Heart Association
- Reviewer, Ultrasound Accreditation, American College of Radiology
- Reviewer, *Journal of Ultrasound in Medicine*
- Service Plaque, Society of Radiologists in Ultrasound, October 2007

PATRICK L. O'KANE, M.D.

- Consultant, Chernobyl Research Unit, Project, Radiation Epidemiology Branch, National Cancer Institute

VIJAY M. RAO, M.D.

- Sally Klein Lecturer, University of Arkansas
- Secretary, American Association for Women Radiologists
- Member, Research and Education Evaluation Committee, Radiological Society of North America
- Member, Scientific Program Committee, Radiological Society of North America
- Member, Editorial Board, *Journal of the American College of Radiology*
- Association of Program Directors in Radiology Liaison to Society of Chairmen of Academic Radiology Departments
- Assistant Editor, Health Policy, *Journal of the American Roentgen Ray Society*
- Reviewer, Scientific Exhibits, *Radiographics*, Radiological Society of North America
- Reviewer, Scientific Abstracts, 93rd Scientific Assembly and Annual Meeting of the Radiological Society of North America
- Reviewer, Scientific Abstracts, 55th Annual Meeting of the Association of University Radiologists
- Reviewer, Scientific Abstracts, 40th Annual Meeting of the American Society of Head and Neck Radiology
- Reviewer, *Academic Radiology*
- Reviewer, *American Journal of Neuroradiology*
- Reviewer, *Health Affairs*
- Reviewer, *Pediatrics*
- Reviewer, *Radiographics*
- Reviewer, *Radiology*
- Exceptional Reviewer, *Journal of the American College of Radiology*
- Named as one of the "Best Doctors in America 2007-2008", *Philadelphia Magazine*
- Named as one of "America's Top Doctors for Cancer", Castle Connolly Medical Ltd.

DINESH K. SHARMA, M.D.

- Judy Dubbs Memorial Research Award, 2007-2008

LISA M. TARTAGLINO, M.D.

- Reviewer, *Radiology*

MATHEW L. THAKUR, PH.D.

- Cassen Award, Society of Nuclear Medicine Education and Research Foundation
- Delegate-at-Large, Society of Nuclear Medicine
- Member, Board of Governors, Greater New York Chapter, Society of Nuclear Medicine
- Member, Board of Directors, Society of Nuclear Medicine
- Member, Advisory Committee, US Pharmacopeia
- Member, Advisory Committee, Kuwait Medical Research Council
- Member, Advisory Committee, International Atomic Energy Agency
- Member, Board of Directors, Molecular Imaging Center of Excellence, Society of Nuclear Medicine
- Chair, Young Investigators Award Committee, International Society of Radiolabeled Blood Elements
- Chair, Molecular Imaging Task Force on Awards and Grants, Society of Nuclear Medicine
- Chair, Review Committee, International Atomic Energy Agency
- Chair, Award Committee, Society of Nuclear Medicine
- *Ad hoc* member, Grant Review Service, National Institutes of Health
- Member, Grant Review Service, Foundation for Medical Research, Vienna, Austria
- Member, Industry Summit, Society of Nuclear Medicine
- Member, Financial Committee, Society of Nuclear Medicine
- Member, Public Relations Committee, Society of Nuclear Medicine
- Member, Board of Directors, Eagle Alliance
- Vice President, Organizing Committee, 6th International Conference on Isotopes
- Member, Editorial Board, *European Journal of Nuclear Medicine*
- Member, Editorial Board, *Journal of the Association of Latin American Societies of Nuclear Medicine and Biology*
- Member, Editorial Board, *Journal of the Indian Association of Clinical Medicine*
- Member, Editorial Board, *Journal of Labeled Compounds and Radiopharmaceuticals*
- Member, Editorial Board, *Journal of Nuclear Medicine*
- Member, Editorial Board, *Journal of Nuclear Medicine and Biology*
- Member, Editorial Board, *Nuclear Medicine Communications*
- Reviewer, *Bioorganic and Medicinal Chemistry*
- Reviewer, *Diabetes*
- Reviewer, *European Journal of Nuclear Medicine*
- Reviewer, *Journal of Labeled Compounds and Radiopharmaceuticals*
- Reviewer, *Journal of Nuclear Medicine*
- Reviewer, *Journal of Nuclear Medicine and Biology*
- Reviewer, *Nuclear Medicine Communications*
- Reviewer, *Post Graduate Medical Journal, London, England*
- Reviewer, *Oncology*
- Reviewer, *Veterinarian Journal of Pharmaceuticals and Therapy*

TERRI TUCKMAN, M.D.

