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Department of Radiology-Annual Report-July 1, 1995 to June 30, 1996

David C. Levin
Thomas Jefferson University

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DEPARTMENT OF RADIOLOGY

ANNUAL REPORT

JULY 1, 1995 - JUNE 30, 1996

DAVID C. LEVIN, M.D.
PROFESSOR AND CHAIRMAN

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DEPARTMENT OF RADIOLOGY

David C. Levin, M.D.
Professor and Chairman

Alfred B. Kurtz, M.D.
Professor and Vice-Chairman

1995/96

DEPARTMENT CLINICAL DIVISIONS AND DIRECTORS

Breast Imaging	Stephen A. Feig, M.D.
Body CT	Richard J. Wechsler, M.D.
Cardiovascular/Interventional Radiology	Geoffrey A. Gardiner, Jr., M.D.
General Diagnostic Radiology	Gary S. Shaber, M.D.
Magnetic Resonance Imaging	Donald G. Mitchell, M.D.
Neuroradiology/ENT Radiology	Carlos F. Gonzalez, M.D. Vijay M. Rao, M.D.
Nuclear Medicine	Charles M. Intenzo, M.D.
Pediatric Radiology	George W. Gross, M.D.
Ultrasound	Barry B. Goldberg, M.D.

DEPARTMENTAL COMMITTEES AND CHAIRMEN

Advisory Committee	Alfred B. Kurtz, M.D.
Education Committee	Vijay M. Rao, M.D.
Research Committee	Barry B. Goldberg, M.D.
Residency Selection Committee	Levon Nazarian, M.D.
Quality Assurance Committee	Paul W. Spirn, M.D.
Computer Committee	Gary S. Shaber, M.D.
Contrast Committee	Richard J. Wechsler, M.D.

DEPARTMENT FULL TIME FACULTY - 1995-96

Professors

David C. Levin, M.D.
Stephen A. Feig, M.D.
Barry B. Goldberg, M.D.
Carlos F. Gonzalez, M.D.
David Karasick, M.D.
Alfred B. Kurtz, M.D.
Donald G. Mitchell, M.D.
Chan H. Park, M.D.
Vijay M. Rao, M.D.
Robert M. Steiner, M.D.
Matthew Thakur, Ph.D.
Richard J. Wechsler, M.D.
Simon Vinitzki, Ph.D.

Research Professor

Gary S. Shaber, M.D.

Clinical Professor

Stephen Karasick, M.D.

Associate Professors

Archibald A. Alexander, M.D.
Adam E. Flanders, M.D.
Geoffrey A. Gardiner, Jr., M.D.
George W. Gross, M.D.
Charles M. Intenzo, M.D.
Anna S. Lev-Toaff, M.D.
Laurence Needleman, M.D.
Eric K. Outwater, M.D.
Mark E. Schweitzer, M.D.
Kevin L. Sullivan, M.D.

Clinical Associate Professor

Paul W. Spirn, M.D.

Research Associate Professor

P. Macke Consigny, Ph.D.

Assistant Professors

Joseph Bonn, M.D.
Emily F. Conant, M.D.
Azar P. Dagher, M.D.
David J. Eschelman, M.D.
Rick I. Feld, M.D.
Flemming Forsberg, Ph.D.
David P. Friedman, M.D.
Ethan J. Halpern, M.D.
Sung M. Kim, M.D.
Andrew A. Maidment, Ph.D.
Levon Nazarian, M.D.
Catherine W. Piccoli, M.D.
Ana Salazar, M.D.
Sharon R. Segal, D.O.
Marcelle J. Shapiro, M.D.
Lisa M. Tartaglino, M.D.
James J. Zhang, Ph.D.

Clinical Assistant Professors

Diane M. Deely, M.D.
Terri Tuckman, M.D.
Elaine Wolk, M.D.

Research Assistant Professors

Ji-Bin Liu, M.D.
Hector V. Ortega, M.D.
Claire Spettell, Ph.D.

Instructors

Jane S. Hughes, M.D.
Cindy Isaacson, M.D.
Annina Wilkes, M.D.

Professors Emeriti

Jack Edeiken, M.D.
Benjamin M. Galkin, M.S.
Robert O. Gorson, M.S.
Philip J. Hodes, M.D.

Honorary Professor

A. Edward O'Hara, M.D.

FACULTY WITH SECONDARY APPOINTMENTS IN RADIOLOGY

Demetrius H. Bagley, M.D., Professor of Urology [primary]
Professor of Radiology [secondary]

Robert L. Brent, M.D., Ph.D., Professor of Pediatrics [primary]
Professor of Radiology (Radiation Biology) [secondary]

Ralph A. Carabasi, M.D., Professor of Surgery [primary]
Professor of Radiology [secondary]

Donald Myers, M.D., Assistant Professor of Neurosurgery [primary]
Instructor in Radiology [secondary]

Joel S. Raichlen, M.D., Clinical Associate Professor of Medicine [primary]
Clinical Associate Professor of Radiology [secondary]

Stanton N. Smullens, M.D., Professor of Surgery [primary]
Associate Professor of Radiology [secondary]

Nagalingam Suntharalingam, Ph.D., Professor of Radiation Oncology and
Nuclear Medicine (Medical Physics) [primary]
Professor of Radiology (Medical Physics) [secondary]

Paul Walinsky, M.D., Professor of Medicine [primary]
Assistant Professor of Radiology [secondary]

Ronald J. Wapner, M.D., Professor of Obstetrics and Gynecology [primary]
Professor of Radiology [secondary]

DEPARTMENT OF RADIOLOGY

David C. Levin, M.D., Chairman

Alfred B. Kurtz, M.D., Vice Chairman

CLINICAL DIVISIONS 1995-96

GENERAL DIAGNOSTIC RADIOLOGY

(incorporating pulmonary, skeletal, gastrointestinal, and genitourinary radiology)

Directed by Gary Shaber, M.D.

Drs. Diane Deely, George Gross, Cindy Isaacson, David Karasick, Stephen Karasick, Anna Lev-Toaff, Ana Salazar, Mark Schweitzer, Paul Spirn, Robert Steiner, Richard Wechsler

BREAST IMAGING/AMBULATORY RADIOLOGY

Directed by Stephen Feig, M.D.

Drs. Emily Conant, Jane Hughes, Cindy Isaacson, Catherine Piccoli, Annina Wilkes, Elaine Wolk

PEDIATRIC RADIOLOGY

Directed by George Gross, M.D.

Drs. Archie Alexander, David Karasick

CARDIOVASCULAR/INTERVENTIONAL RADIOLOGY

Directed by Geoffrey Gardiner, M.D.

Drs. Joseph Bonn, David Eschelman, Marcelle Shapiro, Kevin Sullivan

NEURORADIOLOGY/ENT RADIOLOGY

Directed by

Carlos Gonzalez, M.D. and Vijay Rao, M.D.

Drs. Azar Dagher, Adam Flanders, David Friedman, Lisa Tartaglino

ULTRASOUND

Directed by Barry Goldberg, M.D.

Drs. Archie Alexander, Rick Feld, Ethan Halpern, Alfred Kurtz, Anna Lev-Toaff, Donald Mitchell, Levon Nazarian, Laurence Needleman, Eric Outwater, Catherine Piccoli, Ana Salazar, Sharon Segal, Terri Tuckman, Annina Wilkes

BODY COMPUTED TOMOGRAPHY

Directed by Richard Wechsler, M.D.

Drs. Archibald Alexander, Rick Feld, Ethan Halpern, Alfred Kurtz, Anna Lev-Toaff, Levon Nazarian, Laurence Needleman, Ana Salazar, Paul Spirn, Robert Steiner

MAGNETIC RESONANCE IMAGING

Directed by Donald Mitchell, M.D.

Drs. Diane Deely, Eric Outwater, Catherine Piccoli, Mark Schweitzer

NUCLEAR MEDICINE

Directed by Charles Intenzo, M.D.

Dr. Sung Kim

RADIOLOGICAL PHYSICS

Drs. Flemming Forsberg, Andrew Maidment, Simon Vinitzki, James Zhang

RADIOCHEMISTRY

Dr. Matthew Thakur

HEALTH SERVICES RESEARCH

Dr. Claire Spettell

PHYSIOLOGICAL RESEARCH

Dr. Macke Consigny

DEPARTMENT OF RADIOLOGY
RESIDENTS/FELLOWS
1995-1996

RESIDENTS

Joseph Bucich, M.D., Chief Resident
Kristin Gerndt, M.D., Chief Resident

FIRST YEAR RESIDENTS

Marie A. Eason, M.D.
Eric S. Korenman, M.D.
Philip S. Lim, M.D.
Lawrence D. Lo, M.D.
Anne L. Moch, M.D.
Mark A. Rosen, M.D.

SECOND YEAR RESIDENTS

Susan T. DeWynngaert, M.D.
Carin F. Gonsalves, M.D.
Steven G. Moss, M.D.
David C. Sperling, M.D.
Janio Szklaruk, M.D.
Elizabeth L. Tan, M.D.

THIRD YEAR RESIDENTS

Joseph Bucich, M.D.
Kristen M. Gerndt, M.D.
Melissa J. Graule, M.D.
Asha M. Kovalovich, M.D.
Rita S. Patel, M.D.
Dieu-Thu Vo, M.D.

FOURTH YEAR RESIDENTS

Adam Fisher, M.D.
Charles Martin, M.D.
Timothy Murphy, M.D.
Daniel Radack, M.D.
Gautham Reddy, M.D.
Charul Saini, M.D.

NUCLEAR MEDICINE

Wilson Sy Tan, M.D.
Guillermo J. Aguilo-Ramos, M.D.

FELLOWS

ULTRASOUND/CT/MRI

Gudrun L. Cobb, M.D.
Jeffrey R. Coralnick, M.D.
Ronald J. Costanzo, M.D.
Daniel S. Gray, M.D.
Richard S. Jennis, M.D.
Kim Kieu, M.D.
John Matzko, M.D.
Kathleen N. Standiford, M.D.

NEURORADIOLOGY/ENT

Francisco DeLara, M.D.
Edward J. Escott, M.D.
Thomas J. Grobellny, M.D.
William Dakai Ko, M.D.
Tai H. Luong, M.D.
Robert S. Sacchi, M.D.
William G. Vazquez-Choisne, M.D.

NEURO/MRI

Eric W. Emig, M.D.
Victoria Kong Endo, M.D.

MAMMO/MRI

Steven A. Nussbaum, M.D.

**CARDIOVASCULAR/
INTERVENTIONAL**

Jorge E. Arsuaga, M.D.
Robin L. Boyd-Kranis, M.D.
Kenneth P. Moresco, M.D.
Thomas J. Quinn, M.D.

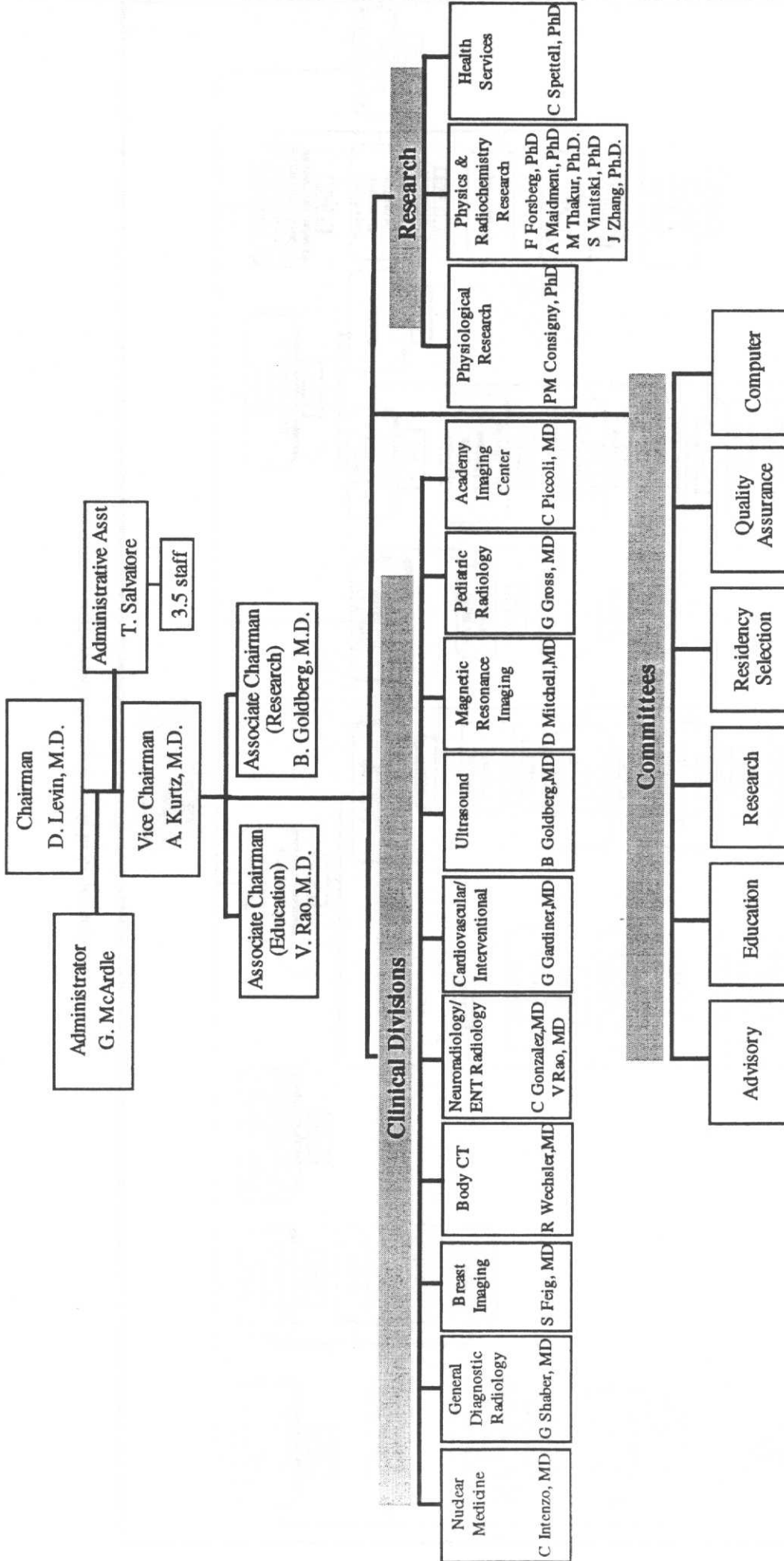
MUSCULOSKELETAL

Michael K. Ruhoy, M.D.

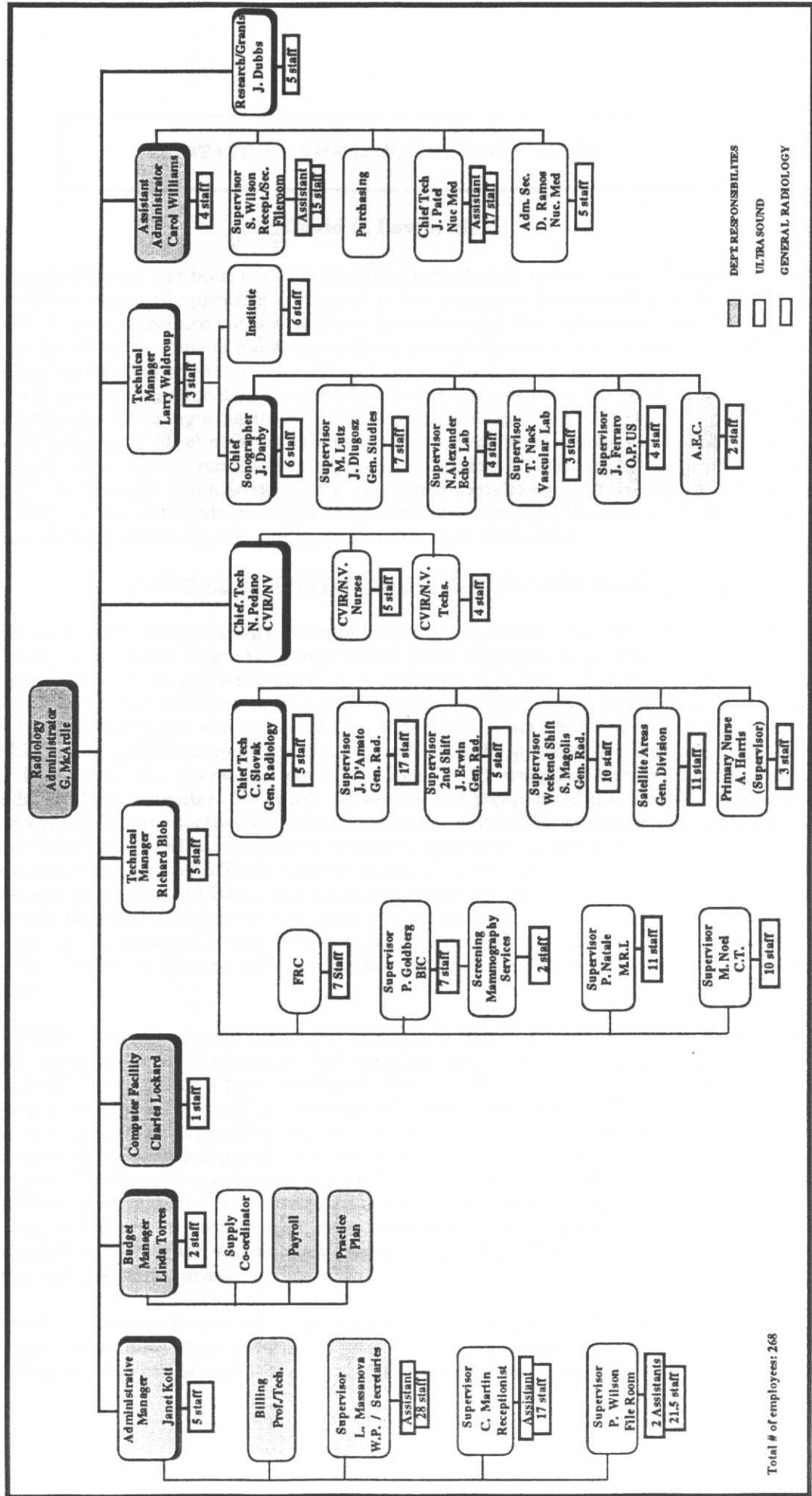
MRI

Abbott Huang, M.D.

Department of Radiology



Department of Radiology Administration



[Patterned Box] DEPT RESPONSIBILITIES
 [White Box] ULTRA SOUND
 [White Box] GENERAL RADIOLOGY

Total # of employees: 268

STATE OF THE DEPARTMENT, 1995-96

David C. Levin, M.D.

This past academic year has been one of both difficult challenges and interesting opportunities. Our clinical workload remained approximately equal to last year's, as measured by professional RVUs of service. Our overall procedure volume declined somewhat but this was compensated for by the fact that volume increased in some of our more complex procedures such as interventional radiology and MRI. We had an excellent year in research and our teaching programs remained very strong. Dr. Vijay Rao will present her educational report for the year immediately following this one. My report will touch upon the following areas: (1) clinical activities during the past year, (2) planned clinical programs for next year, (3) clinical weaknesses, (4) research accomplishments during 1995-96, (5) research weaknesses, (6) opportunities for extramural funding, (7) affiliations and interdepartmental activities, (8) department administration, (9) department goals, and (10) issues for the college and hospital. Judy Dubbs, Toni Salvatore and their associates compiled the lists and other information which make up much of this report, and I greatly appreciate their help.

CLINICAL ACTIVITIES DURING THE PAST YEAR

MRI - MRI continued to be a rapidly growing part of our practice. We did 13,969 of these studies this past year on our three magnets. Since health policy planners generally consider 2500 studies per year per magnet to be full utilization, it is apparent that our utilization is extremely heavy. Overall MRI volume was up 7% compared with the previous year. Body MRI rose by 15%, head and neck MRI by 15%, and brain and spine MRI by almost 4%. There was expansion of our use of the dynamic high-dose gadolinium-enhanced 3-D gradient echo protocol for imaging the aortoiliac arteries. There was also increased use of the heavily T2 weighted cholangiography sequence developed by Dr. Eric Outwater. Dr. Mark Schweitzer has popularized the use of MR arthrography. MRI has proven to be an effective way of characterizing adnexal masses that are indeterminate by ultrasound. Additional MRI use in studies of breast, pancreatic, and biliary disease was noted. We continued our relationship with TME, reading all MRI studies performed at their original facility in Langhorne and the new one in Bala. The Langhorne office has become one of TME's most successful operations and they have told me on a number of occasions that one of the prime reasons for this is the expertise and reputation of the Jefferson faculty members in our neuro/ENT and body MRI divisions. The facility in Bala got off to a slow start a bit over a year ago but activity has picked up gradually since then.

ULTRASOUND - Our division of diagnostic ultrasound continued to make major new advances in the clinical applications of ultrasound. For example, new uses of this technology in diagnosing musculoskeletal disorders have been developed. Dr. Lev Nazarian and some of his colleagues are involved in a promising new way of evaluating melanoma recurrence by ultrasound. Dr. Anna Lev-Toaff and colleagues are expanding the use of sonohysterography. Dr. Archie Alexander has continued to build his reputation and expertise in endorectal ultrasound, particularly in its use for evaluating rectal wall tumors and sphincter dysfunction. Dr. Rick Feld has led an ever-increasing expansion of our involvement in ultrasound-guided interventional techniques, such as thoracentesis, paracentesis, liver biopsy, thyroid biopsy, retroperitoneal biopsy, and compression repair of arterial pseudoaneurysms. Ultrasound was another area of our practice where growth occurred, especially in the vascular and obstetrical areas.

CT - Body CT procedures increased about 3% compared with the previous year. CT angiography (CTA) is coming into much more widespread use. It is truly amazing to see how well cerebral, neck, and abdominal arteries can be visualized using 3-dimensional reconstruction of CT images. Between

MRA and CTA, many invasive angiographic procedures and hospitalizations can now be avoided. Another exciting clinical development is the use of CT for detection of pulmonary emboli. It wouldn't surprise me if in the relatively near future, CT becomes a more sensitive technique for detecting PE than pulmonary angiography. There is also growing use of CT in assessing skeletal disease. Multiplanar reconstruction can show exquisite skeletal detail in cases of bone trauma and certain other disorders.

NUCLEAR MEDICINE - The nuclear medicine division experienced an 11% decline in procedure volume. Dr. Chan Park, professor of radiology and former director of the nuclear medicine division, decided to leave the United States and return to a department chairmanship in his native Korea. Dr. Charles Intenzo, associate professor of radiology, has become the new division director. Because of the decline in volume and the need to downsize in general, it was decided not to replace Dr. Park's position. The division will remain in the capable hands of Drs. Intenzo and Sung Kim and they have had no difficulty covering the clinical workload. There was expansion of several interesting nuclear techniques. One was the use of I-123 labeled IUDR as a glioma imaging agent. Another was the use of somatostatin tumor imaging to assess recurrent skull-base meningiomas. We also developed a protocol for quantitative hepatobiliary imaging with cholecystokinin in patients with gallbladder disease and biliary dyskinesia.

CARDIOVASCULAR/INTERVENTIONAL RADIOLOGY - The CVIR division saw a 5% increase in procedure volume this past year. They have become very intensively involved in providing long-term venous access for patients from a variety of different units around the hospital. They are now frequently placing tunneled chest wall catheters for patients in the bone marrow transplant unit, as well as tunneled dialysis catheters for patients in renal failure. All told, the use of implanted venous ports was up 23% and the use of percutaneously inserted central catheters (PICCs) was up 15% for the year. There was growth seen in procedures like hepatic chemoembolization, dialysis graft interventions, percutaneous alcohol installation in hepatoma patients, and the use of preoperative balloon occlusion of the internal iliac arteries in women at risk for massive bleeding because of placental abnormalities. The addition of Ms. Marge Kueny-Beck as a full-time physician assistant in CVIR has been a great help in allowing division members to better follow their patients clinically. Ms. Beck now contacts all CVIR outpatients for follow-up the day after an outpatient procedure is performed.

NEURORADIOLOGY/ENT RADIOLOGY - While neuro CT procedures were down by 5% this year and ENT CT studies held level, neuro MRI procedures grew at a rate of almost 4% and ENT MRI procedures grew by over 15%. We acquired software for magnetic resonance spectroscopy and are beginning to use this with increasing frequency. This provides an important new physiologic dimension to our ability to image brain lesions with MR. We added magnetization transfer protocols to our gadolinium-enhanced brain MRI studies. As noted earlier, CT angiography has also expanded. Neuroradiologists use this technique in evaluation of extracranial carotid disease, intracranial aneurysms, and arteriovenous malformations. We continued our joint operation of the department of radiology at Wills Eye Hospital with our colleagues from Pennsylvania Hospital. That practice has steadily expanded. In May 1996, the new Siemens MRI unit opened at Wills and we are already averaging 6-8 cases per day there. I am especially appreciative of the fine work done by Dr. Lisa Tartaglino in providing administrative oversight of the radiology facility at Wills.

GENERAL DIAGNOSTIC RADIOLOGY - The general diagnostic division experienced a reduction in volume of plain film examinations. This was especially pronounced on the inpatient side due to a reduction in the hospital census. However, there was also a small reduction in the volume of outpatient bone and chest examinations. On the positive side, the volume of Mediq cases increased. Even more importantly, we developed a new contract with Extremit-eze, a chain of small extremity-only MRI units based in New Jersey. Studies are sent from the four facilities operated by Extremit-eze to our bone reading room on Gibbon 3 via teleradiology. There they are interpreted by our three musculoskeletal radiologists - Drs. Mark Schweitzer, Diane Deely, and David Karasick. This was

our first real venture into teleradiology, and although procedure volume has been relatively low so far, we expect this to increase and to become a significant aspect of our clinical practice in musculoskeletal MRI. Core 3 was renovated, which enabled us to combine our GI and GU radiology activities under the supervision of a single faculty radiologist. Increases in efficiency like this are going to become increasingly important in the future.

BREAST IMAGING CENTER - Although our procedure volume in the breast imaging division remained approximately level with last year, we continued to see the benefits of separating screening mammography from diagnostic mammography. Patients seem more satisfied with the new arrangement. Percutaneous biopsy of breast lesions increased, using both stereotactic and ultrasound-guided techniques.