- Director of Students, Board of Directors of the American Medical Women's Association
- Member, Professional Development Committee, American Medical Women's Association
- Member, Committee on Gender Equity, American Medical Women's Association

ANNINA N. WILKES, M.D.

- Member, Medical Advisory Board, Susan A. Komen Foundation
- Member, Speakers Bureau, Susan A. Komen Foundation
- Member, Women's Health Committee, American Medical Women's Association
- Member, Reach to Recovery Program Committee, American Cancer Society
- Member, Medical Advisory Board, Linda Creed Breast Cancer Foundation
- International Visiting Professor, Radiological Society of North America

SHAOXIONG ZHANG, PH.D.

- Member, International Reviewers Panel, *Medical Science Monitor*
- Reviewer, *American Journal of Roentgenology*

ADAM C. ZOGA, M.D.

- Member, Expert Panel, Musculoskeletal Radiology Appropriateness Criteria, American College of Radiology
- Member, Finance Committee, Society of Skeletal Radiology
- Member, Scientific Program Committee, Annual Meeting, American Roentgen Ray Society
- Reviewer, Scientific Posters, *Radiographics*, Radiological Society of North America
- Member, Editorial Board, "Hot Topics in Orthopedic Imaging", *Seminars in Musculoskeletal Radiology*
- Guest Editor, "Hot Topics in Orthopedic Imaging", *Seminars in Musculoskeletal Radiology*
- Reviewer, *American Journal of Radiographics*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Radiology Case Reports*

APPENDIX IV - ACTIVE GRANTS

07/01/07 - 06/30/08

(Report reflects entire award period and current fiscal year of award)

NIH/OTHER FEDERAL GRANTS

PRINCIPAL INVESTIGATOR	TITLE OF PROJECT	FUNDING SOURCE	FUNDING DATES	DIRECT COSTS	INDIRECT COSTS	TOTAL COSTS FUNDED
Flanders, A. Z40101 (subcontract)	Cross-enterprise Access to Cancer Imaging Data	NIH (NCI) thru Hx Technologies	12/01/05 - 11/30/07	\$35,312 --- \$0 (current fiscal yr)	\$19,774 --- \$0 (current fiscal yr)	\$55,086 --- \$0 (current fiscal yr)
Flanders, A. Z40401	caBIG - In Vivo Imaging Workspace	NIH (NCI) thru Booz Allen Hamilton Inc	10/01/05 - 09/29/08	\$60,870 --- \$17,945 (current fiscal yr)	\$33,666 --- \$9,870 (current fiscal yr)	\$94,536 --- \$27,815 (current fiscal yr)
Forsberg, F. R84301	Subharmonic Microbubble Signals for Pressure Estimation	NIH (NHLBI) R21 HL081892	01/15/07 - 12/31/09	\$330,284 --- \$121,638 (current fiscal yr)	\$145,908 --- \$62,517 (current fiscal yr)	\$476,192 --- \$184,154 (current fiscal yr)
Forsberg, F. Z39101 (subcontract)	Sonothrombolysis of Vascular Clots with Targeted Microbubbles	NIH (SBIR) thru ImaRx R44 HL071433	08/30/05 - 06/30/08	\$89,594 --- \$20,173 (current fiscal yr)	\$49,979 --- \$11,093 (current fiscal yr)	\$139,573 --- \$31,266 (current fiscal yr)
Forsberg, F. Z41001 (subcontract)	Broad Band Single Crystal Transducers for Contrast Agent Harmonic Imaging	NIH thru TRS Ceramics, Inc. R44 RR018016	09/25/05 - 08/31/08	\$45,756 --- \$29,677 (current fiscal yr)	\$25,623 --- \$16,322 (current fiscal yr)	\$71,379 --- \$46,000 (current fiscal yr)
Goldberg, B. R74401	US Detection of Sentinel Lymph Nodes in Melanoma	NIH (NCI) R01 CA100370	08/01/04 - 07/31/08	\$620,923 --- \$88,659 (current fiscal yr)	\$326,798 --- \$48,752 (current fiscal yr)	\$947,721 --- \$137,411 (current fiscal yr)
Goldberg, B. Z16603	American College of Radiology Cooperative Group Mechanism of the ACR Imaging Network	NIH thru ACRIN (cooperative group)	01/01/07 - 12/31/07	\$4,000 --- \$4,000 (current fiscal yr)	\$1,000 --- \$1,000 (current fiscal yr)	\$5,000 --- \$5,000 (current fiscal yr)

Goldberg, B. Z26902 (subcontract)	Development of a New Class of Ultrasound Contrast Agents	NIH thru Drexel University R01 HL52901	08/01/06 - 06/30/08	\$73,643 --- \$32,327 (current fiscal yr)	\$40,504 --- \$18,426 (current fiscal yr)	\$114,147 --- \$50,754 (current fiscal yr)
Halpern, E. R83101	US Prostate Cancer Detection with Dutasteride Pretreatment	NIH (NCI) R01 CA118003	07/14/06 - 06/30/09	\$710,324 --- \$161,298 (current fiscal yr)	\$390,678 --- \$88,215 (current fiscal yr)	\$1,101,002 --- \$249,513 (current fiscal yr)
Intenzo, C. Z37201	Positron Emission Tomography Pre- and Post-treatment Assessment for Locally Advanced Non-small Cell Lung Carcinoma	NIH thru ACRIN (cooperative group)	01/01/05 - 12/31/08	\$32,000 --- \$0 (current fiscal yr)	\$8,000 --- \$0 (current fiscal yr)	\$40,000 --- \$0 (current fiscal yr)
Lai, S. AB1501	Functional and Anatomical Connectivity MRI Study of Brain Tumor Infiltration: Application to Neurosurgery	Commonwealth of Pennsylvania Department of Health	01/01/05 - 12/31/08	\$125,000 --- \$0 (current fiscal yr)	\$0 --- \$0 (current fiscal yr)	\$125,000 --- \$0 (current fiscal yr)
Lai, S. R78901	Statistical Analysis of Radionuclide Images	NIH R01 EB002774	08/03/05 - 07/31/08	\$326,350 --- \$108,656 (current fiscal yr)	\$182,755 --- \$59,761 (current fiscal yr)	\$509,105 --- \$168,417 (current fiscal yr)
Liu, J. R70401	Contrast US Guided RF Ablation for Prostate Cancer	NIH (NIBIB) R21 EB002794	09/20/03 - 08/31/07 no cost extension	\$275,000 --- \$6,782 (current fiscal yr)	\$146,008 --- \$0 (current fiscal yr)	\$421,008 --- \$6,782 (current fiscal yr)
Merritt, C. Z32301	Screening Breast US in High Risk Women	NIH thru ACRIN (cooperative group)	01/01/04 - 12/31/08	\$154,000 --- \$9,881 (current fiscal yr)	\$38,500 --- \$2,470 (current fiscal yr)	\$192,500 --- \$12,352 (current fiscal yr)
Mitchell, D. G07401	ACR Commonwealth of PA Participant Institution	PA Department of Health thru ACRIN (cooperative group)	01/01/06 - 12/31/08	\$15,600 --- \$9,850 (current fiscal yr)	\$3,900 --- \$2,463 (current fiscal yr)	\$19,500 --- \$12,313 (current fiscal yr)
Mitchell, D. G09001	ACRIN PA 4002: Angle Interleaved Projection Reconstruction with K-Space Weighted Image Reconstruction for Dynamic Contrast MRI of Cancer Therapy Response	PA Department of Health thru ACRIN (cooperative group)	08/01/07 - 12/31/09	\$66,717 --- \$0 (current fiscal yr)	\$10,728 --- \$0 (current fiscal yr)	\$77,445 --- \$0 (current fiscal yr)