PEDIATRIC RADIOLOGY - In July 1995, Dr. George Gross assumed the chairmanship of the department of diagnostic imaging at the A.I. Dupont Institute, a well-deserved tribute to his expertise and reputation. At Dr. Gross's suggestion, we outsourced pediatric radiology to him and his AIDI colleagues. This not only enabled us to reduce professional costs but also to streamline our pediatric radiology operation in several ways. Dr. Gross and his colleagues are an outstanding group of pediatric radiologists and we are delighted to have them participating actively in Jefferson activities. Dr. Gross's outsourcing idea was particularly timely because of the shift of much Jefferson pediatric activity to AIDI. This resulted in a 30% decrease in pediatric radiology in our department.

PLANNED CLINICAL PROGRAMS FOR NEXT YEAR

During the coming year, we will be operating with a "downsized" faculty. We will have dropped one FTE faculty position in nuclear medicine, another one in the general diagnostic division, a part-time position in CVIR, and we will be reducing the coverage in pediatric radiology by the A.I. DuPont radiologists. At the same time, we are undertaking a major new venture in clinical practice, as a result of our recently-signed contract with Academy Imaging Center in Northeast Philadelphia. We have made extensive plans for assuming the coverage of this full service imaging center, and it will be a challenge for our faculty to make it work well, while at the same time fulfilling our commitments to education and research. I'm confident that we can do it.

During the past year, our marketing consultant, Shelly Perri, has been working with us on a contract basis. This was a trial arrangement, with the long term future of this position to be determined after the trial period was up. I'm pleased to report that our department and the hospital administration have jointly agreed to retain Ms. Perri in a permanent marketing position for the department of radiology. Radiology marketing is widespread in the Philadelphia area and is a key element in being able to attract and retain referring physicians. With Ms. Perri now on board, we plan more vigorous and active marketing campaigns.

Another enhancement of our clinical practice will be the installation of our new computer system. Our radiology information system (RIS) is a home-grown product which, I feel, works much better than most or all such commercial systems I've seen in other hospitals. In the last few years, however, our system has been slowed down (and occasionally run into serious operational problems) by the advanced aged of the computers on which it was running. Fortunately, we have obtained support from the hospital for a new computer and I'm confident that it will allow our management functions to become even more efficient than they have been in the past.

In the Breast Imaging Center, we will continue to actively market our mammography screening program. We will also work on a technique to improve core biopsy samples. In CVIR, the planned renovation and expansion did not take place this past year for a variety of reasons. We hope that they *will* be carried out during the coming year. This will provide a badly needed third procedure room and will allow us to improve our care of conscious-sedation patients.

Exciting things will be happening in both neuro and body MRI. We plan the installation of higher performance gradients on two of our MRI units, which will enable us to implement a number of pulse sequences that are currently unavailable at Jefferson. This will help us become more actively involved in such things as perfusion and diffusion imaging and functional MRI. With the new MRI unit now located at Wills Eye Hospital, our relationship with Extremit-eze, and the gradual growth in volume at TME Bala, we look for continued expansion of our MRI practice in both the neuro and body areas. Dr. Schweitzer has developed a good working relationship with podiatrists from the Pennsylvania College of Podiatric Medicine and this will be still another source of increased clinical referrals. A Dentascan package will be added on our Main 10 CT scanner.

One of our most important new ventures in clinical practice will be the installation of a new Canon teleradiology system. We have been studying the possibilities in teleradiology for a number of years and have decided that now is finally the appropriate time to "take the plunge". We formed a teleradiology committee, headed by Andrew Maidment, Ph.D., and this committee devoted extensive time and effort to evaluating the many teleradiology systems on the market. Because of the diligent work of this committee and some hard bargaining, we were able to strike an extraordinarily cost-effective agreement with Canon. Not only is the price right, but our committee became convinced that Canon has the best technology available of all the many suppliers. Moreover, the company is anxious to work with us as a clinical test site on the east coast. We feel this will stimulate them to provide us with excellent support, as well as enable us to work with them in developing the capabilities of the system. Teleradiology is an exciting new technology, but it will most certainly require a change in the "culture" of our radiology practice, especially in the body CT, body MRI and neuroradiology/ENT divisions. Physicians will have to get used to reviewing cases on workstations rather than film, and this could well impact the way we interact with our colleagues on the clinical services. One of the big advantages is the potential for saving significant amounts of money on the purchase of laser camera film. We anticipate that these savings will more than pay for the cost of the teleradiology system itself.

In our division of diagnostic ultrasound, we will be working with a new automated reporting system which was developed by some radiology colleagues at another institution and is now being manufactured by Kodak. Because of the size and reputation of our ultrasound division, that system will be installed at TJUH at no charge and we will work with the company on developing its capabilities. We're hopeful that this will enable us to significantly reduce the turnaround time of ultrasound reports. In our body CT division, the reading room will be enlarged to relieve the extremely crowded and somewhat chaotic conditions that exist there now. This will involve relocation of an office and also the Franklin head unit. The CT division will also be very actively involved with our teleradiology equipment. In nuclear medicine, several new techniques will be expanded. These include gastrointestinal transit studies (in cooperation with the division of gastroenterology), increased use of 24-hour Tl-201 reinjection imaging for the assessment of myocardial viability, and increased use of Tc-99m MIBI scintimammography in patients with breast masses who have equivocal mammograms.

CLINICAL WEAKNESSES

As part of the effort to reduce hospital operating expenses, radiology has experienced significant personnel downsizing. George McArdle recently reported that over the past 4 years, 52 positions have been eliminated. This has brought us to the point where our ability to run an effective clinical operation is threatened. For example, this year we instituted a single central phone number for all outpatient scheduling. While this has generally worked well, I have heard occasional reports of long waits experienced by referring physician offices trying to get through. This is the result of lack of sufficient schedulers to handle the incoming calls. In a related vein, we have outsourced much of our report transcription and cut down the number of transcriptionists working in the department. The fewer the available transcriptionists, the slower the typing of radiology reports. Rapid turnaround of these reports is absolutely critical in recruiting and keeping referral sources. Our performance in

this area is not as good as it should be, and one of the reasons is a longer-than-normal average time required to type reports. I am pleased, however, to note that our faculty radiologists are signing their reports more quickly than the average for University Hospitals Consortium radiology departments.

Another serious clinical weakness has developed through the loss of many of our major referring physicians to other institutions. The reasons for this are complex and beyond the scope of this report, but this has clearly resulted in a loss of procedure volume and revenues.

We are short of space in several key areas. Our CVIR division needs a third procedure room. This was supposed to be constructed during the past year but delays have occurred and it still isn't clear when this badly needed renovation will take place. One of the stumbling blocks has been in identifying office space for the CVIR faculty members. The body CT reading room has also become greatly overcrowded. Renovation and enlargement of this area is scheduled for the coming year.

In our ultrasound division, faculty members have been increasingly called upon to go to the operating rooms to assist the surgeons in procedures such as cryoablation of liver lesions and other operative interventions. These procedures are often very lengthy - they can sometimes take up to 4 hours. While we are obviously pleased to be able to assist our surgical colleagues and patients in this manner, it takes faculty members out of the ultrasound clinical area for prolonged periods of time. This has created a drain on our ability to provide coverage in the ultrasound division at a time when we are trying to consolidate our clinical operations. To compound the problem, the professional component reimbursement for intraoperative ultrasound is about \$63 at Medicare rates - hardly appropriate compensation for 3 or 4 hours of a radiologist's time spent in the OR!

RESEARCH ACCOMPLISHMENTS DURING 1995-96

Once again, our department had a very productive year in research. Department investigators produced a very impressive total of 346 scientific papers, chapters, books, and abstracts that were published in the medical literature. During the course of the past academic year, department investigators had in force 10 NIH or other federal grants, 7 grants from foundations or other non-profit organizations, and 31 industry-funded clinical trials. These 48 grants brought in a total of \$2,023,111 in direct support and \$547,826 in indirect costs. Principal investigators on NIH grants were Drs. Stephen Feig (digital mammography and stereotactic core breast biopsy), Barry Goldberg (ultrasonic tissue characterization methods and ultrasound contrast agents), Alfred Kurtz (detection and staging of ovarian cancer), Ji-bin Liu (endoluminal ultrasound), and Mathew Thakur (pharmacokinetics of recserpins). Dr. Thakur also had a DOE grant (antibody conjugates for enhanced tumor uptake). Congratulations are in order for two other faculty members who have just recently received notification of funding approval on federal grants. Dr. Macke Consigny has received an NIH grant to study re-endothelialization of arteries after angioplasty. Dr. Emily Conant has received a DOD grant to use computerized 3-dimensional analysis of breast calcification in an effort to detect malignancy. Many other grants are currently pending, and in general I am pleased with the diligence our faculty investigators have shown in pursuing outside grant funding.

The annual meeting of the Radiological Society of North America (RSNA) is always a good benchmark of research productivity of an academic radiology department. This is the largest medical meeting in the entire world and is extremely competitive, in terms of having abstracts accepted. At the 1995 RSNA meeting, Jefferson radiologists made 88 presentations, a number which *far* exceeds our participation in previous years (for example, at the 1994 RSNA we made 69 presentations). Among these 88 presentations were 65 scientific papers, 14 refresher courses, 2 special focus sessions, and 7 exhibits. This is an accomplishment of which all of us in the department are very proud. About half the papers at the RSNA meeting come from foreign countries. Thus, our abstracts compete not only with those from other American teaching institutions, but hospitals from all over the world. Given this degree of competition and the fact that

the acceptance rate for scientific papers is less than 40%, our 1995 RSNA participation is a real testimonial to the scope and quality of research in our department.

Many interesting projects have been conducted during the past year. In our MRI division, Drs. Outwater and Mitchell used opposed phase gradient echo sequences to differentiate benign from malignant adrenal masses, and also evaluated the effect of paramagnetic contrast on signal intensity in opposed phase MRI. Dr. Schweitzer evaluated the cost-effectiveness of MRI in diagnosis and management of osteomyelitis. This study was carried out under the first year of funding of his prestigious RSNA Scholar Award. Drs. Mitchell and Outwater worked on developing MR contrast agents for use in the liver and lymph nodes. Dr. Piccoli continued her work on contrast-enhanced breast MRI and Dr. Outwater continued his studies of MRI in gynecologic disease. All things considered, our body MRI division is clearly one of the most academically productive and respected groups of its kind in the country.

Our **Ultrasound** division also continued to cement its reputation as the premier group in the country in ultrasound research. Dr. Goldberg secured a large new NIH grant to study US contrast agents in breast cancer detection. Dr. Kurtz completed accrual of studies for his NIH-funded RDOG trial on detection and staging of ovarian cancer; data analysis will begin this year. Dr. Halpern conducted further studies of the use of Doppler US in assessing renal artery blood flow. He was in the second year of his GERRAF fellowship. Dr. Nazarian and others assessed the impact of superficial US on management of melanoma, evaluated synovial fluid in foot and ankle joints by US, and quantified normal interval fetal growth rates based on obstetrical US measurements. Dr. Piccoli studied the value of breast US in patients with palpable breast abnormalities. Drs. Needleman and Goldberg and others conducted grant-supported research on the use of US contrast agents for studying tumors and blood vessels. Dr. Alexander continued his work in evaluating patients with rectal carcinoma and fecal incontinence, using transvaginal US. Dr. Feld compared laparoscopic liver US with CT portography in patients with liver metastases. In the area of basic research, Dr. Forsberg worked on acoustic characterization of new US contrast agents, on harmonic imaging with proteinaceous microspheres, and continued his Whitaker Foundation research on nonstationary spectral analysis of US Doppler signals. In **Body CT**, Dr. Wechsler published an important study on the use of superior hypogastric plexus blocks for the treatment of chronic pelvic pain. Drs. David Karasick and Mark Schweitzer are finding interesting new uses of CT in the diagnosis of skeletal lesions.

In **Nuclear Medicine**, Dr. Mathew Thakur completed his grant-supported research on biological response modifiers in the enhancement of tumor uptake of Tc-99m monoclonal antibodies. He continued his work on imaging of intestinal adenocarcinoma with Tc-99m vasoactive intestinal peptide, on the use of I-123 labeled IUDR as a glioma imaging agent, and on imaging inflammatory diseases with neutrophil specific Tc-99m labeled monoclonal antibodies. Drs. Kim and Intenzo investigated the use of Tc-99m HMPAO brain SPECT in post-concussive syndromes and migraine headaches. Dr. Kim compared Tl-201 and Tc-99m MIBI uptake in brain tumors and the significance of discordance between them. Dr. Zhang developed a method of computer-assisted automated quantitative analysis of myocardial SPECT. He also studied factors affecting accurate measurement of myocardial wall thickness in gated cardiac SPECT. In the **CVIR** division, Drs. Consigny and Bonn began experimental assessment of an innovative new covered stent, using porcine iliac arteries. Dr. Gardiner received additional funding for the STAR registry for next year. He submitted a paper on the causes and consequences of balloon angioplasty failure, utilizing STAR registry data. This registry also provided data for a study on the likelihood of long term patency after lysis of lower extremity bypass graft thrombosis. Dr. Sullivan assessed the survival of patients with ocular melanoma metastatic to the liver after chemoembolization, and also studied the long term survival of patients with extremity osteosarcoma after preoperative intraarterial chemotherapy. Dr. Eschelmann reviewed our long term experience with stenting and combined modality radiation therapy in malignant biliary obstruction.

Our **Neuroradiology/ENT Radiology** group maintained its research endeavors on a variety of different fronts. Dr. Flanders continued the work he began several years ago during his RSNA Scholar Award and will publish a paper shortly on the value of MRI in forecasting motor recovery after cervical spinal cord injury. Dr. Rao continued her studies on the use of dynamic gradient echo MRI in head and neck tumors. Dr. Friedman investigated the role of MRI in diagnosing intramedullary spinal cord diseases that involve specific neural pathways or vascular territories. Drs. Gonzalez and Vinitzki continued their work on tissue segmentation techniques in the brain, based on 3-D feature maps. Dr. Tartaglino worked on determining the significance of flow voids seen on 2-D time of flight MRA in detecting potentially correctable carotid stenoses. In the **General Diagnostic Radiology** division, Drs. Mark Schweitzer and David Karasick have become a very productive team in clinical research involving the plain film and MRI findings in a wide range of musculoskeletal disorders. Dr. Schweitzer has been particularly effective in mentoring residents and medical students who are starting their involvement in radiology research. There is no better way than thoughtful faculty mentoring to stimulate bright young people to become interested in academic pursuits. Drs. Schweitzer and Deely continue to assess the value of percutaneous biopsy of osteolytic bone lesions. Dr. Stephen Karasick continued his work in the often-neglected but important area of rectal evacuation disorders. He deserves considerable credit for assuming added clinical and research responsibilities in GI radiology, in addition to his long-standing interests in the GU tract. Dr. Maidment and several others in the division worked on ways to optimize portable chest films. In the area of more basic imaging research, Dr. Maidment worked on design considerations for optically coupled digital x-ray detectors. Drs. Shaber and Maidment began working with Sterling Imaging (formerly the DuPont company) on a potentially revolutionary technique of high resolution direct digital radiography. At the **Breast Imaging Center**, Dr. Feig and others continued accruing cases of percutaneous core breast biopsies, as part of an NIH grant-sponsored consortium. Dr. Conant completed a study comparing 1-year vs. 2-year screening intervals, and another one on the stage of breast carcinoma at diagnosis in women ages 40-49. As noted above, she and Dr. Maidment received a DOD grant to use computer-assisted 3-D analysis of breast calcifications and they have begun this work.

Health Services Research is becoming an increasingly important avenue of investigation in virtually all clinical fields. A number of such projects were carried out in the department last year. Dr. Wechsler and others studied the effects of training and experience on interpretation of emergency body CT scans. Dr. Piccoli worked on a study of the effect of clinical and mammographic findings on recommendations for biopsies in patients undergoing breast MRI. Dr. Friedman and a number of other faculty members published their paper on quality assurance methodology in rating MRI facilities around the state of Pennsylvania. This study was carried out in conjunction with Pennsylvania Blue Shield and has already attracted a large amount of attention in various quarters. Dr. Schweitzer evaluated the cost effectiveness of MRI in polymyositis. Dr. Feig analyzed the cost effectiveness of annual vs. biennial mammographic screening in women ages 40-49. Dr. Flanders analyzed practice patterns of neuroradiological examinations by radiologists and nonradiologists, and I published a similar study as it pertained to percutaneous vascular and nonvascular interventions. Dr. Spettell reviewed methodologic advances in analysis of claims data for outcomes research. Dr. Rao surveyed program directors regarding curricular requirements for radiology residencies. Dr. Zhang studied the role of brain SPECT in post-ECMO infants and its correlation with neurodevelopmental outcomes. Dr. Halpern developed an interesting new way of comparing ROC curves on the basis of optimal operating points. Finally, I published a paper on how radiology departments can best implement capitation, and then track utilization by primary care physicians in such a program. This work was based upon a computer program we developed here at Jefferson.

RESEARCH WEAKNESSES

We have one of the most productive research departments to be found anywhere within academic radiology, and I'm very pleased with the way we are fulfilling this aspect of our mission. The only weaknesses I can identify are some of those I alluded to in last year's annual report.

First of all, our department overage fund supports a large infrastructure which is critically important in maintaining our active research program. Since the overage fund is dependent upon clinical revenues, and these revenues are dropping, this raises some concern about our long term ability to maintain that research infrastructure. The department's numerous NIH, other federal agency, foundation, and commercially-sponsored grants could never be carried out without the personnel, laboratory space and equipment that make it up. I'm hopeful that our new clinical practice ventures (such as Academy Imaging, Extremit-eze, etc.) will offset any revenue shortfalls and allow us to maintain the solvency of our overage fund.

It is always important for our Ph.D. scientists to work on bringing in outside grant support. I'm pleased to see that the level of grant activity among our Ph.D. faculty has improved, but some in the group have been more successful than others and I would like to see a more uniform success rate.

Last year, I referred to the fact that our nuclear medicine division was not producing high quality clinical research. They have made diligent efforts to improve during the past year, and I think they have been successful to some degree. The same holds true for our chest radiology section. I am hopeful that both these groups will demonstrate further improvement in the quality of their research publications.

OPPORTUNITIES FOR EXTRAMURAL FUNDING

Although extramural funding is becoming increasingly difficult to obtain, we are by no means slackening our efforts. There appear to be several areas in radiology which offer possibilities. One of the most promising is in the detection of breast cancer. As noted earlier, Drs. Barry Goldberg and Emily Conant just recently received federal funding for two interesting projects. Dr. Stephen Feig has other grants already in progress in this area. There is strong public and Congressional support for breast cancer research, so this is likely to continue to be an area with potential for future funding.

Dr. Mathew Thakur has been a highly productive researcher and I expect that his success in obtaining funding will continue. His primary area of interest is in the development of receptor-specific peptides and other biomolecules for use in both diagnosis and treatment of tumors. Drs. Gonzalez and Vinitiski will continue to seek funding for their innovative work in 3-D tissue segmentation in MRI of brain tumors and multiple sclerosis, and it is hoped that they will be successful. Dr. Macke Consigny recently received word of approval of NIH funding for his work in reendothelialization of arteries after angioplasty. Restenosis following angioplasty is a major problem and it has not yet been solved, so this may prove to be an area for future funding.

Contrast agent research in both MRI and ultrasound has been a good source of industrial funding for department investigators in the past and should continue to be in the future. Drs. Mitchell, Outwater, Piccoli, and Rao have recently received industrial support for contrast-related projects.

In CVIR, Dr. Gardiner has been highly successful for several years in obtaining funding from the Society of Cardiovascular and Interventional Radiology (SCVIR) for directing the STAR registry. This registry continues to be the largest registry of peripheral vascular interventions anywhere in the world. Because of the reputation he and Drs. Sullivan and Bonn have developed, they are in an excellent position to obtain funding to serve as the core laboratory for clinical trials of various interventional devices. In neuroradiology, our newest faculty member, Dr. Peter Dagher, has already become active in seeking external support for his research in magnetization transfer techniques in brain MRI. He currently has proposals pending with both the Whitaker Foundation and the RSNA. Finally, Dr. Halpern has developed some innovative methods of assessing vascular diseases using both 3-D helical CT and Doppler ultrasound techniques. He currently has a pending NIH grant proposal. Imaging of vascular disease is an area of possible funding for the future.

Despite the pressures on our faculty members created by a heavy clinical workload and teaching responsibilities, they have as a group been very active and also quite successful in obtaining outside funding from a number of different sources. These efforts will continue in the future.

AFFILIATIONS AND INTERDEPARTMENTAL ACTIVITIES

A large percentage of the research publications and abstracts of our faculty members include co-authors from other Jefferson departments. Although very good collaboration has existed in the past, I'm concerned that some of these relationships will come to an end as a result of the departures of some faculty members in other clinical departments, especially neurology and orthopedic surgery. Hopefully, these individuals will be replaced and our collaborative efforts will be able to continue.

We are currently working on developing joint clinical programs with several other departments. For example, Dr. Goldberg is having discussions with members of the department of obstetrics and gynecology about the possibility of a joint relationship in obstetrical ultrasound. Dr. Gardiner is pursuing the possibility of a joint vascular disease program with Dr. Carabasi from the division of vascular surgery. Dr. Lev-Toaff is working with members of our new gastroenterology group on developing an inflammatory bowel disease center. One venture that has unfortunately not worked out well is the radiology consult service, which was discussed in last year's annual report. This was a program we planned with members of the department of family medicine, but they felt that going through a formal consultation process prior to the ordering of complex imaging studies was simply too time-consuming during the course of a busy workday in their outpatient clinics. I do not at all mean this as a criticism of their department; it is more a reflection of some of the frustrations of trying to practice medicine in the era of managed care, when physicians are so pushed to work "efficiently" that there is virtually no time to think any more.

We continue to have close working relationships with radiology departments at certain of our affiliated institutions. One major example of this is the continued joint relationship with the Pennsylvania Hospital radiologists in providing coverage of the radiology service at the Wills Eye Hospital. This practice continues to expand, especially with the recent addition of an MRI unit at Wills. We also continue our strong working relationship with the pediatric radiologists at the A.I. DuPont Institute. I greatly appreciate the way Dr. George Gross and his colleagues have pitched in to provide us with strong pediatric radiology support, despite the fact that this entails some inconvenience and traveling on their parts. Over the past year, I have had several meetings with the radiologists at Lankenau, Bryn Mawr, and Paoli Hospitals, although we do not have any formal joint programs with them at this time. It will be interesting to see whether a meaningful relationship with the Main Line radiology departments eventuates. With the impending merger of TJUH and Methodist Hospital, we have begun discussions with the Methodist radiologists and hospital administration about how best to amalgamate our departments.

DEPARTMENT ADMINISTRATION

I am sorry to report that Mr. George McArdle, administrative director of the department of radiology, has decided to take early retirement and will be leaving us around the middle of the next academic year. George has provided us with outstanding administrative leadership for many years and we will greatly miss his dedication and expertise. At this writing, interviews with candidates to replace him are just about to begin. Fortunately, George has put together a strong group of managers under him and with their help, I'm confident the department will continue to run smoothly.

I want to pay a special compliment to Ms. Judy Dubbs in this report. Judy has now been with us as grants coordinator for several years and her presence has made a tremendous difference in our ability to develop outside sources of grant funding. Because of the pressures of time alluded to

earlier, it is almost impossible for practicing physicians in our department to find the time to write grant proposals and properly administer them once they come through. It is in these areas where Judy has been so effective in taking away much of the "pain" of grant-getting. The budgeting and myriad other details she and members of her team attend to frees up our faculty members to focus on what they do best - the performance of the actual scientific work of their research projects.

Last but certainly not least, I want to pay an extra special tribute to two people whose work is vital to the efficient operation of the entire department - Toni Salvatore and Dara Killion of my office. Not only are they highly competent and knowledgeable about their work, they are also extremely loyal, dedicated and unselfish. At a time when the paperwork is growing exponentially and the workforce is being downsized, they have always willingly assumed additional responsibilities and chores. No matter what has to be done, they will go the extra mile to do it! My sincere thanks to both of them.

DEPARTMENT GOALS

Providing high quality service to our new outside affiliates - We are just beginning a contract to provide all professional radiology services at Academy Imaging Center in Northeast Philadelphia. This will be a major addition to our clinical practice, and will help provide Jefferson with a presence in that important part of the city. We will be sending a faculty radiologist and a senior resident there every day, as well as reading MRI and CT studies from Academy Imaging here at TJUH via teleradiology. The logistics of this operation are complex, but we intend to provide outstanding service for patients and referring physicians there and to help build that practice. We also recently began a contract with Extremity-Eze, a group of privately owned extremity-only MRI units in New Jersey. These studies are also being read via a small teleradiology system that is located in our department. Here again, we want to help build this practice and make it a successful venture.

Teleradiology - We are about to move into the era of teleradiology, with the acquisition of an extensive system from Canon. The equipment should arrive early this fall. Learning how to use it effectively and transitioning from film-based to video workstation reading of MRI and CT scans is a major goal of our department. Teleradiology will not only speed up the communication of imaging information from one point to another, but it will also enable us to save much of the \$500,000 the hospital spends annually on laser camera film. However, the transition won't be easy and will require a distinct change in reading habits among all radiologists.

New outside contracting - At a time when the hospital census is decreasing and there is a shift to more outpatient treatment, one of our major goals is to seek new outside contracts to maintain our patient volume base. The acquisition of the aforementioned teleradiology system will position us well to obtain such contracts. Another step in the right direction has been the hiring of our marketing representative, Ms. Shelly Perri, on a permanent basis. Active marketing will hopefully develop new referral sources for our practice.

Maintenance of our research productivity - All of us in the department are very proud of the reputation and productivity levels we have been able to achieve in research. It is not any exaggeration to say that Jefferson is right at the very forefront of research within the academic radiology community. Maintaining this position is one of our major goals, but it will not be easy. As more and more clinical demands are made upon the time of our faculty due to such things as downsizing and acquiring new outside contracts, finding the time to do research becomes more difficult.

Maintaining the solvency of the department overage fund despite decreasing clinical revenues - Closely related to the goal of maintaining research productivity is the need to maintain the solvency of our department's overage fund. This is what supports our research infrastructure (the fund supports over \$1 million annually in salaries and benefits of department personnel), which in turn is so vital in helping faculty members use their time efficiently in carrying out scientific

projects. There are several ways to try and keep this fund solvent; one is to increase revenues by expanding our clinical practice beyond the campus, while the other is to reduce the fund's expenses. We will probably have to do both.

Continuing to compete effectively for top radiology residents - Only a few years ago, radiology was one of the most popular fields among medical students and there was intense competition to obtain good residency positions. This made our job of selecting residents relatively easy. Now, with the trend toward primary care and some tightening of the job market in radiology, there has been a significant drop in the number of medical students applying for radiology residencies. One of our most important goals in education is to maintain the strength of our residency program and be able to continue attracting top notch students. During this past year, when many major academic institutions failed to fill their radiology residency quotas, our department not only filled its six slots but did so from among our first 22 candidates. The candidates we did lose all went to top institutions, indicating that we are competing with the best programs in the country. I especially appreciate the roles Dr. Vijay Rao (director of our residency program) and Dr. Lev Nazarian (head of our residency selection committee) have played in helping us do so well in the match.

Reassessing our fellowship programs - Another important goal in the educational area is to reassess our fellowship programs. We have already eliminated two of our present fellowship slots, and our education committee has begun considering the possibility of eliminating others. The driving force behind this change is the need to reduce expenses against our overage fund, as noted above.

Compliance with Medicare standards for teaching physicians - HCFA has recently announced newer and stricter documentation requirements for billing by teaching physicians in academic institutions. Our department has always been in compliance with the standard that requires review of every single case by a faculty radiologist, but we have recently had to take steps to document this even more carefully than we have in the past. Similar changes have been made in documenting the presence of faculty physicians during interventional procedures. We will continue to monitor our reports to make sure our documentation meets the Medicare requirements.

ISSUES FOR THE COLLEGE AND HOSPITAL

Perhaps the most important issue facing Jefferson is the loss of a number of our key specialty practices through purchases by other competing institutions. The competition has become quite cutthroat and unfortunately Jefferson does not have the deep pockets of the University of Pennsylvania or the "non-profit" Allegheny Health System. Thus we have to find new and better ways to compete. It appears at this juncture that there has been some success in developing new relationships with primary care practices, and hopefully some of the departed specialists can also be replaced. Doing this is obviously vital to Jefferson's future.

Dean Gonnella has suggested developing a pool of dollars to help acquire practices or at least bring them into a close relationship with Jefferson through such vehicles as a management services organization. This will require a contribution of revenues from the clinical practices. He has indicated that the medical school will also make a significant financial contribution. I support these plans, but I hope that the other segments of the university will make similar contributions. This includes the hospital, the university's corporate structure, and the university's endowment. I don't know if it would be financially feasible, but I hope the board of trustees will also consider a bond issue to help achieve this important goal.

Another issue facing us is the future development of the Jefferson Faculty Foundation. This past year has been the first year of the Foundation, and there has been some confusion regarding pension arrangements and also payroll logistics. The expenses of our clinical practices have been increased

through the need to fund both the Foundation overhead and FICA payments, and this is not easy to absorb at a time when practice revenues are declining. Within the next several years, the individual billing arrangements that now exist in the clinical departments will be replaced by a centralized billing office under the Foundation auspices. We have been assured that this centralized billing office will provide us with higher collection rates and billing costs that are no higher than they are now. It will be very important that these commitments be met. If they are, centralized billing will be advantageous because it will mean that patients will get only a single professional bill for services provided by Foundation physicians, and because it will provide us with much useful management information.

This past year has also seen intense activity by the cost-reduction "design" teams within the hospital. Although I have concerns about the way the process was conducted by Ernst & Young, no one can dispute the necessity of reducing costs. Major cuts have already been made, but it will be necessary to make even further cuts in the future. The department of radiology has made significant contributions to this cost-reduction effort. As noted earlier, Mr. Mc Ardle calculated that within the past several years, we have eliminated 52 positions from the department. Given that we perform almost 700 clinical examinations daily 365 days a year and provide an important source of revenue for the hospital, I hope the decision-makers will remember that we can only go so far. If there are no schedulers left to handle incoming phone calls, or no transcriptionists available to type reports quickly, our clinical practice will quickly wither. The provision of efficient service is vital to a radiology practice and hopefully it will be possible to direct future cuts to the non-revenue-producing departments within the institution.

Several years ago, an attempt was made to form a Jefferson Cardiovascular Center, similar to the now-operational Jefferson Cancer Center. Unfortunately, the effort never got off the ground and this has led to a major void. There is a wealth of talent in both cardiac and vascular diseases in Jefferson's departments of surgery, medicine, neurology, neurosurgery, and radiology. It would seem very desirable for the institution to make a concerted effort to better utilize all this talent by developing a center of excellence in cardiovascular diseases. Several other institutions within the Philadelphia area have done this better than we have, but hopefully there is still time to catch up.

When the Jefferson Health System was formed two years ago, it seemed like an interesting development, although many faculty physicians were curious as to what tangible benefits would result. Those questions still remain; I have heard them expressed by numerous physicians in other clinical departments, as well as our own. One of the concerns is that the marketing of the Jefferson Health System is diluting the marketing of our own faculty practice here on campus. There needs to be a clear definition of the relationship between the physicians at TJUH and those in the Main Line hospitals, as well as an understanding of how this relationship can fit the strategic and marketing plans of the University.

TEACHING PROGRAMS

Vijay M. Rao, M.D.
Associate Chairperson (Education)

INTRODUCTION

I am pleased to report that, in spite of the shrinking job market in Radiology, all of our graduates were successful in obtaining desirable positions of their choice. Our department continues to enjoy national recognition for the quality of our teaching programs for residents, fellows and medical students. Our faculty should be congratulated for keeping a strong commitment to education in spite of continually mounting pressures to increase clinical workload and maintain research productivity.

RESIDENCY TRAINING PROGRAM

The results of the residency match program (NRMP) once again proved that our residency is recognized nationally as one of the best training programs. While a number of reputable programs did not fill their quota or even come close to it, we filled all of our positions with choice candidates. Much credit goes to Levon Nazarian, M.D., Chairman of the Residency Selection Committee for this outstanding performance.

It gives me great pleasure to report that each of our senior residents passed the written examination given by the American Board of Radiology. Our program performance average in the written part of the examination was ranked in the 91st percentile in Diagnostic Radiology and 96th percentile for Physics nationwide. Three of our six graduating residents chose to stay with us to pursue fellowships. One is enrolled in the combined body MRI and neuro MRI fellowship, one in a CVIR fellowship, and one in our breast imaging fellowship. One resident will pursue a fellowship in cardiac imaging at the University of California, San Francisco. One resident joined the medical staff at Scott Air Force Base Medical Center to fulfill his commitment to the US Air Force. The sixth resident found a private practice position of her choice in Maryland.

It is gratifying to note that our residents are active in research and presented several scientific papers at the national radiology meetings. This year, RSNA established a new resident/fellow Roentgen Research award program sponsored by the RSNA Research & Education Fund Program and invited academic departments to nominate a candidate who had demonstrated accomplishments in radiological investigation. C. Edwin Martin, M.D. was the recipient of the 1996 Roentgen Research award for our department.

The year end resident critiques of the program were very upbeat overall save for the physics course. Our internal physics course was revamped this year because the residents were not satisfied. At the recommendation of the physics instructors, this course had been spread through the academic year, instead of being given as a concentrated summer course. Reviews of this revised course have not been positive. Therefore, this course will not be given in the upcoming academic year. We will again invite Ted Villafana, Ph.D. from MCP to give a review course to our senior residents. Meanwhile the American Board of Radiology is in the process of revising guidelines for physics and we will revisit the physics course in the spring of next academic year. Revisions in night call responsibilities were phased in without difficulties. The third and fourth year residents participated in the cross-sectional imaging call with the fellows, which relieved some burden on the fellows. This upper year resident was available as a consultant for the junior resident on general radiology call.

TRAINING PROGRAMS FOR FELLOWS

Our fellowship programs continued to enjoy another year of excellence. There is an ever-increasing number of extremely well qualified applicants for fellowships in all the areas offered by our

department, including cardiovascular/interventional radiology, neuroradiology/ENT radiology, body MRI, combined body and neuro/head and neck MRI, US/CT/MRI, musculoskeletal radiology and breast imaging. All of the above programs received very positive year-end critiques from the graduating fellows.

Our neuroradiology/ENT radiology and CVIR fellowship programs are accredited by the ACGME. Our neuroradiology fellowship training program has recently expanded to cover the radiology performed in the Neurosensory Institute at the Wills Eye Hospital. Coverage of Wills Eye Hospital radiology has broadened the education of the fellows in neuro-ophthalmologic imaging and neurointerventional procedures. The combined neuroradiology fellowship program with The Children's Hospital of Philadelphia continues to be successful and in high demand.

Our visiting fellowships remain very popular in the various subspecialty areas; these programs allow practicing radiologists to learn new techniques and sharpen their old skills. Because of our international reputation, several physicians from overseas have chosen to pursue their research theses in our department in the divisions of MRI, Neuroradiology/ENT, Ultrasound, etc.

TEACHING PROGRAMS FOR MEDICAL STUDENTS

The junior and senior students can choose to take one or more of the five separate electives offered by our department which include general radiology, pediatric radiology, neuroradiology/ENT radiology, CVIR, and Ultrasound/CT/MRI. The radiology elective was completed by 123 members (52%) of the senior class, either here or at an affiliated institution.

The evaluations of the general radiology elective continue to be quite positive which is a tribute to Paul Spirn, M.D. The neuroradiology and pediatric radiology electives were completed by 8 and 4 senior students respectively. Electives in US/CT/MRI and CVIR were completed by 4 and 5 students respectively. All of these courses received rave reviews from the students.

I am delighted that the JMC Curriculum Committee has invited us to participate in the ICM course for sophomore students and teach radiology for nine hours. I believe that to build a strong foundation, early exposure to potential and proper use of radiologic procedures is necessary. I wish to thank the faculty members who have agreed to teach and look forward to a successful course.

CONTINUING MEDICAL EDUCATION PROGRAMS

This year, our CME activities continued to expand in spite of the demands on faculty time. A new course in shoulder and elbow imaging was instituted by the general diagnostic division as described below.

Jefferson Shoulder and Elbow Advanced Imaging Symposium. This new course directed by Mark Schweitzer, M.D. and David Karasick, M.D. was given in March, 1996 and was very successful. It was attended by approximately 80 radiologists.

Second Annual Foot and Ankle Advanced Imaging Symposium. This course directed by David Karasick, M.D. and Mark Schweitzer, M.D. was given in April, 1996 by several members of our faculty and was a great success. It was designed for radiologists, orthopedists, and podiatrists who wish to update their skills in the diagnosis and management of foot and ankle disorders. It was attended by approximately 100 radiologists, orthopedists and podiatrists.

Weekend Cardiac Radiology Review. A refresher course in state-of-the-art cardiac imaging incorporating both traditional and newer modalities, directed by Robert Steiner, M.D., was held over a weekend in April, 1996. It was attended by approximately 125 residents in Diagnostic Radiology from all around the eastern U.S. and was very well received.

Sixteenth Annual Leading Edge in Diagnostic Ultrasound Conference. The ultrasound division's Sixteenth Annual Leading Edge in Diagnostic Ultrasound, held in Atlantic City, was a major success again this year, having over 1,200 attendees. In addition, the Division of Ultrasound offered about 40 one to five-day continuing medical education courses in ultrasound applications for abdomen, obstetrics and gynecology, sonomammography, Doppler ultrasound, and contrast agents in ultrasound.

Ninth Annual Philip J. Hodes Lecture. In honor of Philip J. Hodes, M.D., the Ninth Annual Philip J. Hodes Lecture was given and was very successful. The guest speaker was C. Douglas Maynard, M.D. Professor and Chairman, Department of Radiology, Bowman Gray School of Medicine, who gave an outstanding presentation on "Re-Engineering Academic Radiology to Meet the Challenge of Managed Care".

Radiology Grand Rounds. Grand Rounds in Radiology were held bi-weekly and included 16 topics of interest covering all radiology subspecialties.

Radiology Research Conferences. The bi-weekly Radiology Research Conferences were continued this year under the direction of Barry B. Goldberg, M.D. This conference allows the faculty, residents and fellows in the department the opportunity to present the results of their research activities.

International Educational Programs. The Jefferson Ultrasound Research and Education Institute (JUREI) continues to make great strides in international education.

JUREI is dedicated to advancing research and education activities in the field of diagnostic ultrasound on a national and international level, in keeping with the University's increasing emphasis on global involvement. A close affiliation exists between the World Health Organization (WHO) and the Institute, which is recognized as a WHO Collaborating Center for Continuing and General Education in Diagnostic Ultrasound. It is the goal of the WHO radiological imaging section to encourage utilization of ultrasound as a cost-effective and sustainable medical technology resource in less affluent nations. The Institute is cooperating in this effort by training individuals sponsored by their own government, the Soros Foundation and WHO. These visiting fellows come to the Institute for intensive training in ultrasound and then return to their home countries to train others in this technique.

To fulfill our commitment to support the development of high-quality ultrasound services throughout the world and as a natural extension of the visiting fellow program, the Institute has begun a sponsorship program of local training centers in developing nations. The Institute will develop formal affiliation agreements with training programs in developing countries and will provide, on an ongoing basis, guidance and support. Two centers in Ukraine, one in Romania, one in Hungary, two in China, two in Poland, one in Croatia, one in Latvia and one in Lithuania top the current list of affiliate site centers.

FUTURE GOALS

Our future goals are to maintain the quality of the educational programs in the current environment of managed care. Since the threat of downsizing training programs looms over us, our Education Committee is preparing to tackle this issue. We are attempting to develop criteria by which the existing fellowship programs can be assessed. Our mission is to ensure that all of our training programs for residents and fellows are driven by educational needs rather than service needs, even though it translates into more work for faculty.

PUBLICATIONS

Journal Articles:

1. Alden ME, Waterman FM, Topham AK, Barbot DJ, Shapiro MJ, Mohiuddin M: Cholangiocarcinoma: Clinical significance of tumor location along the extrahepatic bile duct. *Radiology* 197:511-516, 1995.
2. Alexander AA, Liu JB, Merton DA, Nagle DA: Fecal incontinence: Transvaginal US evaluation of anatomic causes. *Radiology* 199:529-532, 1996.
3. Alexander AA, Palazzo JP, Ahmad NR, Liu JB, Forsberg F, Marks J: Endosonographic and color Doppler flow imaging alterations observed within irradiated rectal cancer. *Int J Radiat Oncol Biol Phys* 35:360-375, 1996.
4. Amsberry JK, Witiak D, Rao VM, Pribitkin EA: Lipoma masquerading as a submandibular mass: The benefits of evaluation by MRI. *Ann Otol Rhinol Laryngol* 104(7):585-586, 1995.
5. Bagley DH, Liu JB, Goldberg BB, Grasso M: Endopyelotomy: The importance of crossing vessels demonstrated by endoluminal ultrasound. *J Endourol* 9(6):465-467, 1995.
6. Bagley DH, Liu JB, Goldberg BB: Endoluminal sonographic imaging of the ureteropelvic junction. *J Endourol* 10(2):105-110, 1996.
7. Banerjee RK, Gonzalez CF, Cho IY, Picard L: Hemodynamic changes in recurrent intracranial terminal aneurysms after endovascular treatment. *Acad Radiol* 3:202-211, 1996.
8. Banerjee RK, Gonzalez CF, Cho IY, Picard L: Recurrence of balloon treated intracranial terminal aneurysm: A study with pulsatile blood flow. *IEEE Trans Biomed Eng* 22:935-937, 1995.
9. Bonn J: SCVIR annual meeting supplement: A new tradition (editorial). *J Vasc Interv Radiol* 7:1, 1996.
10. Boone JM, Duryea J, Steiner RM: Filter wheel equalization for chest radiography: A computer simulation. *Med Phys* 22(7):1029-1037, 1995.
11. Brenner RJ, Fajardo L, Fisher PR, Dershaw DO, Evans WP, Bassett L, Feig S, Mendelson E, Jackson V, Margolin FR: Percutaneous core biopsy of the breast: Effect of operator experience and number of samples on diagnostic accuracy. *AJR* 166:341-346, 1996.
12. Brinker JA, Block PC, Bonchek LI, Brundage BH, Carabello B, Holmes DR, Johnson WL, Klinke WP, Levin DC, Mullins CE, Nissen SE, Topol EJ, Vogel JHK: Use of radiographic devices by cardiologists. *J Am Coll Cardiol* 25:1738-1739, 1995.
13. Cambi F, Tartaglino LM, Lublin F, McCarrin D: X-linked pure familiar spastic paraparesis: Characterization of a large kindred with magnetic resonance imaging studies. *Arch Neurol* 52:665-669, 1995.

14. Colwell CW, Spiro TE, Trowbridge AA, Stephens JW, Gardiner Jr GA, Ritter MA: The efficacy and safety of Enoxaparin to unfractionated heparin for the prevention of deep vein thrombosis after elective knee replacement surgery. *Clin Orthop* 321:19-27, 1995.
15. Conant EF, Forsberg F, Moore JH, Piccoli CW, Rawool N, Greer J, Fox JW: Surgical removal of ruptured breast implants: The use of intraoperative sonography in localizing free silicone. *AJR* 165:1378-1379, 1995.
16. Conant EF, Maidment AD: Breast cancer imaging. *Sci and Med* 3(1):22-31, 1996.
17. Consigny, PM: Investigations into restenosis. *J Vasc Interv Radiol* 7(S):190-193, 1996.
18. Consigny, PM: Pharmacological approaches to restenosis. *J Vasc Interv Radiol* 7(S):64-67, 1996.
19. Cox D, Conant EF, Earle E, Newman J, Kahaleh B, Jimenez S, Varga J: Sarcoidosis in systemic sclerosis: Report of 7 cases. *J Rheumatol* 22:881-885, 1995.
20. Dagher AP, Smirniotopoulos J: Intracranial dermoid cysts with and without rupture: A series with radiologic-pathologic correlation. *Int J Neuroradiol* 1:134-144, 1995.
21. De Lara FA, Tartaglino LM, Friedman DP: Spinal cord multiple sclerosis and devic neuromyelitis optica in children. *AJNR* 16:1557-1558, 1995.
22. Durham JD, Bonn J: SCVIR scientific program update (editorial). *J Vasc Interv Radiol* 7:310-312, 1996.
23. Ehman RL, Crues JV, Lenkinski RE, Lomas DJ, McVeigh ER, Mitchell DG, Outwater EK, Pettigrew RI, Ross JR: RSNA'95 81st Scientific Assembly and Annual Meeting Notes, Part 2 (Magnetic Resonance). *Radiology* 198:919-926, 1996.
24. Eschelmann DJ, Gardiner GA Jr, Deely DM: Osteochondroma: An unusual cause of vascular disease in young adults. *J Vasc Interv Radiol* 6:605-613, 1995.
25. Fajardo LL, Feig SA, Shtern F: Mammography in clinical practice. *Intern Med* 16:36-44, 1995.
26. Feig SA, Yaffe MJ: Digital mammography, computer-aided diagnosis and telemammography. *Radiol Clin North Am* 33:1205-1230, 1995.
27. Feig SA: Assessment of radiation risk from screening mammography. *Cancer* 77:818-822, 1996.
28. Feig SA: Digital mammography. *Adv Admin Radiol Radiat Oncol* 5:43-45, 1995.
29. Feig SA: Doubtful results in the Canadian National Breast Screening Study (expert perspective). *Breast Dis Yr Bk Q* 6:354, 1996.
30. Feig SA: Mammographic screening of women aged 40-49 years: Benefit, risk, and cost considerations. *Cancer* 76:2097-2106, 1995.
31. Feig SA: Screening mammography in women aged 40-49 years: Why do experts disagree? And why they really shouldn't. *Breast J* 2:221-225, 1996.

32. Feig SA: Strategies for improving sensitivity of screening mammography for women aged 40-49 years. *JAMA* 276:73-74, 1996.
33. Feld R, Wechsler RJ, Dumsha JZ, Westerberg S, Munoz S, Boiskin I, Rubin R: Significance of the computed tomography finding of subcapsular hepatic necrosis in liver transplantation. *Abdom Imaging* 21:161-165, 1996.
34. Feld RI, Liu JB, Nazarian L, Lev-Toaff AS, Needleman L, Rawool NM, Merton DA, Segal SR, Rosato FE, Barbot DJ, Goldberg BB: Laparoscopic liver sonography: Preliminary experience in liver metastases compared with CT portography. *J Ultrasound Med* 15:289-295, 1996.
35. Flanders AE, De Potter P, Rao VM, Tom BM, Shields CL, Shields JA: Magnetic resonance imaging of orbital hydroxyapatite implants. *Neuroradiology* 38(3):273-277, 1996.
36. Flanders AE, Flanders SJ, Friedman DP, Tartaglino LM, Russell KM: Performance of neuroradiologic examinations by nonradiologists. *Radiology* 198:825-830, 1996.
37. Forsberg F, Conant EF, Russell KM, Moore JH Jr: Quantitative ultrasonic diagnosis of silicone breast implant rupture: An in vitro feasibility study. *Ultrasound Med Biol* 22(1):53-60, 1996.
38. Forsberg F, Liu JB, Guthrie SL, Goldberg BB: Maximum and mean blood volume flow measured via time domain correlation and ultrasonic flowmetry: A comparative study. *Acoustical Imaging* 21:533-542, 1995.
39. Forsberg F, Liu JB, Merton DA, Rawool NM, Goldberg BB: Parenchymal enhancement and tumor visualization using a new sonographic contrast agent. *J Ultrasound Med* 14:949-957, 1995.
40. Forsberg F, Liu JB, Russell KM, Guthrie SL, Goldberg BB: Volume flow estimation using time domain correlation and ultrasonic flowmetry. *Ultrasound Med Biol* 21:1037-1045, 1995.
41. Friedman DP, Rosetti GF, Flanders AE, Piccoli CW, Rao VM, Mitchell DG, Tartaglino LM, Gonzalez CF, Schweitzer ME, Mishkin MM, Beam LM, Gigliotti JV, Ricci JA, Levin DC: MR imaging: Quality assessment method and ratings at 33 centers. *Radiology* 196:219-226, 1995.
42. Friedman DP, Tartaglino LM, Fisher AR, Flanders AE: MR imaging in the diagnosis of intramedullary spinal cord diseases that involve specific neural pathways or vascular territories. *AJR* 165:515-523, 1995.
43. Glajchen N, Schweitzer ME: MRI features in de Quervain's tenosynovitis of the wrist. *Skeletal Radiol* 25:63-65, 1996.
44. Goldberg BB, Merton DA, Forsberg F, Liu JB, Rawool NM: Color amplitude imaging: Preliminary results using vascular sonographic contrast agents. *J Ultrasound Med* 15:127-134, 1996.
45. Goldberg BB: Ultrasound: Clinical applications. *Acad Radiol* 2(S):118-119, 1995.

46. Guo J, Panday MM, Consigny PM, Lefer AM: Mechanisms of vascular preservation by a novel NO donor following rat carotid artery intimal injury. *Am J Physiol* 269:1122-1131, 1995.
47. Halpern EJ, Albert M, Krieger A, Metz CE, Maidment ADA: Comparison of receiver operating characteristic curves on the basis of optimal operating points. *Acad Radiology* 3(3):245-253, 1996.
48. Halpern EJ, Deane CR, Needleman L, Merton DA, East SA: Normal renal artery spectral Doppler waveform: A closer look. *Radiology* 196(3):667-673, 1995.
49. Halpern EJ, Wechsler RJ, DiCampi D: Selecting a segmentation threshold for shaded surface display rendering of the renal arteries with CT angiography. *J Digit Imaging* 8(3):142-147, 1995.
50. Harms SE, Radenski P, Sunshine J, Davis DO, Odunieff P, Farr C, Spettell C: MRI efficacy and effectiveness research: Who needs it and who pays for it? *J Magn Reson Imaging* 6(1):4-6, 1996.
51. Hirai M, Shibata K, Sekiya S, Goldberg BB: Transvaginal pulsed and color Doppler sonography for the evaluation of adenomyosis. *J Ultrasound Med* 14:529-532, 1995.
52. Ho VT, Rao VM, Mikaelian D: Adenomas of the middle ear and mastoid cavity. *J Comput Assist Tomogr* 20(2):219-220, 1996.
53. Ho VT, Rao VM, Mikaelian D: Low grade adenocarcinoma of probable endolymphatic sac origin - CT and MR appearance. *AJNR* 17:168-170, 1996.
54. Jensch RP, Lewin PA, Poczobutt MT, Goldberg BB, Oler J, Brent RL: Effects of prenatal ultrasound exposure on adult offspring behavior in the Wistar rat. *Prenat Ultrasound Adult Behav* 210:171-179, 1995.
55. Kane GC, Varga J, Conant EF, Spirn PW, Jimenez S, Fish JE: Lung involvement in systemic sclerosis (scleroderma): Relation to classification based on extent of skin involvement or autoantibody status. *Respir Med* 90:223-230, 1996.
56. Karasick D, Schweitzer ME, Abidi NA, Cotler JM: Fractures of the vertebrae with spinal cord injuries in patients with ankylosing spondylitis: Imaging findings. *AJR* 165:1205-1208, 1995.
57. Karasick D, Schweitzer ME, Miettinen M, O'Hara BJ: Osseous metaplasia associated with amyloid-producing plasmacytoma of bone. *Skeletal Radiol* 25:263-267, 1996.
58. Karasick D, Schweitzer ME: The os trigonum syndrome: Imaging features. *AJR* 166:125-129, 1996.
59. Karasick S, Ehrlich SM: Is constipation a disorder of defecation or impaired motility: Distinction based on defecography and colonic transit studies? *AJR* 166:63-66, 1996.
60. Karasick S, Lev-Toaff AS: Esophageal strictures: Findings on barium radiographs. *AJR* 165:561-565, 1995.