Mitchell, D. Z32402	American College of Radiology Cooperative Group Mechanism of the ACR Imaging Network	NIH thru ACRIN (cooperative group)	01/01/07 - 12/31/07	\$8,000 --- \$8,000 (current fiscal yr)	\$2,000 --- \$2,000 (current fiscal yr)	\$10,000 --- \$10,000 (current fiscal yr)
Morrison, W. G07501	ACRIN PA 4001: Multicenter Trial on MR Image Markers of Knee Articular Cartilage Damage in Osteoarthritis	PA Department of Health thru ACRIN (cooperative group)	01/01/06 - 12/31/08	\$61,609 --- \$15,494 (current fiscal yr)	\$15,402 --- \$2,818 (current fiscal yr)	\$77,011 --- \$18,312 (current fiscal yr)
Morrison, W. Z45501 (subcontract)	Skeletal Development in Clubfoot Treatment	NIH thru Drexel University R21 AR053255	09/01/06 - 07/31/08	\$8,818 --- \$3,972 (current fiscal yr)	\$4,849 --- \$2,184 (current fiscal yr)	\$13,667 --- \$6,156 (current fiscal yr)
O'Kane, P. Y00501	IPA for Chormobyl Research Unit	NIH (NCI)	04/01/06 - 10/31/08	\$12,420 --- \$892 (current fiscal yr)	\$0 --- \$0 (current fiscal yr)	\$12,420 --- \$892 (current fiscal yr)
Thakur, M. R76901	PET Imaging of Breast Cancer Using Oncogene Expression	NIH (NCI) R01 CA109231	04/01/05 - 02/28/09	\$1,019,422 --- \$200,225 (current fiscal yr)	\$550,604 --- \$109,830 (current fiscal yr)	\$1,570,026 --- \$310,055 (current fiscal yr)
Thakur, M. R78701	Improved Molecular Imaging with SPECT	NIH R01 EB001809	09/10/03 - 07/31/08	\$585,740 --- \$150,128 (current fiscal yr)	\$319,426 --- \$82,571 (current fiscal yr)	\$905,166 --- \$232,699 (current fiscal yr)
Thakur, M. R89101	PET for Molecular Imaging of Small Animals	NIH S10 RR023709	04/01/08 - 03/31/09	\$500,000 --- \$0 (current fiscal yr)	\$0 --- \$0 (current fiscal yr)	\$500,000 --- \$0 (current fiscal yr)
Wolf, M. Z47501	A Randomized Phase III Trial of Bevacizumab with Irinotecan or Bevericizumab with Temozolomide in Recurrent Glioblastoma	NIH thru ACRIN (cooperative group)	01/01/07 - 12/31/08	\$8,000 --- \$1,152 (current fiscal yr)	\$2,000 --- \$288 (current fiscal yr)	\$10,000 --- \$1,115 (current fiscal yr)
			TOTAL NIH/FEDERAL FUNDING	\$5,169,382	\$2,318,102	\$7,487,484
			CURRENT YEAR NIH/ FEDERAL FUNDING	\$990,749	\$520,580	\$1,511,329

Active Grants

07/01/07 - 06/30/08

(Report reflects entire award period and current fiscal year of award)

FOUNDATION/NON-PROFIT ORGANIZATION GRANTS

PRINCIPAL INVESTIGATOR	TITLE OF PROJECT	FUNDING SOURCE	FUNDING DATES	DIRECT COSTS	INDIRECT COSTS	TOTAL COSTS FUNDED
Forsberg, F. F75001	Intra-Cardiac Pressure Measurements	American Heart Association	07/01/06 - 12/30/08	\$109,090 -- \$54,545 (current fiscal yr)	\$10,910 -- \$5,455 (current fiscal yr)	\$120,000 -- \$60,000 (current fiscal yr)
Goldberg, B. F65701	Teach the Teachers	Radiologic Society of North America	07/01/04 - 06/30/08	\$300,000 -- \$60,255 (current fiscal yr)	\$0 -- \$0 (current fiscal yr)	\$300,000 -- \$60,255 (current fiscal yr)
Rao, V. F65401	Center for Research on Utilization of Imaging Services	American College of Radiology	01/01/04 - 5/16/08	\$306,840 -- \$75,000 (current fiscal yr)	\$0 -- \$0 (current fiscal yr)	\$306,840 -- \$75,000 (current fiscal yr)
TOTAL NON-PROFIT FUNDING CURRENT YEAR NON-PROFIT FUNDING				\$715,930 -- \$189,800 (current fiscal yr)	\$10,910 -- \$5,455 (current fiscal yr)	\$726,840 -- \$195,255 (current fiscal yr)

Active Grants
07/01/07 - 06/30/08

(Report reflects entire award period and current fiscal year of award)