61. Kettritz U, Semelka RC, Siegelman ES, Shoenut JP, Mitchell DG: Multilocular cystic nephroma: MR imaging appearance with current techniques, including gadolinium enhancement. *J Magn Reson Imaging* 1:145-148, 1996.
62. Leder DS, Nazarian LN, Burke M: CT of disseminated plasmacytoma in an AIDS patient. *J Comput Assist Tomogr* 20:468-470, 1996.
63. Lerman JE, Gray DS, Schweitzer ME, Bartolozzi A: MR evaluation of the anterior cruciate ligament: Value of axial images. *J Comput Assist Tomogr* 19:604-607, 1995.
64. Lev-Toaff AS, Bach AM, Wechsler RJ, Hilpert PL, Gatalica Z, Rubin R: Biliary hamartomas: Radiologic/pathologic spectrum. *AJR* 165:309-313, 1995.
65. Levin DC, Flanders SJ, Spettell CM, Bonn J, Steiner RM: Participation by radiologists and other specialists in percutaneous vascular and nonvascular interventions: Findings from a 7-state database. *Radiology* 196:51-54, 1995.
66. Levin DC, McArdle GH, Lockard CD: Capitulated contracting in radiology: Negotiating techniques, financial calculations, and utilization management. *Radiology* 198:651-656, 1996.
67. Li J, Duggaraju R, Maish DR, Thakur ML: Effect of interferon-a-2b on the enhancement of tumor uptake of Tc-99m-labeled-monoclonal antibodies. *Nucl Med Commun* 17:346-352, 1996.
68. Liem MD, Gzesh DJ, Flanders AE: MR and angiographic diagnosis of lupus cerebral vasculitis. *Neuroradiology* 38:134-136, 1996.
69. Liu JB, Feld RI, Barbot DJ, Rosato FE, Goldberg BB: Laparoscopic ultrasound: Its role in laparoscopic surgery. *Semin Laparosc Surg* 3(1):50-58, 1996.
70. Liu JB, Goldberg BB: Endoluminal vascular and nonvascular sonography: Past, present and future. *AJR* 165:765-774, 1995.
71. Maidment ADA, Yaffe MJ: Analysis of signal propagation in optically-coupled detectors for digital mammography: II. Lens and fibre optics. *Phys Med Biol* 41:475-493, 1996.
72. Marshall ES, Raichlen JS, Kim SM, Intenzo DM, Sawyer DT, Brody EA, Tighe DA: Prognostic significance of ST segment depression during adenosine perfusion imaging. *Am Heart J* 130(1):58-66, 1995.
73. Mastrangelo MJ, Maguire Jr HC, McCue P, Lee SS, Alexander A, Nazarian LN, Eisenlohr LC, Nathan F, Berd D, Lattime EC: Localized gene therapy for human melanoma: In vitro transfection and in vivo pilot study of safety and efficacy of vaccinia virus vectors. *Vaccine Res* 4:55-69, 1995.
74. Millar WS, Tartaglino LM, Sergott RC, Friedman DP, Flanders AE: MR of malignant optic glioma of adulthood. *AJNR* 16:1673-1676, 1995.
75. Miller LS, Liu JB, Barbareveh CA, Baranowski RJ, Dhuria M, Schiano TD, Goldberg BB, Fisher RS: High-resolution endoluminal sonography in achalasia. *Gastrointest Endosc* 42:545-549, 1995.

76. Miller LS, Liu JB, Colizzo FP, Ter H, Marzano J, Barbarevech C, Hedwig K, Leung L, Goldberg BB: Correlation of high frequency esophageal ultrasonography and manometry in the study of esophageal motility. *Gastroenterology* 109:832-837, 1995.
77. Mitchell DG, Stolpen AH, Siegelman ES, Bolinger L, Outwater EK: Fatty tissue on opposed-phase MR images: Paradoxical suppression of signal intensity by paramagnetic contrast agents. *Radiology* 198:351-357, 1996.
78. Mohamed FB, Faro S, Vinitzki S, Ortega HV, Iwanaga T: Multiple flip angle MRA: Data acquisition and post-processing. *Proc IEEE Eng Med Biol* 17:455-456, 1995.
79. Mohamed FB, Vinitzki S, Gonzalez C, Faro S, Burnett C, Ortega HV, Iwanaga T: Image nonuniformity correction in high field (1.5T) MRI. *Proc IEEE Eng Med Biol* 17:471-472, 1995.
80. Moreno JG, Chancellor MB, Karasick S, King S, Abdill CK, Rivas DA: Improved quality of life and sexuality with continent urinary diversion in quadriplegic women with umbilical stoma. *Arch Phys Med Rehabil* 76:758-762, 1995.
81. Mukherji SK, Curtis HD, Hudgins PA, Lufkin RB, Rao VM, Reede DL, Som PM, Swartz JD: Head and neck radiology. RSNA '95 Meeting Notes. *Radiology* 198(2):616-618, 1996.
82. Nazarian LN, Alexander AA, Rawool NM, Kurtz AB, Maguire HC, Mastrangelo M J: Malignant melanoma: Impact of superficial US on management. *Radiology* 199:273-277, 1996.
83. Nazarian LN, Halpern EJ, Kurtz AB, Hauck WW, Needleman L: Normal interval fetal growth rates based on obstetrical ultrasound measurements. *J Ultrasound Med* 14:829-836, 1995.
84. Nazarian LN, Rawool NM, Martin CE, Schweitzer ME: Synovial fluid in the hindfoot and ankle: Detection of amount and distribution with US. *Radiology* 197:275-278, 1995.
85. Nazarian LN, Wechsler RJ, Grady CK: The frequency, appearance, and significance of splenic perfusion defects on CT arterial portography. *Abdom Imaging* 21:53-57, 1996.
86. Needleman L, Forsberg F: Contrast agents in ultrasound. *Ultrasound Q* 13(3):121-138, 1996.
87. Ortega HV, Gonzalez CF, Consigny M, Reyes P, Vinitzki S, Merton D, Northrup BE, Goldberg BB: Computer simulation of blood flow and color Doppler studies of experimental aneurysms: A correlative study. *Roentgenologia Radiologia* 34(2):5-11, 1995.
88. Oung H , Forsberg F: Geometric and algebraic errors in calculating a transducer's spatial impulse response. *IEEE Trans Ultrason Ferroelec Freq Contr* 43:337-340, 1996.
89. Outwater EK, Mitchell DG: Normal ovaries and functional cysts: MR appearance. *Radiology* 198:397-402, 1996.
90. Outwater EK, Siegelman ES, Radecki PD, Piccoli CW, Mitchell DG: Distinction between benign and malignant adrenal masses: Value of T1-weighted chemical-shift MR imaging. *AJR* 165:579-583, 1995.

91. Outwater EK: Contrast-enhanced MR imaging of gynecologic disorders. *Magn Reson Imaging Clin N Am* 4(1):133-151, 1996.
92. Park CH, Sataloff R, Richard M, Zhang JJ, Kim SM: 99mTc MIBI brain SPECT of the cerebellopontine angle tumors. *Clin Nucl Med* 21(5):375-378, 1996.
93. Patel RI, Shapiro MJ: Biliary venous fistula: An unusual complication of fine needle aspiration biopsy of the liver. *J Vasc Interv Radiol* 6:953-956, 1995.
94. Peters BW, O'Reilly RC, Willcox Jr TO, Rao VM, Lowry LD, Keane WM: Inverted papilloma isolated to the sphenoid sinus. *Otolaryngol Head Neck Surg* 113(6):771-777, 1995.
95. Petersein J, Saini S, Mitchell DG, Davis PL, Johnson CD, Kuhlman JE, Parisky YR, Runge VM, Weinreb J, Bernardino ME, deLange EE, Gorczyca D, Herfkens RJ, Schnall M: Gadoteridol-enhanced MR imaging of malignant hepatic tumors: Effects of triple versus standard doses on lesion-liver contrast. *AJR* 165:1157-1161, 1995.
96. Piccoli CW, Greer J, Mitchell DG: Breast MR imaging for cancer detection and implant evaluation: Potential pitfalls. *Radiographics* 16:63-76, 1996.
97. Rao VM: A perspective on radiology residency curriculum guidelines: Results of the 1995 survey of program directors. *Acad Radiol* 3:512-516, 1996.
98. Rao VM: Imaging of the temporomandibular joint. *Semin Ultrasound CT MR* 16:513-526, 1995.
99. Rivas DA, Chancellor MB, Liu JB, Hanau C, Bagley D, Goldberg BB: Endoluminal ultrasound and histological evaluation of periurethral collagen injection. *J Endourol* 10(1):61-66, 1996.
100. Rivas DA, Karasick S, Chancellor MB: Cutaneous ileocystostomy (a bladder chimney) for the treatment of severe neurogenic vesical dysfunction. *Paraplegia* 33:530-535, 1995.
101. Sadek AG, Mohamed FB, Outwater EK, El-Essawy SS, Mitchell DG: Respiratory and postprandial changes in portal flow rate: Assessment by phase contrast MR imaging. *J Magn Reson Imaging* 1:90-93, 1996.
102. Schweitzer ME, Fort J: Cost-effectiveness of MR imaging in evaluating polymyositis. *AJR* 166:415-418, 1995.
103. Schweitzer ME, Gannon FH, Deely DM, O'Hara BJ, Juneja V: Percutaneous skeletal aspiration and core biopsy: Complementary techniques. *AJR* 166:415-418, 1996.
104. Semelka RC, Kelekis NL, Burdeny DA, Mitchell DG, Brown JJ, Siegelman ES: Renal lymphoma: Demonstration by MR imaging. *AJR* 166:823-827, 1996.
105. Shah RM, Spirn PW, Salazar AM, Steiner RM, Cohn HE, Wechsler RJ: The role of thoracoscopy and preoperative localization procedures in the diagnosis and management of pulmonary pathology. *Semin Ultrasound CT MR* 16(5):371-378, 1995.
106. Siegelman ES, Mitchell DG, Semelka RC: Abdominal iron deposition: Metabolism, MR findings and clinical importance. *Radiology* 199:13-22, 1996.

107. Siegelman ES, Outwater EK, Furth EE, Rubin R: MR imaging of hepatic nodular regenerative hyperplasia. *J Magn Reson Imaging* 5(6):730-732, 1995.
108. Soulen MC, Sullivan KL: Chemical ablation of the gallbladder: Is it feasible? *J Vasc Interv Radiol* 6:553-558, 1995.
109. Spettell CM: Methodological advances in the analysis of claims data for outcomes research. *J Outcomes Manage* 2(4):18-22, 1995.
110. Stein SC, Spettell CM: Delayed and progressive brain injury in children and adolescents with head trauma. *Pediatr Neurosurg* 23:299-304, 1995.
111. Stein SC, Spettell CM: The head injury severity scale (HISS): A practical classification of closed head injury. *Brain Inj* 9(5):437-444, 1995.
112. Steiner RM, Liu JB, Goldberg BB, Cohn JR: The value of ultrasound-guided fiberoptic bronchoscopy. *Clin Chest Med* 16(3):519-534, 1995.
113. Thakur ML, Li J, Chandy B, John E: Transient neutropenia: Neutrophil distribution and replacement. *J Nucl Med* 37:489-494, 1996.
114. Thakur ML: Molecular probes in nuclear medicine: A new era. The V. Sarabhai oration. *Indian J Nucl Med* 21, April 1996.
115. Thakur ML: Radiolabeled peptides: Now and the future. *Nucl Med Commun* 16:724-732, 1995.
116. Toaff ME, Gross ST, Lev-Toaff AS: Controlled ovarian hyperstimulation and transvaginal intratubal insemination as an alternative to GIFT. *Fertil Steril* 64(4):777-786, 1995.
117. van Leersum M, Schweitzer ME, Gannon F, Vinitzki S, Finkel G, Mitchell DG: Thickness of patellofemoral articular cartilage as measured on MR imaging: Sequence comparison of accuracy, reproducibility, and interobserver variation. *Skeletal Radiol* 24:431-435, 1995.
118. Vinitzki S, Gonzalez C, Burnett C, Buchheit W, Mohamed F, Ortega H, Faro S: 3D segmentation in MRI of brain tumors: Preliminary results. *Proc IEEE Eng Med Biol* 17:481-482, 1995.
119. Vinitzki S, Gonzalez C, Burnett C, Seshagiri S, Mohamed F, Ortega H, Faro S: Tissue segmentation in MRI as an informative indicator of disease activity in the brain (in) DeFloriani L, Vernazza C (eds): *Image Analysis and Processing*. Berlin: Springer-Verlag, 1995.
120. Wachsberg RH, Rifkin MD, Needleman L, Levine CD, Simmons MZ: Transient arteriovenous fistulae after transrectal prostate biopsy: Diagnosis with color Doppler ultrasonography. *J Ultrasound Med* 15:57-61, 1996.
121. Wechsler RJ, Maurer PM, Halpern EJ, Frank ED: Superior hypogastric plexus block for chronic pelvic pain in the presence of endometriosis: CT techniques and results. *Radiology* 196:103-106, 1995.

122. Wechsler RJ, Spettell CM, Kurtz AB, Lev-Toaff AS, Halpern EJ, Nazarian LN, Feld RI, Needleman L, Alexander AA: Effects of training and experience in interpretation of emergency body CT scans. *Radiology* 199:717-720, 1996.
123. Wechsler RJ, Steiner RM, Spirn PW, Rubin S, Salazar AM, Shah R, Russell K, Jimenez S, Varga J: The relationship of thoracic lymphadenopathy to pulmonary, interstitial disease in diffuse and limited systemic sclerosis: CT findings. *AJR* 167:101-104, 1996.
124. Weiner RE, Thakur ML: Metallic radionuclides: Applications in diagnostic and therapeutic nuclear medicine. *Radiochimica Acta* 70/71:273-287, 1995.
125. White LM, Schweitzer ME, Deely DM, Gannon F: Study of osteomyelitis: Utility of combined histologic and microbiologic evaluation of percutaneous biopsy samples. *Radiology* 197:840-842, 1995.
126. White LM, Schweitzer ME, Deely DM: Coaxial percutaneous needle biopsy of osteolytic lesions with intact cortical bone. *AJR* 166:143-144, 1996.
127. Yaffe MJ, Hendrick RE, Feig SA, Rothenberg LN, Och J, Gagne R: Recommended specifications for new mammography equipment: Report of the ACR-CDC focus group on mammography equipment. *Radiology* 197:19-26, 1995.

Books and Books Chapters

128. Alexander AA: The prostate, seminal vesicles, rectum and anal canal (in) Goldberg BB, Pettersson H (eds): *Ultrasonography: The NICER Yearbook 1996*. Sweden: The NICER Institute/ISIS Medical Media, 1996.
129. Alexander AA: The thyroid, the parathyroid, the salivary glands and the cervical lymph nodes (in) Goldberg BB, Pettersson H (eds): *Ultrasonography: The NICER Yearbook 1996*. Sweden: The NICER Institute/ISIS Medical Media, 1996.
130. D'Orsi CJ, Bassett LW, Feig SA, Jackson VP, Kopans DB, Linver MN, Sickles EA, Stelling CB (eds): *Breast Imaging Reporting and Data System (BI-RADS)*, Second Edition. Reston: American College of Radiology, 1995.
131. Feig SA: Background and analysis of clinical trials for breast cancer screening (in) *Education Book, 32nd Annual Meeting, American Society of Clinical Oncology*. Chicago: American Society of Clinical Oncology, 1996.
132. Feig SA: Mammographic evaluation of calcifications (in) Kopans DB, Mendelson EB (eds): *Syllabus: A Categorical Course in Breast Imaging*. Oak Brook: Radiological Society of North America, 1995.
133. Flanders AE, Croul SE: Spinal trauma (in) Atlas SW (ed): *Magnetic Resonance Imaging of the Brain and Spine*. Baltimore: Raven Press, 1995.
134. Forsberg F, Goldberg BB: Contrast agents and 3D ultrasound (in) Goldberg BB, Pettersson H (eds): *Ultrasonography: The NICER Yearbook 1996*. Sweden: The NICER Institute/ISIS Medical Media, 1996.
135. Goldberg BB, Breyer B, Bruguera CA, Gharbi HA, Tan FEH, Wachira MW, Weill FS: (in) Palmer PES (ed): *Manual of Diagnostic Ultrasound*. Geneva: World Health Organization, 1995.

136. Goldberg BB, Liu JB: Contrast agents in abdominal ultrasound (in) Gandolfi L, Fukuda M (eds): *Ultrasound Applications in Gastroenterology*. Basel: S. Karger, 1995.
137. Goldberg BB, Pettersson H (eds): *Ultrasonography: The NICER Year Book 1996*. Sweden: The NICER Institute/ISIS Medical Media, 1996.
138. Karasick D, Schweitzer ME, Deely D, Wechsler RJ: *Syllabus of the 2nd Annual Jefferson Foot & Ankle Advanced Imaging Symposium*. Philadelphia: Thomas Jefferson University, 1996.
139. Karasick D, Schweitzer ME, Deely D, Wechsler RJ: *Syllabus of the 1st Annual Shoulder & Elbow Advanced Imaging Symposium*. Philadelphia: Thomas Jefferson University, 1996.
140. Liu JB, Goldberg BB: Endoluminal ultrasound (in) Goldberg BB, Pettersson H (eds): *Ultrasonography: The NICER Year Book 1996*. Sweden: The NICER Institute/ISIS Medical Media, 1996.
141. Liu JB, Goldberg BB: Nonvascular applications of catheter-based ultrasound transducers (in) Lees WR, Lyons EA (eds): *Invasive Ultrasound*. London: Martin Dunitz Ltd, 1996.
142. Mitchell DG, Semelka RC: The pancreas and spleen (in) Higgins C, Helms C, Hricak H (eds): *Magnetic Resonance Imaging of the Body*, 3rd Edition. New York: Raven Press, 1996.
143. Mitchell DG, Stark DD: Gastrointestinal applications of hybrid rapid acquisition with relaxation enhancement (in) Haubrich WS, Schaffner F, Berk JE (eds): *Gastroenterology*. Philadelphia: WB Saunders, 1995.
144. Mitchell DG: MRI diagnosis and staging of pancreatic tumors (in) Meyers MA (ed): *Diagnosis and Staging of Neoplasms of the Digestive Tract*. Philadelphia: JB Lippincott, 1996.
145. Piccoli C, Wilkes A: Breast (in) McGahan J, Goldberg BB (eds): *Diagnostic Ultrasound: A Logical Approach*. Philadelphia: Lippincott - Raven, 1995.
146. Semelka R, Mitchell DG: MRI of the liver and biliary system (in) Edelman R, Messelink E (eds): *Clinical Magnetic Resonance Imaging*, 2nd Edition. Philadelphia: WB Saunders, 1996.
147. Yaffe MJ, Gray J, Rossi RP, Feig SA, Gagne R, Hendrick RE, Och J, Rothenberg L, Haus A, Kitts Jr EL, Kopans DB, Uzenoff RA, Suleiman O (eds): *Recommended specifications for new mammography equipment: Screen-film x-ray systems, image receptors, film processors*. Reston: American College of Radiology, 1995.

Abstracts

148. Abeyrante UR, Petropulu AP, Reid JM, Halpern EJ, Forsberg F: Higher-order statistics based approaches for estimating scatterer periodicity and correlation structure of tissue. *Ultrasonic Imaging* 18:73, 1996.
149. Albert M, Maidment ADA: Compensation for patient motion in stereotactic mammography. *Med Phys* 23(6):1107, 1996.

150. Alexander AA, Merton DA, Liu J, Nagle D, Fry RD: Transvaginal sonography of the abnormal female anal canal. *Radiology* 197(P):273, 1995.
151. Alexander AA, Nazarian LN, Feld RI: Ultrasound-guided biopsies of superficial soft tissue masses suspicious for recurrent malignancy. *J Ultrasound Med* 15(3S):73, 1996.
152. Alexander AA, Sagerman JE: Neonatal CNS imaging (in) Spitzer A (ed): *Intensive Care of the Fetus and Neonate*. Philadelphia: Mosby Year Book, Inc., 1995.
153. Anzilotti K, Jr, Schweitzer ME, Wapner K, Hecht P, Ross M, Kahn M: Analysis of the utility of foot and ankle MR imaging. *Radiology* 197(P):165, 1995.
154. Arsuaga JE, Sullivan KL, Sato T, Nathan FE: Survival of patients with ocular melanoma metastatic to the liver following chemoembolization. *J Vasc Interv Radiol* 7(S):250, 1996.
155. Bassett LW, Wilcox PA, Jessop NW, Feig SA: American College of Radiology mammography accreditation program: Deficiencies in failed clinical images. *Radiology* 197(P):242, 1995.
156. Basu S, Thakur ML, Kolan H: Solid phase synthesis of a HYNIC-D-peptide-phosphorothioate-oligodeoxynucleotide conjugate from two arms of a polyethyleneglycol-polystyrene support. *J Labeled Compounds & Radiopharm* XXXVII:350-352, 1995.
157. Batte Jr WG, Schweitzer ME, Morrison WB, Johnson P, Juneja V, Deely DM, Mitchell DG: Accuracy of MR imaging for the diagnosis of acute osteomyelitis: Prospective clinical study of 550 sites. *Radiology* 197(P):157, 1995.
158. Batte WG Jr, Greenfield AL, Berliner J, Forstater AT, Lopez BL, Steiner RM: Chest pain in young adults: Will the routine emergency room chest radiograph contribute to the diagnosis? *Radiology* 197(P):366, 1995.
159. Burnett C, Iwanaga T, Gonzalez CF, Vinitiski S, Mohamed FB: Intracranial tissue characterization using MRI and cluster analysis. *Proceedings of the 7th Annual Meeting of the Eastern Neuroradiological Society, Canada, October 1995*.
160. Carumbaya KD, Albert M, Maidment ADA: Digital angiography of the breast. *Med Phys* 23(6):1107, 1996.
161. Cascade PN, Amis ES Jr, Levin DC, Dalinka MK, Haralson RH, Ravin CE: ACR appropriateness criteria for imaging and treatment decisions. *Radiology* 197(P):44, 1995.
162. Chandy B, Li J, Thakur ML: Transient Neutropenia: Neutrophil distribution and replacement. *Clin Nucl Med* 21:352, 1996.
163. Conant EF, Dillon RL, Palazzo JP, Ehrlich SM, Feig SA: Imaging findings in mucin-containing carcinomas of the breast: Correlation with pathologic features (in) Merritt (ed): *Year Book of Ultrasound*. Chicago: Mosby Year Book, Inc., 1995.
164. Conant EF, Feig SA, Russell KM: One-year versus two-year mammographic screening intervals: Stage of cancer at diagnosis in women aged 40-49 years. *Radiology* 197(P):273, 1995.
165. Consigny PM, Barry JJ, Vitali NJ: Local delivery of heparin with coated angioplasty balloon inhibits postangioplasty intimal thickening. *Radiology*, 197(P):142-143, 1995.

166. Consigny PM, Vitali NJ: Interventional re-endothelialization: Effects of extracellular matrix and adhesion time on resistance of freshly adherent endothelial cells to detachment by low and high-shear stresses. *Cardiovasc Intervent Radiol* 19:209, 1996.
167. Dagher AP, Lee RR: Estimating the magnetization transfer bound-pool fraction. *Proceedings of the Third Scientific Meeting of the Society of Magnetic Resonance*, Nice, France, August 1995.
168. Dickey KW, Zreik T, Eschelmann DJ, Rosenblatt M, Eglin TK, Glickman MG: Transvaginal fluoroscopically-guided uterine cervical dilation: Preliminary results in patients with cervical obstruction. *J Vasc Interv Radiol* 7(S):207, 1996.
169. Eid ME, Schweitzer ME, Deely DM, Wapner K, Hecht P: MR imaging of the peroneal splits syndrome. *Radiology* 197(P):155, 1995.
170. Feig SA: Cost-effectiveness for mammographic screening of women aged 40-49 years. *Proceedings of the 27th National Conference on Breast Cancer, sponsored by the American College of Radiology*, Dallas, TX, April 1996.
171. Feig SA: Estimation of currently attainable benefit from mammographic screening of women aged 40-49 years (in) Balch CM, Dodd GD, Perez C (eds): *Breast Diseases, A Year Book Quarterly*. Chicago: Mosby Year Book, Inc. 1995.
172. Feig SA: Estimation of currently attainable benefit from mammographic screening of women aged 40-49 years. *Radiology* 196(P):884, 1995.
173. Feig SA: Imaging of the dense breast. *Proceedings of the 27th National Conference on Breast Cancer, sponsored by the American College of Radiology*, Dallas, TX, April 1996.
174. Feig SA: Mammographic evaluation of calcifications. Course No. 415. *Radiology* 197(P):78, 1995.
175. Feig SA, Bassett LW, Vyborny CJ, Yaffe MJ, Hendrick RE, Ehrlich SM: Interater agreement and intrater reliability in the radiologic assessment of exposure, contrast, resolution, noise, artifacts, and quality of mammographic images. *Radiology* 197(P):242, 1995.
176. Feig SA, Yaffe MJ, Plewes DB, Maidment AD, Jong R: Clinical evaluation of a scanned-slot, full-field digital mammography system. *Scientific program, Third International Workshop on Digital Mammography, sponsored by the University of Chicago*, Chicago, IL, June 1996.
177. Feig SA, Yaffe MJ, Plewes DB, Maidment AD, Mawdsley GE, Jong RA: Full-field digital mammography: System development and image evaluation. *Radiology* 197(P):170, 1995.
178. Feld RI, Liu JB, Nazarian LN, Needleman L, Rawool NM, Merton DA, Lev-Toaff AS, Segal SR, Goldberg BB: Laparoscopic liver sonography affects surgical decision-making. *J Ultrasound Med* 15(3S):64, 1996.
179. Feld RI, Needleman L, Goldberg BB: Color Doppler enhancement of needles for ultrasound guided biopsy. *Radiology* 197(P):434, 1995.