INDUSTRIAL GRANTS

PRINCIPAL INVESTIGATOR	TITLE OF PROJECT	FUNDING SOURCE	FUNDING DATES	DIRECT COSTS	INDIRECT COSTS	TOTAL COSTS FUNDED
Feld, R. A86201	Real-time Elastography for the Evaluation of Thyroid Nodules	Hitachi Medical Corporation	09/29/05 - 03/31/08	\$37,875 ----- \$0 (current fiscal yr)	\$9,469 ----- \$4,734 (current fiscal yr)	\$47,344 ----- \$4,734 (current fiscal yr)
Flanders, A. A53601	ADCON-L MRI Research Project	GliaTech	09/01/01 - 12/31/50	\$25,000 ----- \$0 (current fiscal yr)	\$6,250 ----- \$0 (current fiscal yr)	\$31,250 ----- \$0 (current fiscal yr)
Forsberg, F. J37101	Clinical Evaluation: Philips Pathfinder Ultrasound System	Philips Ultrasound	03/03/08 - 03/02/11	\$5,400 ----- \$1,169 (current fiscal yr)	\$1,360 ----- \$2,386 (current fiscal yr)	\$6,760 ----- \$3,555 (current fiscal yr)
Halpern, E. J13801	Correlation of Contrast-Enhanced Sonography to ProstaScint Scan Imaging of the Prostate	Cytogen Corporation	02/22/06 - 12/31/50	\$84,402 ----- \$0 (current fiscal yr)	\$20,476 ----- \$4,000 (current fiscal yr)	\$104,878 ----- \$4,000 (current fiscal yr)
Intenzo, C. J34201	A Phase I Open Label Single Center Safety Study of [F-18]FLT	Siemens Molecular Imaging	11/02/07 - 11/02/08	\$45,000 ----- \$24,459 (current fiscal yr)	\$10,000 ----- \$6,070 (current fiscal yr)	\$55,000 ----- \$30,528 (current fiscal yr)
Liu, J. J35601	Fluorescence Guided Surgery	General Electric Company	12/21/07 - 01/31/09	\$50,481 ----- \$2,500 (current fiscal yr)	\$11,995 ----- \$0 (current fiscal yr)	\$62,476 ----- \$2,500 (current fiscal yr)

Sharma, D. A81301	Digital Imaging Research	AGFA Corporation	11/15/04 - 11/30/07	\$21,633 -- \$1,921 (current fiscal yr)	\$4,783 -- \$0 (current fiscal yr)	\$26,416 -- \$1,921 (current fiscal yr)
TOTAL INDUSTRIAL FUNDING				\$269,791 -- \$30,049 (current fiscal yr)	\$64,333 -- \$17,190 (current fiscal yr)	\$334,124 -- \$47,238 (current fiscal yr)
TOTAL FUNDING				\$6,155,103 -- \$1,210,597 (current fiscal yr)	\$2,393,345 -- \$543,225 (current fiscal yr)	\$8,548,448 -- \$1,753,822 (current fiscal yr)
TOTAL CURRENT YEAR FUNDING						

APPENDIX V - PENDING GRANTS

07/01/07 - 06/30/08

(Report reflects entire award period and first year of award)

NIH/OTHER FEDERAL GRANTS

PRINCIPAL INVESTIGATOR	TITLE OF PROJECT	FUNDING SOURCE	FUNDING DATES	DIRECT COSTS	INDIRECT COSTS	TOTAL COSTS FUNDED
Forsberg, F. (subcontract)	Ultrasound Stimulation for Spinal Fusion	NSF	01/01/09 - 06/30/09	\$33,333	\$18,167	\$51,500
Forsberg, F.	Noninvasive Subharmonic Pressure Estimation for Monitoring Breast Cancer Response to Neoadjuvant Therapy	U.S. Army Medical Research Acq.	04/01/08 - 03/31/11	\$299,966	\$164,981	\$464,947
Goldberg, B.	Contrast-Enhanced Ultrasound Detection of Secondary Lymph Nodes	NIH	12/01/08 - 11/30/09	\$250,000	\$136,250	\$386,250
Liu, J.	Contrast US Detection and RF Ablation of Sentinel Lymph Nodes in Breast Cancer	NIH	04/01/09 - 03/31/11	\$275,000	\$141,700	\$416,700
Liu, J.	RF Ablation with Contrast US Monitoring as Primary Treatment for Prostate Cancer	U.S. Army Medical Research Acq.	07/01/09 - 06/30/12	\$374,986	\$165,128	\$540,114
Morrison, W. (subcontract)	Cross-Platform Implementation and Validation of MicroMRI Technologies	NIH thru Micro MRI	03/01/09 - 08/31/11	\$152,102	\$82,898	\$235,000
				\$6,472 (-01 year)	\$3,528 (-01 year)	\$10,000 (-01 year)
			TOTAL NIH GRANT FUNDING	\$1,385,387	\$709,124	\$2,094,511
			TOTAL FIRST YEAR NIH FUNDING	\$515,325 (-01 year)	\$270,413 (-01 year)	\$785,738 (-01 year)