180. Flanders AE, Spettell CM, Tartaglino LM, Friedman DP, Herbison GJ: Relationship between functional abilities of spinal cord injury survivors and severity of damage as revealed at MR imaging. *Radiology* 197(P):410, 1995.
181. Flicker S, Altin RS, Eldredge WJ, Naidech HJ, Steiner RM: Imaging findings following palliative and corrective surgery for congenital heart disease. *Radiology* 197(P):516, 1995.
182. Forsberg F, Conant EF, Russell KM, Moore Jr JH: Can quantitative ultrasound parameters aid in diagnosing breast implant rupture? *Radiology* 197(P):191, 1995.
183. Forsberg F, Conant EF, Russell KM, Moore Jr JH: On the possibility of computer aided diagnosis of silicone breast implant rupture (in) Tortoli P (ed): *Acoustical Imaging*. New York: Plenum Press, 1996.
184. Forsberg F, Liu JB, Kim S, Thakur M, Rawool NM, Johnson D, Goldberg BB: Renal perfusion evaluated with a new ultrasound contrast agent (in) Tortoli P (ed): *Acoustical Imaging*. New York: Plenum Press, 1996.
185. Forsberg F, Liu JB, Merton DA, Rawool NM, Goldberg BB: Contrast injections with and without hypobaric activation. *J Ultrasound Med* 15(3S):19, 1996.
186. Forsberg F, Liu JB, Merton DA, Rawool NM, Goldberg BB: Low dose enhancement in rabbits using a new microbubble contrast agent. *J Ultrasound Med* 15(3S):19, 1996.
187. Forsberg F, Liu JB, Rawool NM, Merton DA, Greener Y, Goldberg BB: Gray-scale and color flow harmonic imaging with proteinacious microspheres. *Radiology* 197(P):403, 1995.
188. Forsberg F, Morvay Z, Deane CR: Estimation of shear-rates in nonstenotic and stenotic vessels. *J Ultrasound Med* 15(3S):56, 1996.
189. Forsberg F, Oung H: Comparison of time-frequency distribution for Doppler spectral estimation (in) Levy M, Schneider SC, McAvoy BR (eds): *Proceedings of the IEEE Ultrasonographics Symposium*, New York, NY, 1995.
190. Forsberg F, Rawool NM, Merton DA, Liu JB, Goldberg BB: Duration of contrast enhancement in conventional and harmonic imaging modes: A comparative study. *J Ultrasound Med* 15(3S):19, 1996.
191. Forsberg F, Wu YQ, Makin RS, Srinivasan J, Wang W, Wheatley MA: In vitro and in vivo characterization of a new surfactant stabilized ultrasound contrast media (in) Levy M, Schneider SC, McAvoy BR (eds): *Proceedings of the IEEE Ultrasonographics Symposium*, New York, NY, 1995.
192. Forsberg F: Color Doppler or color flow? Time versus frequency domain algorithms. *Proceedings of the First Annual New York Symposium Noninvasive Vascular Diagnostic Technology*, Access Medical Group Ltd, Long Grove, IL, 1996.
193. Forsberg F: Contrast agents: Are we measuring blood velocity or artifacts ?. *Proceedings of the First Annual New York Symposium Noninvasive Vascular Diagnostic Technology*, Access Medical Group Ltd, Long Grove, IL, 1996.

194. Friedman DP, Flanders AE, Tartaglino LM, Dagher AP: MR imaging and MR venography of anomalies and abnormalities of the intracranial venous system. *Proceedings of the 34th Annual Meeting of the American Society of Neuroradiology*, Seattle, WA, June 1996.
195. Friedman DP, Flanders AE, Tartaglino LM: Imaging of inflammatory vascular lesions of the central nervous system. *Radiology* 197(P):486, 1995.
196. Galkin BM, Feig SA: MQSA-type inspections by mail: An alternative to on-site inspections. *Med Phys* 23:1178, 1996.
197. Galkin BM, Feig SA: New method to monitor beam quality in mammography quality control programs. *Med Phys* 22:1014, 1995.
198. Galkin BM, Feig SA, Drury WR: Method for using film density measurements to monitor kilovolt peak and dose stability in MQSA image quality control programs. *Radiology* 197(P):221, 1995.
199. Goldberg BB, Forsberg F, Fritsch T, Liu J, Merton DA, Rawool NM: Evaluation of a US contrast agent that employs induced acoustic emission. *Radiology* 197(P):402, 1995.
200. Goldberg BB, Liu JB, Forsberg F: Ultrasound contrast agents: A review (in Merritt CRB (ed): *Year Book of Ultrasound*. St. Louis: Mosby Year Book, Inc., 1995.
201. Goldberg BB, Merton DA, Forsberg F, Liu JB, Rawool NM: Comparison of two ultrasound color flow modalities in the evaluation of vascular ultrasound contrast agents. *Radiology* 197(P):403, 1995.
202. Goldman HW, Azizi A, Moreledge D, Aita AL, Flanders AE, Gollomp S, Tartaglino LM, McGlenn K: Factors contributing to the accuracy of MRI localization of subcortical targets: Comparison with high resolution CT and stimulation and recording techniques. *Proceedings of the Society of Stereotactic Neurosurgery*, San Francisco, CA, September 1995.
203. Goldszal AD, Schweitzer ME, Toner J, Mohamed FB: Functional MR imaging of muscle activity: The "pump", "flex", and delayed onset muscle soreness. *Radiology* 197(P):295, 1995.
204. Gonzalez C, Vinitiski S, Mohamed F, Iwanaga T, Lublin F, Knobler R, Gutierrez J: MS lesion characterization using tissue segmentation based on 3D feature map. *NIH Conference on MS Identification by Tissue Segmentation*, Montreal, Canada, November 1995.
205. Gonzalez CF, Gutierrez JE, Vinitiski S, Mohamed F, Knobler R: Improved tissue differentiation between MS, leukoaraiosis and lacunar infarctions of the brain. *Proceedings of the 34th Annual Meeting of the American Society of Neuroradiology*, Seattle, WA, June 1996.
206. Gonzalez CF, Vinitiski S: Magnetic resonance segmentation: 3D identification of tissues on intracerebral tumors. *Diagnostico* 37(S):84, 1995.
207. Gonzalez CF, Vinitiski S: MRI 3D tissue segmentation in intracranial lesions. *Neuroradiology* 37(S):551-552, 1995.

208. Gonzalez CF: Application of new MRI techniques in the three dimensional quantitative study of the progress of cerebral diseases and the efficacy of treatment. *Proceedings of the XIV Inter-American Medical-Dental Congress*, New York, NY, October 1995.
209. Gonzalez CF: Computational models in cerebral aneurysms study of blood flow. *Diagnostico* 37(S):84, 1995.
210. Greenfield AL, Liu J, Steiner RM, Cohn HE, Goldberg BB, Rawool NM, Merton DA: US-assisted thoracoscopy in patients with peripheral pulmonary nodules. *Radiology* 197(P):201, 1995.
211. Halpern EJ, Albert M, Krieger AM, Metz CE, Maidment AD: Comparison of ROC curves on the basis of optimal operating points. *Radiology* 197(P):356, 1995.
212. Halpern EJ, Deane CR, Needleman L, East SA: In vitro model of the renal artery Doppler waveform. *Radiology* 197(P):337, 1995.
213. Halpern EJ, Kramer JP: Association of increased lower extremity venous pulsatility with cardiac disease. *Radiology* 197(P):434, 1995.
214. Halpern EJ, Kramer JP: Predictive value of common femoral vein pulsatility for tricuspid insufficiency. *J Ultrasound Med* 15(3S):56, 1996.
215. Halpern EJ, Nack TL, Needleman L: US evaluation of upper extremity central venous disease. *Radiology* 197(P):434, 1995.
216. Halpern EJ, Needleman L, Nack TL: Doppler evaluation of the main renal artery: Absolute velocity measurement versus velocity ratios. *J Ultrasound Med* 15(3S):6, 1996.
217. Hillman BJ, Levin DC, Orentlicher D, Tipton W: Self-referral for radiologic services: Foundations, experience and interventions. *Radiology* 197(P):29, 1995.
218. Huang AB, Schweitzer ME, Hume E, Batte WG: The accuracy and utility of MR imaging in the diagnosis of osteomyelitis in paralyzed patients. *AJR* 166(3S):50, 1996.
219. John CS, Venugopal R, Li J, Bowen WD, Varma VM, Thakur ML: Characterization and targeting of sigma receptor binding sites in human prostate tumor cells. *J Nucl Med* 37(P):205, 1996.
220. Karasick D, Schweitzer ME, Deely DM: "Ulcer osteoma": Differentiating benign periosteal reactions to chronic leg ulcers from superimposed osteomyelitis. *Radiology* 197(P):166, 1995.
221. Karasick D, Schweitzer ME, O'Hara B: Fibular notch: Frequent manifestations of the rheumatoid ankle. *Radiology* 197(P):431, 1996.
222. Karasick D, Schweitzer ME: The os trigonum syndrome. *AJR* 166(3S):32, 1996.
223. Karasick S, Chancellor MB: Cutaneous ileocystostomy (bladder chimney): Clinical application and radiologic appearance. *AJR* 165:222, 1995.
224. Karasick S: Does barium enema predict defecographic abnormalities? *AJR* 166(3S):83, 1996.

225. Karasick S: Experience with evacuation proctography (defecography) emphasizing age and gender variation in a large patient population. *AJR* 164(3S):21, 1995.
226. Kim SM, Andrews DW, Zhang JJ, Intenzo CM, Park CH, Zhang JJ: Discordant Tl-201/Tc-99m-MIBI tumor uptake for evaluation of brain tumor. *Radiology* 197(P):252, 1995.
227. Kim SM, Andrews DW, Zhang JJ, Park CH, Intenzo CM: Clinical significance of discordant Tl-201 and Tc-99m-MIBI brain SPECT in the recurrent malignant glioma. *J Nucl Med* 37(5P):260, 1996.
228. Kim SM, Intenzo CM, Park CH, Pham CM: Sensitivity of Tc-99m MIBI parathyroid imaging for evaluation of hyperparathyroidism: Relation to the histologic findings, lesion size and location. *Radiology* 197(P):215, 1995.
229. Kim SM, Zhang JJ, Intenzo CM, Park CH, Pham CD, Richard MD: Role of Tc-99m-HMPAO brain SPECT for the evaluation of migraine headaches. *Radiology* 197(P):385, 1995.
230. Kolan HR, Thakur ML, Wiaderkiewicz R, Duggaraju R: Tc-99m-HYNIC-RC-160 and Tc-99m-CPTA-RC-160: Synthesis of chelating agents, preparation and preliminary evaluation. *J Labeled Compounds & Radiopharm* XXXVII:490-492, 1995.
231. Kolan HR, Thakur ML: Preparation and evaluation of Tc-99m labeled Vapreotide (RC-160): A somatostatin analog. *Clin Nucl Med* 21:351, 1996.
232. Kopans DB, Feig SA, Sickles EA: Malignant breast masses detected only by ultrasound: A retrospective review (letter to the editor). *Cancer* 77:208-209, 1996.
233. Kovalovich AM, Schweitzer ME, Wapner K, Hecht P: Occult calcaneal avulsions: Possible cause of pain in recalcitrant plantar fasciitis. *Radiology* 197(P):156, 1995.
234. Kubichek MA, Baumgart S, Streletz LJ, Desai H, Desai S, Zhang JJ, Park CH, Graziani L, Spitzer A: Correlation of EEG and cerebral perfusion studies (Brain SPECT) in neonates undergoing ECMO therapy. *J Clin Neurophysiol* 12(5):524, 1995.
235. Kurtz AB: Fetal CNS. *Radiology* 197(P):59, 1995.
236. Kurtz AB: RDOG (Radiology Diagnostic Oncology Group) update (part 1), Ovary. *Radiology* 197(P):51, 1995.
237. LaFrance ND, Yin D, Brooks K, Bensel K, Meeks M, Macchi D, Lucas T, Lev-Toaff AS: Development of a new oral contrast agent for sonography: Clinical and economic considerations. *Acad Radiol* 3:8000, 1996.
238. Lev-Toaff AS, Feig SA, Saitas VL, Finkel GC, Schwartz GF: Stability of malignant breast microcalcifications (in) Federle MP, Clark RA, Gross BH, et al. (eds): *Year Book of Diagnostic Radiology*. Chicago: Mosby Year Book, Inc., 1996.
239. Lev-Toaff AS, Goldberg BB, Zelch JV, Rubin DL, Langer JE, Chong WK, Barone AE: Evaluation of an oral ultrasound contrast agent in patients with suspected abdominal pathology: Phase II trial. *J Ultrasound Med* 15(3S):18, 1996.
240. Lev-Toaff AS, Toaff ME, Liu J, Merton DA, Goldberg BB: Impact of sonohysterography on the management of abnormal uterine bleeding. *Radiology* 197(P):229, 1995.

241. Lev-Toaff AS, Liu J, Merton DA, Goldberg BB: Value of sonohysterography in the diagnosis and management of abnormal uterine bleeding. *Radiology* 197(P):474, 1995.
242. Lev-Toaff AS, Merton DA, Rawool NM, Goldberg BB, Needleman L: Utility of a new oral ultrasound contrast agent in sonographic assessment of the upper abdomen. *J Ultrasound Med* 15(3S):94, 1996.
243. Levin DC, Dehn TG: Minicourse on socioeconomic issues: Strategies for radiologists when dealing with managed care - How to develop a capitated radiology contract and survive. The data to have and the calculations to make. *Radiology* 197(P):64, 1995.
244. Levin DC, Edelman RR, Stanford W: Advances in the evaluation of coronary arteries: Conventional angiography, CT and MR imaging. *Radiology* 197(P):85, 1995.
245. Levin DC, Rao VM, Spettell CM, Sunshine JH, Bansal S: Self-referral in skeletal radiology in 1993: A nationwide comparison between hospital and private office settings. *Radiology* 197(P):360, 1995.
246. Levin DC, Spettell CM, Rao VM, Sunshine JH, Bansal S: Chest radiography practice pattern variations between hospital and private office settings: Relative roles of radiologists and other physicians. *Radiology* 197(P):366, 1995.
247. Levin DC, Spettell CM, Sunshine JH, Bansal S: Impact of self-referral on Medicare physician expenditures for high-cost imaging procedures. *Radiology* 197(P):208, 1995.
248. Li J, Duggaraju R, Maish DR, Thakur ML: Effect of Interferon-a-2b on the enhancement of tumor uptake of Tc-99m labeled monoclonal antibody. *Clin Nucl Med* 21:352, 1996.
249. Li J, Merton DA, Duggaraju R, Thakur ML: Influence of inteferon on tumor blood flow and tumor uptake of Tc-99m labeled MEM136. *Clin Nucl Med* 21:352, 1996.
250. Liu J, Bagley DH, Merton DA, Alexander AA, Rawool NM, Goldberg BB: Endoluminal sonographic evaluation of ureteral and renal pelvic neoplasms. *Radiology* 197(P):435, 1995.
251. Lopez-Ben RR, Robbin ML, Needleman L, Berland LL: US contrast agent imaging of liver hemangiomas. *Radiology* 197(P):230, 1995.
252. Maidment AD, Albert M, Conant EF, Feig SA, Piccoli CW: 3-D imaging of mammary calcifications. *Med Phys* 23(6):1106, 1996.
253. Maidment AD, Conant EF, Feig SA, Albert M: Segmentation and 3D reconstruction of breast calcification for morphologic analysis. *Radiology* 197(P):327, 1995.
254. Maidment AD, Conant EF, Feig SA, Piccoli CW, Albert M: Three-dimensional analysis of breast calcifications. *Proceedings of the 3rd International Digital Mammography Meeting*, Chicago, IL, June 1996.
255. Maidment AD, Feig SA, Conant EF, Wolk E, Albert M: Three-dimensional analysis of breast calcifications. *Radiology* 197(P):170, 1995.
256. Maidment AD, Feig SA, Conant EF: The three-dimensional morphological analysis of breast calcifications. *Med Phys* 21:988, 1995.

257. Maidment ADA, Albert M, Conant EF, Feig SA: 3-D mammary calcification reconstruction from a limited number of views. *Phys Med Imag* 2708:378-389, 1996.
258. Maidment ADA, Salazar AM, Spirn P, Steiner RM, Shaber GS, Moyer FP: Optimization of portable chest radiography. *Radiology* 197(P):340, 1995.
259. Maidment ADA, Yaffe MJ: Design considerations in optically coupled digital x-ray detectors. *Radiology* 197(P):357, 1995.
260. Maidment ADA: Scanned-slot digital mammography. *Med Phys* 23(5):782, 1996.
261. Merton DA, Needleman L, Desai SA, Stanley C, Nack T, Baumgart S: The fate of the reconstructed common carotid artery: A four-year follow-up in children post ECMO. *J Ultrasound Med* 15(3S):10, 1996.
262. Misra S, Sullivan KL, Lackman R, Weiss A: Long-term survival of extremity osteosarcoma patients following preoperative intra-arterial chemotherapy. *J Vasc Interv Radiol* 7(S):250, 1996.
263. Mitchell DG, Outwater EK, Vinitzki S: Abdominal application of hybrid rapid acquisition with relaxation enhancement (in) Beltran J (ed): *Current Review of Magnetic Resonance Imaging*. St. Louis: Mosby Year Book, Inc., 1995.
264. Mitchell DG, Spritzer CE: Pancreatobiliary and abdominal vascular MR imaging: Totally tubular. *Radiology* 197(P):47, 1995.
265. Mitchell DG: Magnetic imaging (in) Stark D, Bradley WG (eds): *Magnetic Resonance Imaging*, 3rd Edition. St. Louis: Mosby Year Book, Inc., 1996.
266. Mohamed FB, Gonzalez C, Vinitzki S, Burnett C, Seshagiri S, Faro S, Ortega HV: 3D tissue segmentation in MRI. *Med Phys* 22(6):935, 1995.
267. Mohamed FB, Vinitzki S, Faro SH, Ortega HV, Mitchell DG, Outwater EK, Schweitzer ME: Image nonuniformity correction in high field (1.5T) MRI. *Proceedings of the Third Scientific Meeting of the Society of Magnetic Resonance*, Nice, France, August 1995.
268. Mohamed FB, Vinitzki S, Gonzalez C, Faro S, Burnett C, Ortega HV, Iwanaga T: Image nonuniformity correction in high field (1.5T) MRI. *IEEE Eng Med Biol* 17:36, 1995.
269. Mohamed FB, Vinitzki S, Gonzalez C, Iwanaga T, Faro S, Ortega H: Correction of MR image non-uniformity: Improved MRA, MRI and tissue segmentation. *Proceedings of the Fourth Scientific Meeting of the International Society for Magnetic Resonance in Medicine*, New York, NY, April 1996.
270. Mohamed FB, Vinitzki S, Seshagiri S, Ortega HV, Gonzalez CF, Burnett C: Correction of intensity nonuniformity in high field (1.5 T) MR imaging. *Med Phys* 22(6):1014, 1995.
271. Mohuchy T, Kaji AV, Dolinskas CA, Faro SH, Swartz JD, Rao VM: Imaging of facial nerve palsies: A spectrum of findings. *Radiology* 197(P):480, 1995.
272. Molthen RC, Shankar PM, Narayanan VM, Reid JM, Genis V, Forsberg F, Piccoli CW, Lindenmayer AE, Goldberg BB: Using the K-distribution and phase statistics to examine in vivo breast and liver data. *Ultrasound Imaging* 18:74, 1996.

273. Morrison WB, Schweitzer ME, Batte WG, Juneja V: Osteomyelitis of the foot: Relative accuracy of primary and secondary MR signs. *Radiology* 197(P):155, 1995.
274. Moss SG, Schweitzer ME, Lombardi JV, Dellose SM: Fluid in the hip joint: Amount and distribution on MR images. *Radiology* 197(P):396, 1995.
275. Nazarian LN, Alexander AA, Rawool NM, Kurtz AB, Mastrangelo M: Superficial US alters the clinical management of recurrent melanoma. *Radiology* 197(P):301, 1995.
276. Nazarian LN, Alexander AA, Rawool NM, Kurtz AB, Mastrangelo MJ: Impact of superficial ultrasound on clinical management of patients with malignant melanoma. *J Ultrasound Med* 15(3S):74, 1996.
277. Needleman L, Cronan JJ: Deep venous thrombosis: Doppler sonography ("Hands-on" Workshop). *Radiology* 197(P):93, 1995.
278. Needleman L, Robbin ML, Beach KW, Platt JF, Merritt CB, Arger PH: Phase II clinical trial of a new perfluorochemical emulsion US contrast agent. *Radiology* 197(P):402, 1995.
279. Needleman L: Vascular applications of US: Peripheral vessels. *Radiology* 197(P):77, 1995.
280. Ortega HV, Consigny M, Vinitsky S, Mohamed F, Rawool NM, Merton DA, Halpern EJ, Goldberg BB: Color Doppler and computer modeling of flow in renal artery stenosis. *J Ultrasound Med* 15(3S):57, 1996.
281. Ortega HV, Vinitski S, Mohamed F, Consigny MP, Faro SH: Effects of angulation of arterial branches on plaque formation: A computer simulation analysis. *Proceedings of the Scientific Conference on Current and Future Application of Magnetic Resonance in Cardiovascular Disease, American Heart Association, San Francisco, CA, January 1996.*
282. Ortega HV, Vinitski S, Mohamed FB, Outwater EK, Faro SH, Mitchell DG: Effect of flow disturbances on MR angiography in renal artery stenosis. *Radiology* 197(P):187, 1995.
283. Ortega HV, Vinitski S, Mohamed FBV, Faro SH, Consigny M, Godo M: Effect of renal artery angulation on MRA. *Proceedings of the Fourth Scientific Meeting of the International Society for Magnetic Resonance in Medicine, New York, NY, April 1996.*
284. Outwater EK, Marks B, Marks GJ, Johnson P: Rectal carcinoma: Staging before and after radiation therapy with endorectal MR imaging. *Radiology* 197(P):380, 1995.
285. Outwater EK, Mitchell DG: MR imaging of normal ovaries and functional cysts: Characteristics in 81 proven normal ovaries. *Radiology* 197(P):354, 1995.
286. Outwater EK, Siegelman ES, Shapiro MA: Correlation of CT and chemical shift MRI measurements of lipid in adrenal lesions. *Radiology* 197(P):184, 1995.
287. Outwater EK, Siegelman ES: CT Hounsfield units and MR chemical shift measurements of benign and malignant adrenal lesions. *Proceedings of the Third Scientific Meeting of the Society of Magnetic Resonance, Nice, France, August 1995.*

288. Park CH, Pham CD, Intenzo CM, Stefanatos GA, Kollros P, Richard MD.: Comparison of amitriptyline-activated HMPAO brain SPECT with electroencephalography and MR imaging in evaluating children with pervasive developmental disorders. *Radiology* 197(P):252, 1995.
289. Patel RI, Gardiner GA Jr, Bonn J, Donovan ME: Causes and consequences of balloon angioplasty failure in the peripheral arteries: Results from a transluminal angioplasty and revascularization registry. *Radiology* 197(P):142, 1995.
290. Patel RI, Sullivan KL, Misra S, Gardiner Jr GA: Long-term patency after thrombolysis of occluded lower-extremity arterial bypass grafts: Results from a transluminal arterial revascularization registry. *Radiology* 197(P):282, 1995.
291. Patel RS, Schweitzer ME, Wapner KL, Hecht PJ, Russell KM, Kahn M, Ross M: MR imaging of Achilles tendon: Overlap of findings in symptomatic and asymptomatic individuals. *AJR* 166(3S):32, 1996.
292. Paul JJ, Gannon C, Spettell C, Cleary G, Baumgart S: Significance of cardiac malposition in neonates with right-sided congenital diaphragmatic hernia before and after surgical repair. *Proceedings of the Twelfth Annual CNMC (Children's National Medical Center) ECMO Symposium*, Keystone, CO, February 1996.
293. Paul JJ, Paul KE, Katz A, Pagotto LT, Spettell C, Cleary G, Baumgart S: Cardiac malposition in ECMO treated neonates with congenital diaphragmatic hernia (CDH). *Society for Pediatric Research*, Washington, DC, May 1996.
294. Paul JJ, Paul KE, Katz A, Pagotto LT, Spettell C, Cleary G, Baumgart S: Cardiac malposition in neonates with left-side congenital diaphragmatic hernia. *Proceedings of the Twelfth Annual CNMC (Children's National Medical Center) ECMO Symposium*, Keystone, CO, February 1996.
295. Pham DL, Prince JL, Dagher AP: Estimation of joint probability density functions in magnetic resonance imaging. *Proceedings of the 9th Annual Image and Multidimensional Signal Processing Workshop, IEEE Signal Processing Society and the Society for Image Science and Technology*, Belize, Mexico, March 1996.
296. Piccoli CW, Auilo AJ, Forsberg F, Conant EF: Pitfalls in the ultrasound and MRI evaluations of breast implants. *Proceedings of the 9th International Congress on the Ultrasonic Examination of the Breast*, Indianapolis, IN, September/October, 1995.
297. Piccoli CW, Gessner A, Rosenberg A: Value of breast sonography for palpable abnormalities: Works in progress. *J Ultrasound Med* 15(3S):75, 1996.
298. Piccoli CW, Marks B, Mitchell DG: Results of 154 single-breast contrast-enhanced MR imaging examinations. *Radiology* 197(P):371, 1995.
299. Piccoli CW, Matteucci T, Outwater EK, Siegelman ES, Mitchell DG: Breast cancer diagnosis with MR imaging: Effect of clinical and mammographic findings on recommendations for biopsy. *Radiology* 197(P):372, 1995.

300. Pisano ED, Tsimikas J, Fajardo L, Sneige N, Frable J, Gatsonis C, McNeill B, Berg WA, Bradley F, Evans WP, Feig SA, Monticciolo DL, Newstead G, Parker SH, Rebner M, Rice J, Sullivan D, Tocino I, Yankaskas B: RDOG 5L Stereotactic fine needle aspiration (FNA) and core needle biopsy (CNB) in the work-up of lesions detected by mammography: Insufficient sample rate across multiple centers in a nationwide trial. *Report Proceedings and Syllabus of the 27th National Conference on Breast Cancer, sponsored by the American College of Radiology, Dallas, TX, April 1996.*
301. Rao VM, Abrahams JJ: Imaging of the temporomandibular joint and the mandible. *Radiology* 197(P):58, 1995.
302. Rao VM, Levin DC, Spettell CM, Flanders AE, Sunshine JH, Bansal S: Who performs neuroimaging? Results from a national 1993 database. *Radiology* 197(P):372, 1995.
303. Rao VM, Levin DC, Spettell CM, Sunshine JH, Bansal S: Financial impact of MR imaging on overall 1993 Medicare costs of imaging. *Radiology* 197(P):372, 1995.
304. Rao VM: Current financial and utilization issues in neuroimaging. *Proceedings of the 34th Annual Meeting of the American Society of Neuroradiologists, Seattle, WA, June 1996.*
305. Rao VM: Patterns of inflammatory disease: The preoperative and postoperative evaluation of the paranasal sinuses. *Proceedings of the 30th Annual Scientific Conference and Post Graduate Course in Head and Neck Imaging, American Society of Head and Neck Radiology, Los Angeles, CA, April 1996.*
306. Rawool NM, Kurtz AB, Wapner R, Needleman L, Goldberg BB: Three-dimensional (3D) ultrasound reconstruction of the normal fetal anatomy. *J Ultrasound Med* 15(3S):93, 1996.
307. Rawool NM, Liu JB, Greenfield AL, Steiner RM, Merton DA, Cohn HE, Goldberg BB: Role of thoracoscopic ultrasound: Preliminary clinical experience. *J Ultrasound Med* 15(3S):645, 1996.
308. Rawool NM, Needleman L, Kurtz AB, Goldberg BB: Three-dimensional US reconstruction of the normal fetal anatomy. *Radiology* 197(P):474, 1995.
309. Robertson PL, Schweitzer ME, Bortolozzi AB: Can preoperative MR imaging help determine knee stability in patients with suspected anterior cruciate ligament tears? *Radiology* 197(P):334, 1995.
310. Sadek AG, Mohamed FB, Outwater, EK, El-Essawy SS, Mitchell DG: Respiratory and post-prandial changes in portal flow rate: Assessment by phase contrast MR imaging. *Proceedings of the Third Scientific Meeting of the Society of Magnetic Resonance, Nice, France, August 1995.*
311. Schwartz WL, Spirn P, Vaccaro J, Walls J, Williams R, Orons A, Patrick H: Analysis of barotrauma in hypoxemic patients receiving volume control (VC) vs pressure ventilation. *Am J Respir Crit Care Med* 153(4):A371, 1996.
312. Shapiro MJ: Approach to the patient with a coagulopathy. *J Vasc Interv Radiol* 7(1S):73, 1996.
313. Siegelman ES, Outwater EK: The concentric-ring sign revisited. (Letter to the Editor) *AJR* 166(6):1493, 1996.

314. Sobel MI, Liu JB, Nazarian LN: Laparoscopic ultrasound used to localize a small ovarian mass. *Proceedings of the American Society of Reproductive Medicine Annual Meeting*, Seattle, WA, October 1995.
315. Steiner RM, Bergin CJ: The thoracic manifestations of connective tissue disorders: Separating the trees from the forest. *Radiology* 197(P):66, 1995.
316. Steiner RM, Wechsler RJ, Spirn PW, Salazar AM, Rubin S, Varga J: Role of high-resolution CT in the assessment of interstitial lung disease in limited and diffuse scleroderma. *Radiology* 197(P):250, 1995.
317. Steiner RM, Wechsler RW, Spirn PW, Varga J: The role of thoracic CT in the diagnosis of limited and diffuse scleroderma. *Eur J Radiol* 5(S):559, 1996.
318. Sullivan KL, Bonn J, Shapiro MJ, Gardiner Jr GA: Accuracy and safety of inferior venacavography. *Circulation* 92(S1):I-57, 1995.
319. Sullivan KL: Dialysis access management. *J Vasc Interv Radiol* 7(S): 347, 1996.
320. Tan W, Kim SM, Mandel S, Intenzo CM, Zhang JJ: Tc-99m-HMPAO brain SPECT in post concussion syndrome: Correlation with symptomatic outcome. *J Nucl Med* 37(5P):157, 1996.
321. Tepper R, Cisneros JA, Goldberg BB, Forsberg F, Waldroup L, Beyth Y: Development of a computer-based simulator using an anthropomorphic phantom for sonographic training. *Radiology* 197(P):161, 1995.
322. Thakur ML, Donegan M, Li J, Kolan H, Duggaraju R, Maish D, Srivastava SC: Tc-99m labeled anti-CEA F(ab')₂: Augmenting tumor uptake with antibody: Interferon (Mab: IFN-a-2b) conjugate. *J Nucl Med* 37(P):151, 1996.
323. Thakur ML, Kolan H, Li J, Duggaraju R, Halmos G, Schally AV: Imaging breast cancer with Tc-99m somatostatin analogs RC-160 and sandostatin: Comparison with In-111 octreotide. *Radiology* 197(P):320, 1995.
324. Thakur ML, Li J, Chandy B, John E: Transient Neutropenia: Neutrophil (PMN) distribution and replacement. *Int Soc of Radiolabeled Blood Elements*:15, 1995.
325. Thakur ML, Li J, Duggaraju R, Kolan H: Radiolabeled monoclonal antibodies (Mabs): Augmenting tumor uptake with biological response modifiers (BRMs). *Radiology* 197(P):420, 1995.
326. Tjin A Ton ER, Schweitzer ME, Pattynama PM, Bioem JL, Obermann WR: Diagnosis of scapholunate and lunotriquetral ligament tears: Utility of stress MR imaging. *Radiology* 197(P):429, 1995.
327. Tjin A Ton ER, Schweitzer ME: Sinus tarsi syndrome revisited: Are the MR signs a result of population bias? *Proceedings of the Fourth Scientific Meeting of the International Society for Magnetic Resonance in Medicine*, New York, NY, April 1996.

328. Vaccaro A, Cotler J, Balderston R, Maunak R, Flanders AE: Evaluation of intervertebral disc and ligament morphology by magnetic resonance imaging before and after high weight closed reduction of cervical dislocations. *Proceedings of the European Cervical Spine Society, Nice, France, June 1996.*
329. Vazquez-Choisne WG, DeLara F, Rao VM: Imaging of lesions affecting the superolateral orbit. *Proceedings of the 34th Annual Meeting of the American Society of Neuroradiology, Seattle, WA, June 1996.*
330. Vinitiski S, Khalili K, Mohamed FB, Gordon J, Knobler R, Gonzalez CF, Curtis M: Validation of 3D tissue segmentation by animal model of brain tumor. *Proceedings of the 4th Scientific Meeting of the International Society for Magnetic Resonance in Medicine, New York, NY, April 1996.*
331. Vinitiski S, Ortega HV, Mohamed FB, Faro SH, Cho D: 3D Computer simulation of complex blood flow in MR angiography of carotid artery. *Proceedings of the Scientific Conference on Current and Future Application of Magnetic Resonance in Cardiovascular Disease, American Heart Association, San Francisco, CA, January 1996.*
332. Vo DT, Rao VM: CT and MR findings in allergic paranasal sinus aspergillosis. *AJR* 166(3):165-166, 1996.
333. Wechsler R, Spettell CM, Needleman L, Alexander AA, Feld RI, Halpern EJ, et al: Effect of training and experience on interpretation of emergency body CT scans. *Radiology* 197(P):175, 1995.
334. Wechsler RJ, Glaser JB, Schweitzer ME, Karasick D, Deely DM: Evaluation of talar fractures: Use of multiplanar helical CT for detection and classification. *Radiology* 197(P):165, 1995.
335. Wilkes AN, Kurtz AB, Needleman L, Urban AJ: Abnormal fetal heart: Recognition of cardiac anomalies at routine obstetric US-correlation with normal findings. *Radiology* 197(P):474, 1995.
336. Winston CB, Wechsler RJ, Salazar AM, Kurtz AB, Spirn PW: Incidental pulmonary emboli detected at helical CT: Effect on patient care. *Radiology* 197(P):303, 1995.
337. Wu YQ, Forsberg F, Makin IRS: In vitro study of the harmonic response of an ultrasound contrast agent. *J Ultrasound Med* 15(3S):66, 1996.
338. Yaffe MJ, DeWerd LA, Jennings RJ, Barnes GT, Hendrick RE, Feig SA, Vyborny CJ: Prototype evaluation phantom for mammography. *Radiology* 197(P):220, 1995.
339. Yaffe MJ, Feig SA, Van Metter RL, Haus AG, Jong RA, Vyborny CJ, Rothenberg LN, Pizzutiello RJ, Maidment ADA, Bassett LW: Effect of screen-film and processing characteristics on perceived image quality in mammography. *Radiology* 197(P):243, 1995.
340. Yaffe MJ, Hendrick RE, Feig SA, Rothenberg LN, Och J, Gagne R: Recommended specifications for new mammography equipment: Report of the ACR-CDC. *Proceedings of the 27th National Conference on Breast Cancer, sponsored by the American College of Radiology, Dallas, TX, April 1996.*

341. Yaffe MJ, Plewes DB, Mawdsley DB, Critten J, Feig SA, Maidment AD, Piccaro M: Full-field digital mammography system development and technical performance. *Scientific program, Third International Workshop on Digital Mammography, sponsored by the University of Chicago, Chicago, IL, June 1996.*
342. Yousem DM, Li C, Rao VM, Montone KT: MR imaging of sinonasal melanomas. *Radiology* 197(P):173, 1995.
343. Zhang JJ, Baumgart S, Kim SM, Desai H, Park CH, Spitzer AR: Role of brain SPECT after extracorporeal membrane oxygenation in infants: Correlation with neurodevelopmental outcome and US and MR imaging. *Radiology* 197(P):251, 1995.
344. Zhang JJ, Kim SM, Andrews DW, Park CH and Intenzo CM: Comparative assessment of four different thallium tumor uptake indices in the evaluation of the recurrent brain tumor. *J Nucl Med* 37(5P):157, 1996.
345. Zhang JJ, Kim SM, Park CH, Intenzo CM: Computer-assisted automated quantitative analysis of myocardial SPECT: Comparison with visual analysis and coronary angiography. *Radiology* 197(P):260, 1995.
346. Zhang JJ, Kim SM, Park CH, Pham CD, Richard MD, Intenzo CM: Factors affecting an accurate measurement of myocardial wall thickness in gated cardiac SPECT. *Radiology* 197(P):261, 1995.

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FORMAL SCIENTIFIC PRESENTATIONS

ARCHIE A. ALEXANDER, M.D.

- August 19, 1995 SONIX, Englewood Hospital and Medical Center, Englewood, NJ
- "Color Doppler evaluation of the scrotum"
 - "Abdominal and pelvic Doppler evaluation"
 - "Testicular Doppler"
 - "Hepatic and portal venous circulation"
 - Interpretation rounds
- September 15-17, 1995 Johns Hopkins Medical Institutions, Baltimore, MD
- "New developments in prostate sonography"
 - "Real-time compression and color contrast venography"
 - "Ultrasonographic contrast agents and tumor vascularity"
- November 16-17, 1995 Health Science Center, University of Florida, Jacksonville, FL
- "Carotid ultrasound"
 - "Sonographic detection of renal artery stenosis (does it really work)?"
 - "Prostate ultrasonography"
- May 7-10, 1996 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- "Transrectal ultrasound"
 - "Transrectal ultrasound: Male infertility, the prostate and beyond"

JOSEPH BONN, M.D.

- October 12-14, 1995 Southeastern Angiographic Society Annual Meeting, Sea Island, GA
- "Aortoiliac stents"
 - "Venous access: PICCs and ports"
 - "Update on vena cava filters"
- November 25-
December 1, 1995 The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "New devices and complex vascular interventions" (refresher course)
- June 7-9, 1996 Third Annual Penn-Jeff Conference on Interventional Radiology, Skytop, PA
- "Interventional treatment of atherosclerotic vascular disease 1995-1996"

EMILY F. CONANT, M.D.

- October 18, 1995 Annual Breast Cancer Conference, Monmouth Medical Center, Long Branch, NJ

November 25-
December 1, 1995

- "Advances in breast cancer imaging"

The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "One year versus two year mammographic screening intervals: Stage of cancer at diagnosis in women aged 40-49 years"

May 17, 1996

General Electric Women's Imaging Symposium, The Franklin Institute, Philadelphia, PA

- "Breast ultrasound: Basic principles"
- "Ultrasound guided interventional procedures of the breast"

P. MACKE CONSIGNY, PH.D.

September 3, 1995

International and Interdisciplinary Stent Symposium, Frankfurt am Main, Germany

- "Interventional re-endothelialization: Effects of extracellular matrix and adhesion time on resistance of freshly adherent endothelial cells to detachment by low and high shear stresses"

October 7, 1995

Vascular Disease Update, 1995, Medical Education Council, Pensacola, FL

- "Atherosclerosis"

November 12, 1995

American Heart Association Symposium on Vascular Biology, American Heart Association 68th Scientific Sessions, Anaheim, CA

- "Pharmacologic approaches to restenosis"

March 2, 1996

Society of Cardiovascular and Interventional Radiology Symposium on Vascular Biology of Atherosclerosis and Restenosis, Seattle, WA

- "Pharmacologic approaches to restenosis"

March 2-7, 1996

21st Annual Scientific Meeting of the Society of Cardiovascular and Interventional Radiology, Seattle, WA

- "Investigations into Restenosis"

June 7-9, 1996

Third Annual Penn-Jeff Conference on Interventional Radiology, Skytop, PA

- "New developments in the basic science of cardiovascular interventions"

June 11, 1996

Dupont Merck Pharmaceutical Company, Wilmington, DE

- "Investigations into restenosis"

AZAR P. DAGHER, M.D.

August 19-25, 1995

4th Annual Meeting of the International Society of Magnetic Resonance in Medicine, Nice, France

- "Estimating the magnetization transfer bound-pool fraction"

DIANE M. DEELY, M.D.

April 10, 1996

Philadelphia Roentgen Ray Society, Philadelphia, PA

- "MRI of the elbow"

DAVID J. ESCHELMAN, M.D.

September 17, 1995

Yale University Meeting on Vascular Access - Issues and Innovations, Mystic, CT

- "PICCs: Placement and management"

June 7-9, 1996

Third Annual Penn-Jeff Conference on Interventional Radiology, Skytop, PA

- "Venous interventions"

STEPHEN A. FEIG, M.D.

July 23-27, 1995

The 37th Annual Meeting of the American Association of Physicists in Medicine (AAPM), Boston, MA

- "New method to monitor beam quality in mammography quality control programs" (exhibit)

September 15-17, 1995

Breast Imaging Workshop, McLean, sponsored by Department of Radiology, University of California School of Medicine, San Francisco, CA

- "Mammographic evaluation of breast calcifications"
- "How to monitor mammographic quality from the viewbox"
- "Problem-solving mammography"
- "Conventional needle localization of nonpalpable lesions"
- "The mammography report: Structure, terminology, communications problems"
- "Analysis of the clinical trials for breast cancer screening"

September 21-22, 1995

Mammography Update 1995, Department of Radiology and Office of Continuing Medical Education, University of Wisconsin Medical School and University of Wisconsin Extension, Madison, WI

- "Digital mammography"
- "Screening controversies"
- "Problem solving mammography"

October 30-31, 1995

Workshop on Multiple Reading Mammography, National Cancer Institute, Bethesda, MD

- "Digital mammography"

November 1, 1995

17th Annual Emanuel J. Levin Visiting Lectureship, Department of Radiology, Maimonides Medical Center, Brooklyn, NY

- "Mammographic screening of women aged 40-49: Why all the hullaballo?"
- "Breast calcifications"
- Case presentations

- November 13-17, 1995 A Practical Approach to Breast Imaging, Rancho Mirage, CA sponsored by Department of Radiology, University of California School of Medicine, San Francisco, CA
- "Analysis of clinical trials for breast cancer screening"
 - "Problem-solving mammography: Challenging cases"
 - "Current status and future applications for digital mammography"
- November 25-
December 1, 1995 The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Full-field digital mammography: System development and image evaluation"
 - "Method for using film density measurements to monitor kilovolt peak and dose stability in MQSA image quality control programs"
 - "Mammographic evaluation of calcifications"(Categorical Course in Diagnostic Radiology-Breast Imaging)
 - "Interrater agreement and intrarater reliability in the radiologic assessment of exposure, contrast, resolution, noise, artifacts, and quality of mammographic images"
 - "Effect of screen-film and processing characteristics on perceived image quality in mammography"
- December 13, 1995 Overlook Hospital, Department of Radiology, Summit, NJ
- "Problem-solving mammography"
 - "Evaluation of breast calcifications"
- January 17, 1996 Fitzgerald-Mercy Hospital, Mercy Catholic Medical Center, Department of Radiology, Darby, PA
- "Evaluation of breast calcifications"
- April 27-30, 1996 The 27th National Conference on Breast Cancer, Dallas, TX sponsored by the American College of Radiology, Reston, VA
- "Cost-effectiveness for mammographic screening of women aged 40-49 years"
 - "Imaging of the dense breast"
- May 3, 1996 Cancer Screening Update and Debate, sponsored by the Mercy Cancer Institute, Pittsburgh Mercy Health System, Pittsburgh, PA
- "Breast cancer screening overview"
- May 14, 1996 Radiology Grand Rounds, Montefiore Hospital and Medical Center, Albert Einstein College of Medicine, Bronx, NY
- "Breast calcifications: Challenges in mammographic interpretation"
- May 14, 1996 Radiology Grand Rounds, Bronx Municipal Hospital Center, Albert Einstein College of Medicine, Bronx, NY
- "Breast calcifications: Challenges in mammographic interpretation"
- May 18-21, 1996 The 32nd Annual Meeting, American Society of Clinical Oncology, Philadelphia, PA
- "Background and analysis of clinical trials for breast cancer"

screening”

June 9-12, 1996

The 3rd International Workshop on Digital Mammography, University of Chicago School of Medicine, Chicago, IL

- “Clinical evaluation of a scanned-slot, full-field digital mammography system”

June 18-19, 1996

The Fourth Annual Congress on Women's Health, sponsored by the American Medical Women's Association, The Office of Women's Health, Department of Health and Human Services, Journal of Women's Health and the Society for the Advancement of Women's Health Research, Washington, DC

- “Women's imaging and importance to ongoing management strategies”

RICK I. FELD, M.D.

October 13-15, 1995

Fourth Annual Meeting and Postgraduate Educational Course of the Society of Radiologists in Ultrasound, Advances in Sonography 1995, Chicago, IL

- “Transrectal and transvaginal interventional techniques”

November 25-
December 1, 1995

The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- Carotid Doppler sonography (“Hands-On” Workshop), (refresher course)
- “Color Doppler enhancement of needles for ultrasound-guided biopsy”

February 1, 1996

University of Medicine and Dentistry of New Jersey, Newark, NJ

- “Laparoscopic ultrasound”
- “Endoscopic ultrasound”

March 17-23, 1996

40th Annual Convention of the American Institute of Ultrasound in Medicine, New York, NY

- “Challenging US-guided biopsies”
- “Laparoscopic liver sonography affects surgical decision-making”

April 23, 1996

Presbyterian Medical Center, University of Pennsylvania Health System, Philadelphia, PA

- “Ultrasound evaluation of the scrotum”

May 8-10, 1996

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

- “Ultrasound evaluation of the scrotum”
- “Interventional ultrasound: Usual and unusual patients”

ADAM E. FLANDERS, M.D.

- November 25-
December 1, 1995 The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "The relationship between functional abilities of spinal cord injury survivors and severity of damage as revealed by MRI"
- April 10, 1996 Albert Einstein Medical Center Radiology Guest Lecture Series, Philadelphia, PA
- "Imaging of cerebral trauma"

FLEMMING FORSBERG, PH.D.

- September 3-6, 1995 The 22nd International Symposium on Acoustical Imaging, Florence, Italy
- "Renal perfusion evaluated with a new ultrasound contrast agent"
 - "On the possibility of computer aided diagnosis of silicone breast implant rupture" (poster)
- November 8-10, 1995 IEEE 1995 Ultrasonic Symposium, Seattle, WA
- "In vitro and in vivo characterization of a new surfactant stabilized ultrasound contrast media"
 - "Comparison of time-frequency distributions for Doppler spectral estimation"
- November 25 -
December 1, 1995 The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Can quantitative US parameters aide in diagnosing implant rupture?"
 - "Gray-scale and color flow harmonic imaging proteinaceous microspheres"
- December 5, 1995 Logiq Ultrasound Preview, Pittsburgh, PA
- "Color power Doppler imaging and ultrasound contrast media"
- December 13, 1995 Logiq Ultrasound Preview, Detroit, MI
- "Color power Doppler imaging and ultrasound contrast media"
- March 17-23, 1995 The 40th Annual Convention of the American Institute of Ultrasound in Medicine, New York, NY
- "Duration of contrast enhancement in conventional and harmonic imaging modes: A comparative study"
 - "Contrast injections with and without hypobaric activation"
 - "Low dose enhancement in rabbits using a new microbubble contrast agent"
 - "Estimation of shear-rates in nonstenotic and stenotic vessels"
- May 7-10, 1996 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- "Understanding the physics of ultrasound contrast"
 - "Understanding color Doppler"

May 16-17, 1996

First Annual New York Symposium on Noninvasive Vascular Diagnostic Techniques, New York, NY

- "Color Doppler or color flow? Time versus frequency domain algorithms"
- "Contrast agents: Are we measuring blood velocity or artifacts?"

DAVID P. FRIEDMAN, M.D.

November 25-
December 1, 1995

The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Imaging of inflammatory vascular lesions of the central nervous system" (exhibit)

June 23-27, 1996

The 34th Annual Meeting of the American Society of Neuroradiology, Seattle, WA

- "MR imaging and MR venography of anomalies and abnormalities of the intracranial venous system" (exhibit)

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

November 25-
December 1, 1995

The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Thrombolysis of lower extremity arterial bypass graft"

June 7-9, 1996

Third Annual Penn-Jeff Conference on Interventional Radiology, Skytop, PA

- "Surgical and medical treatment of peripheral vascular diseases"

BARRY B. GOLDBERG, M.D.

August 6, 1995

Asian Federation of Societies in Ultrasound in Medicine and Biology, Beijing, China

- "Recent advances and new techniques in ultrasound"

September 18-19, 1995

The University of Texas Southwestern Medical Center, and Dallas/Fort Worth Radiologic Society, Dallas, TX

- "Advances in ultrasound: Color amplitude imaging, endoluminal and 3D ultrasound"
- "Contrast media in diagnostic ultrasound"

September 28-
October 1, 1995

The 9th International Congress on the Ultrasonic Examination of the Breast, Indianapolis, IN

- "Ultrasound contrast agents: Their potential usefulness in the evaluation of the breast"

October 12, 1995

Society of Radiologists in Ultrasound, Chicago, IL

- "Harmonic imaging of ultrasound contrast agents"

- October 13-15, 1995 4th Annual Meeting and Postgraduate Educational Course of the Society of Radiologists in Ultrasound, Advances in Sonography 1995, Chicago, IL
- "The beginnings of ultrasound"
- November 25-
December 1, 1995 The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Comparison of two US contrast agents"
 - "Evaluation of an US contrast agent that employs induced acoustic emission"
- February 2, 1996 The Chester County Hospital, West Chester, PA
- "Endoscopic ultrasound"
- February 8, 1996 The Los Angeles Radiological Society, Ultrasound Section Meeting, Los Angeles, CA
- "Ultrasound contrast agents: An update and a look into the future"
- March 17-23, 1996 40th Annual Convention of the American Institute of Ultrasound in Medicine, New York, NY
- "Governmental and other influences affecting the future practice of ultrasound"
 - "Laparoscopic ultrasound"
 - "EchoGen[®] emulsion phase 3 clinical trial results: Liver, kidney and peripheral vascular applications"
 - "Contrast agents, harmonic and three-dimensional imaging"
- May 7-10, 1996 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- "Advances in sonomammography"
- May 31, 1996 The German Ultrasound Society, Linz, Austria
- "Advances in ultrasound contrast agents"
- June 6, 1996 The Japan Ultrasound Society, Yokohama, Japan
- "New frontiers in ultrasound contrast agents"
- June 13, 1996 Peking Union Hospital, Ultrasound Training Center Conference, Beijing, China
- "Doppler ultrasound"
 - "New horizons in ultrasound"

CARLOS F. GONZALEZ, M.D.

- September 19, 1995 Heim Pal Children's Hospital, Budapest, Hungary
- "Imaging approaches for neurological patients"
- September 20-23, 1995 XXI Congress of the European Society of Neuroradiology, Budapest, Hungary
- "MRI 3D tissue segmentation analysis of intracranial lesions"
- October 11, 1995 Jefferson Global Board Symposium, Mexico City, Mexico

- October 30-
November 3, 1995

 - "New imaging techniques in neuroradiology"

VI International Symposium of SILAN, Buenos Aires, Argentina

 - "Magnetic resonance segmentation: 3D identification of tissues on intracerebral tumors"
 - "Computational models in cerebral aneurysms study of blood flow"
- November 6-7, 1995

NIH Conference on MS Identification by Tissue Segmentation, Montreal, Canada

 - "MS lesion characterization using tissue segmentation based on 3D feature map"
- May 20, 1996

General Electric, Philadelphia, PA

 - "Clinical applications of MRI segmentation"
- May 29, 1996

University of Rochester, Department of Radiology, Rochester, NY

 - "Imaging of the eyes and orbit"

ETHAN J. HALPERN, M.D.

- November 25-
December 1, 1995

The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

 - "Ultrasound evaluation of upper extremity central venous disease"
 - "Association of increased lower extremity venous pulsatility with cardiac disease"
 - "An in-vitro model of the renal artery Doppler waveform"
 - "Comparison of ROC curves on the basis of optimal operating points"
- March 17-23, 1996

40th Annual Convention of the American Institute of Ultrasound in Medicine, New York, NY

 - "Predictive value of common femoral vein pulsatility for tricuspid insufficiency"
 - "Doppler evaluation of the main renal artery absolute velocity measurement versus velocity ratios"
- May 8-10, 1996

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

 - "Upper extremity venous ultrasound"

CHARLES M. INTENZO, M.D.

- November 25-
December 1, 1995

The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

 - "Comparison of amitriptyline-activated HMPAO brain SPECT with electroencephalography and MR imaging in evaluating children with pervasive development disorders"

DAVID KARASICK, M.D.