Pending Grants
 07/01/07 - 06/30/08
 (Report reflects entire award period and first year of award)

FOUNDATION/NON-PROFIT ORGANIZATION GRANTS

PRINCIPAL INVESTIGATOR	TITLE OF PROJECT	FUNDING SOURCE	FUNDING DATES	DIRECT COSTS	INDIRECT COSTS	TOTAL COSTS FUNDED
Parker, L.	How Much Could Substitution of Ultrasound (US) for Computed Tomography (CT) Save in Imaging Evaluation of Appendicitis?	American Institute of Ultrasound in Medicine	01/01/09 - 12/31/09	\$50,000	\$0	\$50,000
Mukherjee, A. (M. Thakur post-doc)	Targeting VPAC1 Receptors for PET and Optical Imaging of Breast Cancer	Society of Nuclear Medicine	07/01/08 - 06/30/09	\$25,000	\$0	\$25,000
			TOTAL NON-PROFIT FUNDING	\$75,000	\$0	\$75,000
			TOTAL FIRST YEAR NON-PROFIT FUNDING	\$75,000	\$0	\$75,000

Pending Grants
07/01/07 - 06/30/08

(Report reflects entire award period and first year of award)

INDUSTRIAL GRANTS

PRINCIPAL INVESTIGATOR	TITLE OF PROJECT	FUNDING SOURCE	FUNDING DATES	DIRECT COSTS	INDIRECT COSTS	TOTAL COSTS FUNDED
Cavanaugh, B.	Assessment of the Clinical Value of SuperSonic Sher Wave Elastography in the Ultrasonic Evaluation of Breast Lesions	SuperSonic Imagine	07/01/08 - 06/30/11	\$86,245 \$54,554 (-01 year)	\$21,711 \$13,638 (-01 year)	\$107,956 \$68,192 (-01 year)
Goldberg, B.	A Randomized, Double-Blind, Two-Dose Level, Phase I Study of Sonazoid-Enhanced Sonography of Lymphatic Channels and Sentinel Lymph Nodes in Health Volunteers	General Electric Healthcare	01/01/09 - 12/31/09	\$181,448 \$181,448 (-01 year)	\$45,162 \$45,162 (-01 year)	\$226,610 \$226,610 (-01 year)
Intenzo, C.	An Exploratory, Open Label, Multi-Center, Non-Randomized Study of [F-18]RGD-K5	Siemens Molecular Imaging	08/01/08 - 06/30/09	\$40,125 \$40,125 (-01 year)	\$9,281 \$9,281 (-01 year)	\$49,406 \$49,406 (-01 year)
Intenzo, C.	An Open Label, Parallel Group, Multi-center Study, Evaluating the Safety and Imaging Characteristics of 18F-45-AV in Healthy Volunteers, Patients with MCI and Patients with AD	Avid Radiopharmaceuticals	10/01/07 - 12/31/07	\$85,600 \$85,600 (-01 year)	\$21,400 \$21,400 (-01 year)	\$107,000 \$107,000 (-01 year)
Thakur, M.	Supplement to NIH Grant "PET Imaging of Breast Cancer Using Oncogene Expression"	NuView Radiopharmaceuticals	09/01/08 - 08/31/09	\$49,700 \$49,700 (-01 year)	\$12,425 \$12,425 (-01 year)	\$62,125 \$62,125 (-01 year)
	TOTAL INDUSTRIAL FUNDING			\$443,118	\$109,979	\$553,097
	TOTAL FIRST YEAR INDUSTRIAL FUNDING			\$411,427	\$101,906	\$513,333
	TOTAL PENDING FUNDING			\$1,903,505	\$819,103	\$2,722,608
	TOTAL FIRST YEAR PENDING FUNDING			\$1,001,752	\$372,319	\$1,374,071