October 17-20, 1995

International Skeletal Society, New Orleans, LA

- "Imaging of spinal fractures and cord injuries in ankylosing spondylitis: The role of MRI"
- "Common adult foot disorders"
- "Anterior cervical fusion: Struts, plugs, and plates"

March 2-3, 1996

1st Annual Jefferson Shoulder & Elbow Advanced Imaging Symposium, Philadelphia, PA (Co-Director)

- "Elbow trauma - Adult and pediatric"
- "Arthrography and CT arthrography of the elbow"
- "Radiography of impingement"
- "Shoulder arthrography"
- "Shoulder arthropathies"
- "Fractures and dislocations of the shoulder girdle"
- "Calcific tendonitis"

April 20-21, 1996

2nd Annual Jefferson Foot & Ankle Advanced Imaging Symposium, Philadelphia, PA (Co-Director)

- "Radiology of common adult foot disorders"
- "Radiology of the rheumatoid foot and ankle"
- "Radiology of Achilles and PTT disorders"
- "Radiology of the traumatized foot"

May 5-10, 1996

96th Annual Meeting of the American Roentgen Ray Society, San Diego, CA

- "The os trigonum syndrome - imaging features"

STEPHEN KARASICK, M.D.

February 7, 1996

Mercy Catholic Hospital, Department of Radiology, Philadelphia, PA

- "Uroradiology review"

May 5-10, 1996

96th Annual Meeting of the American Roentgen Ray Society, San Diego, CA

- "Does barium enema predict defecographic abnormalities"

SUNG M. KIM, M.D.

November 25-

December 1, 1995

The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Discordant Tl-201/Tc-99m-MIBI tumor uptake for evaluation of brain tumor"
- "The role of Tc-99m-HMPAO brain SPECT for evaluation of migraine headaches"
- "Sensitivity of Tc-99m-MIBI parathyroid imaging in patients with hyperparathyroidism; in relation to the histologic findings, lesion location and size"

June 1-7, 1996

The 43rd Annual Meeting of the Society of Nuclear Medicine, Denver, CO

- "Clinical significance of discordant T-201 and Tc-99m-MIBI brain SPECT in recurrent malignant glioma"
- "Tc-99m-HMPAO brain SPECT in post concussion syndrome: Correlation with symptomatic outcome"
- "Comparative assessment of four different thallium tumor uptake indices in the evaluation of the recurrent brain tumor"

ALFRED B. KURTZ, M.D.

September 14, 1995

Advanced Seminars in Ultrasound Diagnosis, New York University Medical Center, New York, NY

- "The CNS: Everything you always wanted to know and more"
- "The placenta: Old and new concepts"

November 25, 1995

December 1, 1995

The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Fetal CNS"
- "Ovary" - RDOG (Radiology Diagnostic Oncology Group) Update (part I)
- "Abnormal fetal heart: Recognition of cardiac anomalies at routine obstetrical US-Correlation with normal findings" (exhibit)
- "Three-dimensional US reconstruction of the normal fetal anatomy" (exhibit)

December 11, 1995

The New York Roentgen Society, New York Academy of Science, New York, NY

- "The female pelvis"
- "Obstetrical ultrasound emergencies of the second and third trimester"

January 14, 1996

The Fourth Annual Perinatal Ultrasound Symposium, The University of Medicine and Dentistry of New Jersey, New Brunswick, NJ

- "Ultrasonography of the uterus"
- "Ectopic pregnancies"

January 16, 1996

The Greater Delaware Valley Ultrasound Society, Lecture Series, 1995-1996, Philadelphia, PA

- "Ultrasound of ovarian cancer"

March 6, 1996

The University of Medicine and Dentistry of New Jersey, Robert Wood Johnson Medical School at Camden, Cooper Hospital, Camden, NJ

- "Ultrasound of fetal anomalies"
- "Interesting case conference"
- "A multi-imaging approach to ovarian carcinoma"

March 17-23, 1996

The 40th Annual Convention of the American Institute of Ultrasound in Medicine, New York, NY

- "Three-dimensional reconstruction of the normal fetal anatomy" (exhibit)

April 12, 1996

Ultrasound 1996 Conference of the Harvard Medical School, Brigham and Women's Hospital, Boston, MA

- "Fetal measurements"
- "Placenta"
- "Ovarian cancer diagnosis and screening"

May 8-10, 1996

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

- "Ultrasound evaluation of ovarian cancer"

DAVID C. LEVIN, M.D.

October 12-13, 1995

University of Virginia Health Sciences Center, Charlottesville, VA

- "Plain film analysis of adult cardiac disease"
- "Routine use vs. selective use of low osmolar contrast agents: Ethical, risk, and cost-effectiveness considerations"
- "Interesting and new information from the Medicare Part B database"
- "Complex congenital heart disease"
- "The future of radiology"

November 1, 1995

Albert Einstein Medical Center, Philadelphia, PA

- "A cost-effective and medically sound policy on use of low osmolar contrast agents"

November 25-
December 1, 1995

The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Impact of self-referral on Medicare physician expenditures for high-cost imaging procedures"
- "Advances in the evaluation of coronary arteries: Conventional angiography, CT, and MR imaging"
- "How to develop a capitated radiology contract and survive. The data to have and the calculations to make"
- "Self-referral for radiologic services: Foundations, experience, and interventions"
- "American College of Radiology appropriateness criteria for imaging and treatment decisions"

May 17-18, 1996

Pennsylvania Radiological Society, Hershey, PA

- "Planning and negotiating a capitated outpatient radiology contract"

ANNA S. LEV-TOAFF, M.D.

November 10, 1995

Ackrad Laboratories, Cranford, NJ

- "Sonohysterography in endometrial/myometrial abnormalities"

November 25-
December 1, 1995

The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Value of sonohysterography in the diagnosis and management of abnormal uterine bleeding"
- "Impact of sonohysterography on the management of abnormal uterine bleeding" (exhibit)
- "Utility of a new oral US contrast agent in the sonographic assessment of the upper abdomen" (exhibit)

March 17-23, 1996

40th Annual Convention of the American Institute of Ultrasound in Medicine, New York, NY

- "Evaluation of an oral ultrasound contrast agent in patients with suspected abdominal pathology: Phase II trial"
- "Utility of a new oral US contrast agent in the sonographic assessment of the upper abdomen" (Award for best scientific exhibit)

May 8-10, 1996

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

- "Sonohysterography: Evaluation of the endometrium and myometrium"

May 14, 1996

Greater Delaware Valley Ultrasound Society, Philadelphia, PA

- "Oral ultrasound contrast agents"

May 17-18, 1996

Pennsylvania Radiological Society, Hershey, PA

- "Sonohysterography: Value in the diagnosis and management of abnormal uterine bleeding" (exhibit)

JI-BIN LIU, M.D.

August 5-9, 1995

The 4th Congress of Asian Federation of Society for Ultrasound in Medicine and Biology, Beijing, China

- "20 MHz transnasal ultrasound evaluation of gastric and esophageal varices"

May 17-29, 1996

The 81st Annual Meeting of the Pennsylvania Radiological Society, Hershey, PA

- "Sonohysterography: Value in the diagnosis and management of abnormal uterine bleeding" (exhibit)

ANDREW D.A. MAIDMENT, PH.D.

July 27, 1995

7th Annual Meeting of American Association of Physicists in Medicine, Boston, MA

- "The 3-dimensional morphological analysis of breast calcifications"

November 25-
December 1, 1995

The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Three-dimensional analysis of breast calcifications"
- "Segmentation and 3-D reconstruction of breast calcifications for morphologic analysis"
- "Design considerations in optically coupled digital x-ray detectors"
- "Optimization of portable chest radiography"

February 11-16, 1996

SPIE Medical Imaging 1996 (Physics of Medical Imaging), Newport Beach, CA

- "3-D mammary calcification reconstruction from a limited number of views"

DONALD G. MITCHELL, M.D.

October 19, 1995

The University of Medicine and Dentistry of New Jersey, Newark, NJ

- "MR imaging of the pancreas and biliary system"

October 19, 1995

Radiological Society of New Jersey, Newark, NJ

- "Focal liver lesions: One step diagnosis by MRI"

November 25-
December 1, 1995

The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Pancreatobiliary and abdominal vascular MR imaging: Totally tubular"

April 27-
May 3, 1996

International Society for Magnetic Resonance in Medicine, Fourth Scientific Meeting and Exhibition, New York, NY

- "Abdomen and pelvis"
- "Live imaging"

LEVON N. NAZARIAN, M.D.

November 25-
December 1, 1995

The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Superficial US alters the clinical management of recurrent melanoma"

March 17-23, 1996

40th Annual Convention of the American Institute of Ultrasound in Medicine, New York, NY

- "Impact of superficial ultrasound on clinical management of patients with malignant melanoma"
- "Ultrasound guided biopsies of superficial soft tissue masses suspicious for recurrent malignancy"

May 7-10, 1996

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

- "Musculoskeletal ultrasound"

May 29, 1996

University of Pennsylvania Medical Center, Division of Oncology Research, Philadelphia, PA

- "Power Doppler in the assessment of tumor blood flow"

LAURENCE NEEDLEMAN, M.D.

August 12-13, 1995

Vanderbilt University School of Medicine, Department of Radiology and Radiological Sciences, Atlanta, GA

- "Doppler sonography of kidneys"
- "Color Doppler sonography of deep venous thrombosis"
- "Color Doppler sonography of carotids"

October 6, 1995

University of Maryland, Baltimore, MD

- "Interpretation of lower extremity venous ultrasound"

October 13-15, 1995

4th Annual Meeting and Postgraduate Educational Course of the Society of Radiologists in Ultrasound, Advances in Sonography 1995, Chicago, IL

- "Cardinal features of spectral Doppler"
- "Ultrasound contrast agents"

October 21-22, 1995

University of California School of Medicine, San Francisco, CA

- "Peripheral arterial Doppler"
- "Upper extremity venous ultrasound"
- "Ultrasound vascular graft and AV dialysis evaluation"

November 25 -
December 1, 1995

The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Vascular applications of US: Peripheral vessels"
- "Deep venous thrombosis: Doppler sonography" (Hands-on Workshop)
- "Phase II clinical trial of a new perfluorochemical emulsion US contrast agent"

December 12, 1995

State University of New York at Stony Brook, Stony Brook, NY

- "New advances in vascular ultrasound"

December 12, 1995

Long Island Radiological Society, Long Island, NY

- "Gynecological ultrasound"

North Shore University Hospital, Great Neck, NY

- Grand Rounds: "Venous ultrasound"
- Case studies

February 3, 1996

Mount Sinai Medical Center, New York, NY

- "Cardinal features of spectral Doppler"
- "Contrast agents"

March 7, 1996

Philadelphia Roentgen Ray Society Blue Ribbon Lecture, Philadelphia, PA

- "Venous ultrasound"

- March 17-23, 1996 40th Annual Convention of the American Institute of Ultrasound in Medicine, New York, NY
- "Venous ultrasound"
- April 26, 1996 The 20th Annual Spring Symposium of the the Michigan Sonographers' Society, Troy, MI
- "Principles of interpretation of Doppler and color Doppler"
 - "Intrauterine growth retardation and OB Doppler"
 - "Contrast agents"
- May 7-10, 1996 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- "Cerebrovascular ultrasound: Unusual findings"
- May 17-18, 1996 21st Annual Spring Diagnostic Ultrasound Conference, Los Angeles Radiological Society, Los Angeles, CA
- "Interpreting spectral and color Doppler"
 - "Cerebrovascular ultrasound: Unusual findings"
 - "Peripheral arterial ultrasound"
 - "Venous ultrasound"
- June 1, 1996 St. Vincent's Medical Center, Bridgeport, CT
- "Cardinal features of spectral Doppler"
 - "Spectral and color Doppler evaluation of the abdomen and pelvis"

HECTOR V. ORTEGA, M.D.

- August 13-16, 1995 Decimosexto Curso de Diagnostico por Imagenes, Rosario, Argentina
- "Hemodynamics in renal artery stenosis: Comparative study of MRA, DSA, ultrasound and mathematical model"
 - "Hemodynamics in the development and formation of abdominal aortic aneurysm"
 - "Basic concepts in hemodynamics"
 - "Hemodynamics in brain aneurysms: Animal model"
 - "Hemodynamics in brain aneurysms: Human model"
 - "Hemodynamics in the carotid artery formation"
 - "Comparison between DSA, Doppler, MRA, in the study of carotid disease"
 - "New techniques and instrumentation to evaluate blood flow (Harmonic US, Power angiography, CVI)"
 - "Doppler ultrasound in the abdomen"
- November 18, 1995 Disonics Ultrasound Conference, Tropworld Hotel, Atlantic City, NJ
- "Pelvic ultrasound, normal and abnormal"
- March 10-17, 1996 National University of Mexico SuperComputer Center, Mexico City, Mexico
- "Computer flow modeling and its applications in medicine"
 - "Mathematical modeling of brain aneurysms"

- April 10-15, 1996 15th Reunion of Asociacion Mexicana de Ultrasonido en Medicina, Veracruz, Mexico
- "New methods to evaluate blood flow"
 - "Doppler in renal artery stenosis"
- May 24, 1996 Hahnemann University Hospital, Philadelphia, PA
- "Computer flow modeling and its applications in medicine"
 - "Mathematical modeling of brain aneurysms"
- May 30-
June 5, 1996 Cross Disciplinary Development of Codes and Applications for Health Sciences, Mexico City, Mexico
- "Computer modeling of blood flow"

ERIC K. OUTWATER, M.D.

- August 15-16, 1995 Blue Cross/Blue Shield Quality Care Conference, Harrisburg, Pittsburgh, Wilkes-Barre, PA
- "Indications for gynecologic MR imaging"
- August 19-25, 1995 Society of Magnetic Resonance Third Scientific Meeting and Exhibition, Nice, France
- "CT Hounsfield Units and MR chemical shift measurements of benign and malignant adrenal lesions"
- November 25-
December 1, 1995 The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Peritoneal spread of gynecological tumors: Assessment on gadolinium-enhanced pelvic MR examination"
 - "MRI of normal ovaries and functional cysts: Characteristics in 81 proven normal ovaries"
- March 5-7, 1996 Mansoura University Hospital, Mansoura, Egypt
- "MR angiography: Techniques, applications"
 - "MR angiography: Techniques"
 - "MRI of the kidneys"
 - "MRI of adrenal masses"
 - "Liver: Benign masses"
 - "Liver: Malignant masses"
 - "Female pelvis: Techniques"
 - "Female pelvis: Adnexal disorders"
 - Case presentations
- April 27-
May 3, 1996 International Society for Magnetic Resonance in Medicine, Fourth Scientific Meeting and Exhibition New York, NY
- "Pelvic MR: How and why?" (Clinical categorical course: MRI of the body-point and counterpoint)

CATHERINE W. PICCOLI, M.D.

- September 28 -
October 1, 1995 Ninth International Congress on the Ultrasonic Examination of the Breast, Indianapolis, IN

- "Pitfalls in the ultrasound and MRI evaluation of breast implants"
 - November 25 -
December 1, 1995

The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

 - "Results of 154 single-breast contrast-enhanced MR imaging examinations"
 - "Breast cancer diagnosis with MR imaging: Effect of clinical and mammographic findings on recommendations for biopsy"
 - February 7, 1996

Albert Einstein Medical Center, Department of Radiology, Philadelphia, PA

 - "The basics of breast ultrasound"
 - March 17-23, 1996

40th Annual Convention of the American Institute of Ultrasound in Medicine, New York, NY

 - "Value of breast sonography for palpable abnormalities: Works in progress"
 - May 7-10, 1996

The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ - (Course Director)

 - "Imaging of breasts implants: Emphasis on ultrasound"
- VIJAY M. RAO, M.D.**
- October 11, 1995

St. Luke's-Roosevelt Hospital Center, New York, NY

 - "Imaging of the skull base"
 - October 25, 1995

Mercy Catholic Medical Center, Department of Radiology, Fitzgerald Mercy Division, Darby, PA

 - "Head and neck imaging"
 - November 25-
December 1, 1995

The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

 - "Imaging of the temporomandibular joint and the mandible"
 - "Financial impact of MR imaging on overall 1993 Medicare costs of imaging"
 - "Who performs neuroimaging? Results from a national 1993 database"
 - "Self-referral in skeletal radiography in 1993: A nationwide comparison between hospitals and private office settings"
 - "Imaging of facial nerve palsies: A spectrum of findings" (exhibit)
 - January 17, 1996

Columbia-Presbyterian Medical Center, Department of Radiology, New York, NY

 - "Skull base imaging"
 - "TMJ: Internal derangement, inflammations and tumors"
 - April 24-28, 1996

30th Annual Scientific Conference and Post Graduate Course in Head and Neck Imaging, The American Society of Head and Neck Radiology, Los Angeles, CA

- "Patterns of inflammatory disease: The preoperative and postoperative evaluation of the paranasal sinuses"

June 23-27, 1996

34th Annual Meeting of the American Society of Neuroradiology, Seattle, WA

- "Current financial and utilization issues in neuroimaging"
- "Imaging of lesions affecting the superolateral orbit" (exhibit)

MARK E. SCHWEITZER, M.D.

August 15-16, 1995

Blue Cross/Blue Shield Quality Care Conference, Harrisburg, Pittsburgh, Wilkes-Barre, PA

- "Indications for musculoskeletal imaging"

October 12, 1995

Harvard Medical School, Magnetic Resonance Imaging Computed Tomography Update 1995, Cambridge, MA

- "Pulse sequence selection"
- "MRI of the wrist"
- "MRI of the foot/ankle"
- "Musculoskeletal MRI workshop I and II"

November 4, 1995

A.I. DuPont Institute, Wilmington, DE

- "Pediatric MRI"

November 14, 1995

Long Island Radiology Society, Woodbury, NY

- "MRI of the foot and ankle"

November 25-
December 1, 1995

The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Preoperative and postoperative evaluation of knee ligament injuries"

January 8, 1996

Brooke Army Medical Center, San Antonio, TX

- "MRI of marrow"
- "MRI of knee injuries"

January 9, 1996

Wilford Hall Air Force Hospital, San Antonio, TX

- "MRI of knee injuries"
- "MRI of marrow"

January 19-21, 1996

Annual Midwinter Meeting, Los Angeles Radiology Society, Los Angeles, CA

- "MR of impingement"
- "MR of musculoskeletal infection"
- "MR of the wrist"
- "Tumor to trauma MR of marrow"

January 22-25, 1996

First International Symposium, Musculoskeletal Magnetic Resonance Imaging, University of California School of Medicine, San Francisco, CA

- "Osteomyelitis MRI vs. bone scan"
- "Cost-effectiveness of musculoskeletal MR"

- February 26, 1996 American Academy of Orthopedic Surgery, Atlanta, GA
- "Advanced imaging of the musculoskeletal system"
- March 2-3, 1996 1st Annual Jefferson Shoulder & Elbow Advanced Imaging Symposium, Philadelphia, PA (Co-Director)
- "Musculoskeletal MR pulse sequence selection"
 - "MR of impingement"
 - "MR of rotator cuff tears: Diagnosis, differential, and role in patient management"
 - "MR of the acromioclavicular joint and clavicle"
 - "MR of the biceps tendon"
 - "MR of occult osseous injury/avascular necrosis/cartilage injury"
 - "MR of arthritis/infection"
- March 21, 1996 Orthopedic Radiology Update, Brigham & Women's Hospital, Boston, MA
- "Pulse sequence selection"
 - "MRI of the rotator cuff disorder"
 - "MRI of musculoskeletal infection"
 - "MRI of the wrist"
- March 22, 1996 New Jersey Radiology Society, Summit, NJ
- "MRI of the foot and ankle"
- April 20-21, 1996 2nd Annual Jefferson Foot & Ankle Advanced Imaging Symposium, Philadelphia, PA (Co-Director)
- "MRI of foot tendons"
 - "MRI of foot ligaments, fascia, sinus tarsi, and tarsal tunnel"
 - "MRI of sports injuries"
 - "MRI of bone tumors and infections"
 - "MRI of AVN/osteomyelitis/neuropathic disease"
- April 25, 1996 International Society for Magnetic Resonance in Medicine, Fourth Scientific Meeting and Exhibition, New York, NY
- "MRI of the foot and ankle"
- May 20-21, 1996 Cleveland Clinic, Cleveland, OH
- "MRI of infection"
 - "MRI of the foot and ankle"
 - "Case review trauma"
- June 4, 1996 Maimonides Medical Center, Brooklyn, NY
- "MRI of the wrist"
 - "Cost-effectiveness of imaging"
 - "MRI case review"
- June 13, 1996 Annual Meeting of The Netherlands Society for Radiology, Amsterdam, The Netherlands
- "Pulse sequence selection in musculoskeletal MRI"
 - "MRI of the hip"
 - "MRI of the foot/ankle"
 - "MRI of the shoulder"

SHARON R. SEGAL, D.O.

- November 25-
December 1, 1995 The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Ultrasonographic features of gastrointestinal duplications" (exhibit)
- May 17-18, 1996 Pennsylvania Radiological Society, Hershey, PA
- "Ultrasonographic features of gastrointestinal duplications" (exhibit)
- May 25-30, 1996 International Society of Pediatric Radiology, Boston, MA
- "Ultrasonographic features of gastrointestinal duplications" (exhibit)

MARCELLE J. SHAPIRO, M.D.

- March 2-7, 1996 21st Annual Scientific Meeting of the Society of Cardiovascular and Interventional Radiology, Seattle, WA
- "Management of the patient with a coagulopathy"
- June 7-9, 1996 Third Annual Penn-Jeff Conference on Interventional Radiology, Skytop, PA
- "Diagnostic imaging in venous disease"
 - "Diagnosis and treatment of nonatherosclerotic vascular disease"

CLAIRE M. SPETTELL, PH.D.

- November 25-
December 1, 1995 The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Chest radiography practice pattern variations between hospitals and private office settings: Relative roles of radiologists and other physicians"

PAUL W. SPIRN, M.D.

- March 3, 1996 Annual Joint Conference, American Thoracic Society, New Jersey Thoracic Society, New Jersey Chapter of American College of Chest Physicians, New Brunswick, NJ
- "Post-operative radiographic assessment after lung resection"

ROBERT M. STEINER, M.D.

- November 25-
December 1, 1995 The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "The thoracic manifestations of connective tissue disorders: Separating the trees from the forest"
 - "US-assisted thoracoscopy in patients with peripheral pulmonary nodules"

- "Role of high-resolution CT in the assessment of interstitial lung disease in limited and diffuse scleroderma"
 - "Chest pain in young adults: Will the routine emergency room chest radiography contribute to the diagnosis?"
 - "Imaging findings following palliative and corrective surgery for congenital heart disease" (exhibit)
- November 29, 1995 The Mallinckrodt Symposium, cosponsored with the Japanese Radiological Society, Chicago, IL
- "The diagnostic radiology residency in the United States of America"
- December 14, 1995 University of Medicine and Dentistry of New Jersey, Newark, NJ
- "Congenital heart disease"
- February 20, 1996 13th Annual Meeting of the Society of Thoracic Radiology, Kona, HI
- "Neuroendocrine tumors of the lung"
- March 8, 1996 Annual NIH-Sponsored National Sickle Cell Center Symposium, Mobile, AL
- "HIV-1 and sickle cell anemia: Is autosplenectomy effective in preventing AIDS?"
- April 15, 1996 Medical College of Pennsylvania, Philadelphia, PA
- Interesting case conference
- May 8, 1996 Szent-Georgyi Medical School, Szeged, Hungary
- "Plain film diagnosis of adult heart disease"
- May 10, 1996 18th Annual Congress of the Hungarian Radiology Society, Tihany, Hungary
- "Focused symposium on lymphoma: Cross-sectional imaging approaches to diagnosis and staging"

KEVIN L. SULLIVAN, M.D.

- October 3, 1995 Nursing Continuing Medical Education, Philadelphia, PA
- "Dialysis access"
- October 10-11, 1995 University of Pennsylvania Interventional Radiology and Vascular Imaging, Philadelphia, PA
- "Venous interventions"
 - "CO₂-guided venography and CO₂ guided interventions"
 - "Dialysis access: Screening and angioplasty"
- November 13, 1995 American Heart Association 68th Scientific Session, Anaheim, CA
- "Inferior vena cavography"
- November 25-
December 1, 1995 The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Long-term patency after thrombolysis of occluded lower extremity arterial bypass grafts: Results from a transluminal arterial revascularization registry"

March 2-7, 1996

21st Annual Scientific Meeting of the Society of Cardiovascular and Interventional Radiology, Seattle, WA

- "Long-term patency after thrombolysis of occluded lower extremity arterial bypass grafts: Results from a transluminal arterial revascularization registry"
- "Survival of patients with ocular melanoma metastatic to the liver following chemoembolization"
- "Long-term survival of extremity osteosarcoma patients following preoperative intra-arterial chemotherapy"
- "Dialysis access management"
- Thrombolysis workshop

June 7-9, 1996

Third Annual Penn-Jeff Conference on Interventional Radiology, Skytop, PA

- "Oncologic interventions"

MATHEW L. THAKUR, PH.D.

July 19, 1995

University of Pennsylvania, Philadelphia, PA

- "Potential of radiotracers in gene therapy"

August 11-17, 1995

The 11th International Symposium on Radiopharmaceutical Chemistry, Vancouver, Canada.

- "Tc-99m-HYNIC-RC-160 and Tc-99m-CPTA-RC-160: Synthesis of chelating agents, preparation and preliminary evaluation"
- "Solid phase synthesis of a HYNIC-D peptide-phosphorothioate-oligodeoxynucleotide conjugate from two arms of a polyethyleneglycol-polystyrene support"

August 18-20, 1995

The 7th Annual Symposium of ISORBE, New Haven, CT

- "Transient neutropenia: Neutrophil distribution and replacement"

September 15, 1995

John McAfee Retirement Symposium, NIH, Bethesda, MD

- "Tc-99m labeled receptor specific peptides as radiopharmaceuticals"

October 6-8, 1995

Society of Nuclear Medicine, Greater New York Chapter Meeting, Philadelphia, PA

- "Influence of interferon on tumor blood flow and tumor uptake of Tc-99m labeled MEM136"
- "Effect of Inteferon-a-2b on the enhancement of tumor uptake of Tc-99m labeled monoclonal antibody"
- "Preparation and evaluation of Tc-99m labeled Vapreotide (RC-160): A somatostatin analog"

November 8-12, 1995

The 49th National Congress of the Indian Radiological and Imaging Association, Bangalore, India

- "Radiolabeled WBC for imaging infection"

- November 16-19, 1995 The 27th Annual Conference of the Society of Nuclear Medicine-
India, Tirupati, India
- "Receptor specific peptides for imaging tumors"
 - "Molecular probes in nuclear medicine: A new era" (The V. Sarabhai Oration)
- November 25 -
December 1, 1995 The 81st Scientific Assembly and Annual Meeting of the
Radiological Society of North America, Chicago, IL
- "Imaging breast cancer with In-111-octreotide"
 - "Augmenting tumor uptake with Biological Response Modifiers (BRMs)"
- March 25, 1996 Sloan-Kettering Institute, New York, NY
- "Tc-99m labeled receptor specific biomolecules as imaging agents"
- May 11-18, 1996 International Atomic Energy Agency Symposium, Lisbon, Portugal
- "Development of receptor specific peptides for imaging and therapy"
- June 1-7, 1996 The 43rd Annual Meeting of the Society of Nuclear Medicine,
Denver, CO
- "Augmenting tumor uptake with antibody: Interferon (Mab: IFN-a-2b) conjugate"
 - "Characterization and targeting of Sigma Receptor Binding sites in human prostate tumor cells"

TERRI TUCKMAN, M.D.

- November 4, 1995 The 80th Annual Meeting of the American Medical Women's
Association, Seattle, WA
- "Childcare options for physicians"
- May 7-10, 1996 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas
Jefferson University Hospital, Atlantic City, NJ
- Interesting cases

SIMON VINITSKI, PH.D.

- September 13-15, 1995 8th International Conference on Image Analysis and Processing
Centro Congressi Ariston, San Remo, Italy
- "Tissue segmentation in MRI as an informative indicator of disease activity in the brain"
- September 17, 1995 University of Tel Aviv, Department of Biomedical Engineering,
Tel Aviv, Israel
- "Ultra fast MR imaging"

RICHARD J. WECHSLER, M.D.

November 25-
December 1, 1995

The 81th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Evaluation of talar fractures: Use of multiplanar helical CT for detection and classification"
- "Effect of training and experience on interpretation of emergency body CT scans"

February 1, 1996

Blue Ribbon Lecture, Philadelphia Roentgen Ray Society, Philadelphia, PA

- "CT applications of abdominal spiral CT"

ANNINA N. WILKES, M.D.

November 25-
December 1, 1995

The 81st Scientific Assembly and Annual Meeting of the Radiologic Society of North America, Chicago, IL

- "Abnormal fetal heart: Recognition of cardiac anomalies on routine obstetric us images - correlation with normal fetal heart" (Videotape)

May 7-10, 1996

The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ (Pre Conference Tutorial Co-Coordinator)

- "Normal breast ultrasound and anatomy"

JAMES J. ZHANG, PH.D.

November 25- 1995
December 1, 1996

The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Computer assisted automated quantitative analysis of myocardial SPECT: Comparison with visual analysis and angiography"
- "The role of brain SPECT in post ECMO infants: Correlation with neurodevelopment outcome, ultrasound and MRI"
- "Factors affecting an accurate measurement of myocardial wall thickness in gated cardiac SPECT"

March 21, 1996

Drexel University, Department of Biomedical Engineering, Philadelphia, PA

- "Medical imaging processing: Diagnostic imaging in radiology, part 1"

March 28, 1996

Drexel University, Department of Biomedical Engineering, Philadelphia, PA

- "Medical imaging processing: Diagnostic imaging in radiology, part 2"

June 1-7, 1996

The 43rd Annual Meeting of the Society of Nuclear Medicine, Denver, CO

- "Comparative assessment of four different thallium tumor uptake indices in the evaluation of the recurrent brain tumor"

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HONORS, EDITORIAL ACTIVITIES, SERVICE TO REGIONAL OR NATIONAL ORGANIZATIONS

ARCHIE A. ALEXANDER, M.D.

- Associate Editor, Ultrasound Section, *Radiology*
- Reviewer, Abdomen Scientific Review Committee for the Annual Convention, *American Institute of Ultrasound in Medicine*
- Reviewer, *Cancer Research*
- Reviewer, *Journal of Ultrasound in Medicine*
- Reviewer, *Southern Medical Journal*
- Editor's Recognition Award for Special Distinction in Reviewing, *Radiology*

JOSEPH BONN, M.D.

- Councilor for Internal Affairs, Society of Cardiovascular and Interventional Radiology
- Chairman, Annual Meeting Committee, Society of Cardiovascular and Interventional Radiology
- Program Director, 21st Annual Meeting of the Society of Cardiovascular and Interventional Radiology
- Member, Young Investigator Award Subcommittee, Society of Cardiovascular and Interventional Radiology
- Member, Executive Council Advisory Committee, Society of Cardiovascular and Interventional Radiology
- Fellow, Society of Cardiovascular and Interventional Radiology
- Vice President, Philadelphia Angiography and Interventional Radiology Society
- Member, Transcatheter Therapy of Peripheral Vascular Disease Committee, Council on Cardiovascular Radiology, American Heart Association
- Associate Editor, *Journal of Vascular and Interventional Radiology*
- Associate Editor, Interventional-Cardiovascular section, *Radiology*
- Reviewer, *Journal of Vascular and Interventional Radiology*

EMILY F. CONANT, M.D.

- Clinical Reviewer, American College of Radiology Mammography Accreditation Program
- Peer Review Scientist, Department of Defense Breast Cancer Research Program
- Reviewer, *American Journal of Roentgenology*

P. MACKE CONSIGNY, PH.D.

- Member, Board of Directors, Cardiovascular and Interventional Radiology Research and Education Foundation
- Director, CIRREF/Bracco Research Award Program, Cardiovascular and Interventional Radiology Research and Education Foundation
- Member, Nominating/Awards Committee, Council on Cardiovascular Radiology, American Heart Association
- Member, Credentials/Membership Committee, Council on Cardiovascular Radiology, American Heart Association

- Member, Executive Committee, Council on Cardiovascular Radiology, American Heart Association
- Reviewer, *Academic Radiology*
- Reviewer, *American Heart Association Student Scholarships in Cardiovascular Disease and Stroke*
- Reviewer, *Cardiovascular and Interventional Radiology*
- Reviewer, *Journal of Vascular and Interventional Radiology*
- Editor's Recognition Award for Distinction in Reviewing, *Journal of Vascular and Interventional Radiology*

DIANE M. DEELY, M.D.

- Member, Expert Panel, Orthopedic, Radiology, and Pathology Conference, Philadelphia Roentgen Ray Society
- Reviewer, *American Journal of Roentgenology*

DAVID J. ESCHELMAN, M.D.

- Member, Relative Value Update Advisory Committee, Society of Cardiovascular and Interventional Radiology
- Member, Subcommittee on HIV/Bloodborne Pathogens, Society of Cardiovascular and Interventional Radiology
- Reviewer, *Academic Radiology*
- Reviewer, *Journal of Vascular and Interventional Radiology*
- Reviewer, *Radiology*
- Editor's Recognition Award for Distinction in Reviewing, *Journal of Vascular and Interventional Radiology*

STEPHEN A. FEIG, M.D.

- Chairman, Mammography Practice Accreditation Committee, American College of Radiology
- Member, Breast Task Force, American College of Radiology
- Member, Written Examination Committee, American Board of Radiology
- Member, Commission on Standards and Accreditation, American College of Radiology
- Chairman, Ad Hoc Committee on Mammography Screening Guidelines, American College of Radiology
- Member, Mammography Quality Assurance Subcommittee, American College of Radiology
- Member, Mammography Physics Subcommittee, American College of Radiology
- Member, Executive Committee, Society of Breast Imaging
- Secretary, Society of Breast Imaging
- Chair, Ad-Hoc Committee Breast Imaging Training Advisory, Society of Breast Imaging
- Member, Clinical Image Reviewer Training Committee, Mammography Accreditation Program, American College of Radiology
- Member, Clinical Image Reviewer Subcommittee, Mammography Accreditation Program, American College of Radiology
- Member, Committee on Mammography Reporting and Data Base System, American College of Radiology
- Member, Committee on Stereotactic Breast Biopsy Accreditation, American College of Radiology

- Co-Chairman, Committee on Correlation of Phantom and Clinical Image Quality, American College of Radiology
- Member, Scientific Committee 72: Radiation Protection in Mammography, National Council on Radiation Protection and Measurements
- Consultant, Center for Devices and Radiologic Health, United States Department of Health and Human Services, Food and Drug Administration (FDA)
- Consultant, Division of Mammography and Radiation Programs, United States Department of Health and Human Services, Food and Drug Administration (FDA)
- Editor, Breast Diseases, A Year Book Quarterly (Published by C.V. Mosby - Year Book Medical Publishers)
- Editor, *Society of Breast Imaging Newsletter*
- Co-Editor, *Breast Diseases, An International Journal* (Published by Elsevier Medical Publishers)
- Associate Editor, *Journal of Women's Imaging* (Published by The Society of Women's Imaging)
- Editorial Board, *Advance for Administrators in Radiology and Radiation Oncology*
- Editorial Advisory Board, *Breast Cancer Alert*
- Editorial Advisory Board, *Mammography Today*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Breast Cancer Research and Treatment*
- Reviewer, *Cancer*
- Reviewer, *International Journal of Cancer*
- Reviewer, *Journal of the American Medical Association*
- Reviewer, *Journal of the National Cancer Institute*
- Reviewer, *Radiographics*
- Reviewer, *Radiology*
- Recipient, 1995 Editor's Recognition Award for Special Distinction in Reviewing, *Radiology*

RICK I. FELD, M.D.

- President, Greater Delaware Valley Ultrasound Society
- Reviewer, *Clinical Imaging*
- Reviewer, *International Medical Image Registry*
- Reviewer, *Journal of the American Medical Association*
- Reviewer, *Journal of Clinical Ultrasound*
- Reviewer, *Journal of Vascular and Interventional Radiology*
- Exam Writer, American Registry of Diagnostic Medical Sonographers, 1996

ADAM E. FLANDERS, M.D.

- Consultant to Squibb Diagnostics, Contrast Division
- Appointed member of the Squibb Diagnostics Contrast Speakers Bureau
- Reviewer, *Neuroradiology*

FLEMMING FORSBERG, PH.D.

- Member, Technical Standards Committee, American Institute of Ultrasound in Medicine
- Reviewer, *Biomedical Instrumentation and Technology*
- Reviewer, *Engineering in Medicine and Biology Magazine*
- Reviewer, *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*
- Reviewer, *Radiology*

- Reviewer, *Ultrasound in Medicine and Biology*

DAVID P. FRIEDMAN, M.D.

- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Neurology*

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

- CAQ Examiner, Vascular/Interventional Radiology
- Panel Member for the Development of Clinical Practice Guidelines for the Prevention of Thromboembolism in Spinal Cord Injury, Health Policy Department, Paralyzed Veterans of America
- Member, Committee for Developing Clinical Trial Protocol For Carotid Stenting, SCVIR Carotid IDE Task Force
- Editorial Board, *Cardiovascular and Interventional Radiology*
- Associate Editor, *Journal of Vascular and Interventional Radiology*
- Associate Editor, *Radiology*

BARRY B. GOLDBERG, M.D.

- President, World Federation for Ultrasound in Medicine and Biology
- Chairman, Committee on Government Relations, Commission on Ultrasound, American College of Radiology
- Honorary Professorship, Shanghai Medical University
- Medical Advisor in Ultrasound, World Health Organization
- Consultant Evaluator for Radiology, The American Medico-Legal Foundation
- Hartman Lecture, Society of Radiologists in Ultrasound
- Grant Reviewer, Binational Science Foundation
- Member, Commission on Ultrasound, American College of Radiology
- Member, Radiology Centennial Exhibits Committee
- Member, Fellowship Commission, Philadelphia Roentgen Ray Society
- Member, Commercial Liaison Committee, Society of Radiologists in Ultrasound
- Member, Advisory Board, The NICER Institute
- Editorial Board, *Radiologia*

CARLOS F. GONZALEZ, M.D.

- Reviewer, *IEEE Transactions of Medical Imaging*

ETHAN J. HALPERN, M.D.

- GE-AUR Fellow
- Reviewer, *Academic Radiology*
- Reviewer, *Radiology*

CHARLES M. INTENZO, M.D.

- Member, Government Relations Committee, American College of Nuclear Physicians

DAVID KARASICK, M.D.

- Board Examiner in Musculoskeletal Radiology, American Board of Radiology
- Consulting Editor, *Skeletal Radiology*
- Book Reviewer, *American Journal of Roentgenology*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Radiology*
- Reviewer, *Skeletal Radiology*

STEPHEN KARASICK, M.D.

- Board Examiner, Oral and Written, American Board of Radiology
- Reviewer, *American Journal of Roentgenology*

SUNG M. KIM, M.D.

- Secretary, The Korean-American Society of Nuclear Medicine
- Member, Committee on Brain Council, Society of Nuclear Medicine
- Member, Committee on Computer and Instrument Council, Society of Nuclear Medicine
- Member, Nuclear Medicine Science Committee, American College of Nuclear Physician
- Reviewer, *Radiation Oncology Investigations*

ALFRED B. KURTZ, M.D.

- Secretary, American Institute of Ultrasound in Medicine
- Board Examiner, Oral and Written, American Board of Radiology
- Councilor, Society of Radiologists in Ultrasound, American College of Radiology
- Chairman, Fellowship Committee, American Institute of Ultrasound in Medicine
- Recent Past President, Society of Radiologists in Ultrasound
- Editorial Board, *RSNA Today*
- Member, Finance Committee, American Institute of Ultrasound in Medicine
- Member, Books Committee of Radiology Centennial, Inc.
- Member, Scientific Program Committee, American Roentgen Ray Society
- Member, Research and Education Fund Committee, American Institute of Ultrasound in Medicine
- Member, American College of Radiologic Imaging
- Reviewer, *American Family Physician*
- Reviewer, *American Journal of Obstetrics and Gynecology*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Cancer*
- Reviewer, *Journal of the American Medical Association*
- Reviewer, *Journal of Ultrasound in Medicine*
- Reviewer, *Obstetrics and Gynecology*
- Reviewer, *Radiographics*
- Reviewer, Ultrasound Manuscript, *Radiology*

- Certificate of Merit, "Abnormal fetal heart findings: Recognition of cardiac anomalies at routine obstetrical US - Correlation with normal findings" (exhibit). The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL, November/December 1995

DAVID C. LEVIN, M.D.

- President, Society of Chairmen of Academic Radiology Departments
- Chairman, Expert Panel on Cardiovascular Imaging of the ACR Task Force on Appropriateness Criteria/Diagnostic Patient Care Guidelines, American College of Radiology
- Chairman of Subcommittee on Socioeconomic Issues, Refresher Course Committee, Radiological Society of North America
- Third Vice-President, Radiological Society of North America
- Examiner, American Board of Radiology
- Ad hoc Appropriateness/Coding Committee, American College of Radiology
- Public Information Advisory Board, Radiological Society of North America
- Scientific Advisor, RSNA Research and Education Fund, Radiological Society of North America
- Committee on Health Policy and Practice, Radiological Society of North America
- Council on Cardiovascular Radiology, Committee on Transcatheter Therapy of Peripheral Vascular Disease, American Heart Association
- Commission on Research and Technology Assessment, American College of Radiology
- Radiology Advisory Committee, Keystone Health Plan East (HMO)
- Executive Committee, Society of Chairmen of Academic Radiology Departments
- Cardiac Catheterization Committee, American College of Cardiology
- Committee of Research and Technology Assessment of the Interventional Radiology Commission, American College of Radiology
- Committee on Diagnostic Radiology, Pennsylvania Radiological Society
- Public Relations and Marketing Committee, Pennsylvania Radiological Society
- Economics Committee, Philadelphia Roentgen Ray Society
- Publications Committee, Pennsylvania Radiological Society
- Committee on Radiology Practice and Management, Pennsylvania Radiological Society
- Editorial Board, *Academic Radiology*
- Editorial Board, *Current Diagnosis*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *New England Journal of Medicine*
- Reviewer, *Radiology*

ANNA S. LEV-TOAFF, M.D.

- Secretary, Delaware Valley Ultrasound Society
- Member, Scientific Exhibits Committee, Pennsylvania Radiological Society
- Book Reviewer, *American Journal of Roentgenology*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Obstetrics and Gynecology*

JI-BIN LIU, M.D.

- Visiting Professor of Radiology, Peking Union Medical College Hospital, Beijing, China

ANDREW D.A. MAIDMENT. PH.D.

- Member, Correlation of Phantom and Clinical Image Quality Committee, Center for Disease Control Cooperative Agreement for Quality Assurance Activities in Mammography, American College of Radiology
- Member, Film Performance Focus Group of the Research and Analysis Committee, American College of Radiology
- Member, Committee of Chest Radiology Accreditation, American College of Radiology
- Member, Physics Sub-Committee, American College of Radiology
- Member, Stereotactic Breast Biopsy Accreditation Program
- Phantom Reviewer, American College of Radiology
- Member, Diagnostic X-ray Imaging Committee, American Association of Physicists in Medicine
- Member, Task Group on Digital Mammography for Stereotactic Localization, American Association of Physicists in Medicine
- Member, Task Group on Noise Power Spectrum Analysis, American Association of Physicists in Medicine
- Member, Task Group on Film Performance, Technical Subcommittee IT2-31, (X-ray Image Evaluation), National Association of Photographic Manufacturers, American National Standards Institute (ANSI)
- Grant Reviewer, Department of Defense, Breast Cancer Research Program, study session RSD-3, 11/95
- Grant Reviewer, NCI/NIH STTR/SBIR study session SSS-7
- Reviewer, 38th Annual Meeting of the AAPM
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Medical Physics*

DONALD G. MITCHELL. M.D.

- Chairman, Workshop Committee, International Society for Magnetic Resonance
- Member, Program Committee, The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America
- Member, Board of Trustees, International Society for Magnetic Resonance
- Member, Finance Committee, International Society for Magnetic Resonance
- Member, Coordination Committee, International Society for Magnetic Resonance
- Co-Editor, *Topics in Magnetic Resonance Imaging*
- Co-Editor, Clinical Desktop Section, *MResource Guide*
- Associate Editor, *Journal of Magnetic Resonance Imaging*
- Editorial Board, *Journal of Computer Assisted Tomography*
- Editorial Board, *Journal of Magnetic Resonance Imaging*
- Editorial Board, *Magnetic Resonance Quarterly*
- Editorial Board, MRI, *Radiology*
- Editorial Board, *Topics in Magnetic Resonance Imaging*
- Reviewer, *Academic Radiology*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Investigative Radiology*
- Reviewer, *Radiographics*
- Reviewer, ECRI Technology Assessment "High Field Strength Vs. Low Field Strength and Open MRI"

LAURENCE NEEDLEMAN, M.D.

- Chairman, Board of Directors, Joint Review Committee on Education in Cardiovascular Technology (representative of the American College of Radiology)
- Chairman, Society of Radiologists in Ultrasound Professional Practice and Standards Committee
- Member, Committee on Economics of the Commission on Ultrasound, American College of Radiology
- Member, Task Force on Appropriateness Criteria Expert Panel on Cardiovascular Imaging, American College of Radiology
- Member, Committee on Ultrasound, Pennsylvania Radiological Society
- Member, Abstract Committee, Cardiovascular Section, Annual Meeting of the American Institute of Ultrasound in Medicine
- Abstract Reviewer, Vascular Section, American Heart Association Annual Meeting
- Occasional Reviewer, *Journal of Ultrasound in Medicine*
- Occasional Reviewer, *Journal of Vascular and Interventional Radiology*
- Occasional Reviewer, *Radiology*
- Certificate of Merit, "Abnormal fetal heart findings: Recognition of cardiac anomalies at routine obstetrical US - Correlation with normal findings" (exhibit). The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL, November/December 1995

ERIC K. OUTWATER, M.D.

- Elected to the Society of Computed Body Tomography and Magnetic Resonance, 1996
- Contributor, RSNA'95, 81st Assembly and Annual Meeting Notes
- Member, Editorial Board, *Radiology*
- Reviewer, *Magnetic Resonance in Medicine*
- Reviewer, *Obstetrics and Gynecology*
- Reviewer, Scientific exhibits at RSNA for *Radiographics*
- Editor's Recognition Award for Special Distinction in Reviewing, *Radiology*
- Editor's Award, Prolific Reviewer, *Radiology*
- Editor's Certificate Of Recognition for Review of Manuscripts, *Radiographics*

CATHERINE W. PICCOLI, M.D.

- Clinical Reviewer, Mammography Accreditation Program, American College of Radiology
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Journal of Ultrasound in Medicine*

VIJAY M. RAO, M.D.

- Chairperson, Ad Hoc Committee on Curriculum, Association of Program Directors in Radiology
- Member, Rules Committee, Association of Program Directors in Radiology
- Member, Education Committee, American Society of Head and Neck Radiology
- Member, Program Committee, Philadelphia Roentgen Ray Society
- Ad Hoc Member, Research Manpower Review Committee, NLHBI - National Institutes of Health
- Alternate Councilor, Pennsylvania Chapter, American College of Radiology

- Radiographics Panel, The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America
- Reviewer, *American Journal of Neuroradiology*
- Reviewer, *Neuroradiology*
- Reviewer, *Radiographics*
- Reviewer, *Radiology*
- Editor's Certificate of Recognition for Review of Manuscripts, *Radiographics*
- Editor's Certificate of Recognition for Review of RSNA Scientific and infoRAD Exhibits

ANA M. SALAZAR, M.D.

- Reviewer, *American Journal of Roentgenology*

MARK E. SCHWEITZER, M.D.

- Member, Advisory Committee, National Institutes of Health
- Member, Appropriateness Panel, Musculoskeletal, American College of Radiology
- Exhibit Reviewer, Radiological Society of North America
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Annals of Internal Medicine*
- Reviewer, *Journal of Clinical Rheumatology*
- Reviewer, *Journal of Clinical Ultrasound*
- Reviewer, *Journal of Computer Assisted Tomography*
- Reviewer, *Radiographics*
- Reviewer, *Radiology*

SHARON R. SEGAL, D.O.

- Editorial Board, American Osteopathic College of Radiology
- Certificate of Merit, "Ultrasonographic features of gastrointestinal duplications". The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL, November/December 1995

MARCELLE J. SHAPIRO, M.D.

- Fellow, Society of Cardiovascular and Interventional Radiology
- Coordinator, Clinical Management Symposium, 21st Annual Meeting of the Society of Cardiovascular and Interventional Radiology
- Member, Scientific Program Committee, 21st Annual Meeting of the Society of Cardiovascular and Interventional Radiology
- Member, Educational Program Committee, 21st Annual Meeting of the Society of Cardiovascular and Interventional Radiology
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Journal of Vascular and Interventional Radiology*
- Reviewer, *Radiology*

CLAIRE M. SPETTELL, PH.D.

- Reviewer, Grant proposal submitted to SCVIR

- Reviewer, *Academic Radiology*
- Reviewer, *American Journal of Managed Care*

ROBERT M. STEINER, M.D.

- Chairman, Chest Accreditation Committee, American College of Radiology
- Secretary, Society of Thoracic Radiology
- Chairman, NASCI-STR Coordination Committee, North American Society for Cardiac Imaging
- Chairman, Long Range Planning Committee, Philadelphia Roentgen Ray Society
- Member, Standards and Guidelines Committee, American College of Radiology
- Member, Committee on Diagnostic Radiology, Pennsylvania Radiological Society
- Member, Nominations Committee, Pennsylvania Radiological Society
- Member, Training and Standards of Care Committee, Society of Thoracic Radiology
- Member, Education Committee, North American Society of Cardiac Imaging
- Editorial Board, *American Journal of Cardiac Imaging*
- Editorial Board, *Heart and Vessel*
- Editorial Board, *Radiographics*
- Book Reviewer, *Radiology*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Cancer*
- Reviewer, *Radiology*
- Reviewer, *Respiratory Medicine*

KEVIN L. SULLIVAN, M.D.

- Member, Research Committee, Society of Cardiovascular and Interventional Radiology
- Fellow, Society of Cardiovascular and Interventional Radiology
- Editorial Board, *Journal of Vascular and Interventional Radiology*
- Reviewer, *Radiology*
- Editor's Recognition Award for Special Distinction in Reviewing, *Radiology*

LISA M. TARTAGLINO, M.D.

- Co-director, Philadelphia Neuroradiology Club

MATHEW L. THAKUR, PH.D.

- Member, Scientific Program Committee, The Greater New York Chapter of the Society of Nuclear Medicine, Philadelphia, 1995
- Member, Scientific Program Committee, The 43rd Annual Meeting of the Society of Nuclear Medicine
- Member, Scientific Exhibit Review Committee, The 43rd Annual Meeting of the Society of Nuclear Medicine
- Member, Scientific Program Committee, The 27th Annual Meeting of the Society of Nuclear Medicine, Tirupati, India
- Member, Scientific Program Committee, The 7th International Symposium of Radiolabeled Blood Elements, New Haven, CT
- Member, Scientific Program Committee, IAEA Symposium, Portugal
- Member, Advisory Committee, US Pharmacopeia

- Chairman, Advisory Committee, RhoMed Scientific Advisory Committee
- Member, Advisory Committee, Kuwait Medical Research Council
- Member, Advisory Committee, International Atomic Energy Agency, Vienna, Austria
- *Ad hoc* member, Grant Review Service, NIH
- *Ad hoc* member, Grant Review Service, American Cancer Society
- Member, Grant Review Service, Canadian Medical Research Council
- Member, Grant Review Service, Veterans Administration
- Editorial Board, *Journal of Nuclear Medicine and Biology*
- Editorial Board, *Nuclear Medicine Communications*
- Editorial Board, *Journal of Nuclear Medicine*
- Editorial Board, *Journal of the Indian Association of Clinical Medicine*
- Reviewer, *Cancer Research*
- Reviewer, *International Journal of Bio-chromatography*
- Reviewer, *Journal of Immunological Methods*
- Reviewer, *Journal of Laboratory Investigation*
- Reviewer, *Journal of Nuclear Medicine*
- Reviewer, *Journal of Nuclear Medicine and Biology*
- Reviewer, *Nuclear Medicine Communications*
- First Award, Abstract Submitted to the Greater New York Chapter of the Society of Nuclear Medicine, Philadelphia, PA, 1995
- The V. Sarabhai Oration Award, The Society of Nuclear Medicine India, Bangalore, India, 1995

TERRI TUCKMAN, M.D.

- Co-Chairperson, Women Physicians' Forum
- Chairperson, Committee on Dependent Care, American Medical Women's Association
- Member, Committee on Maternity and Medicine, American Medical Women's Association
- Member, Committee on Gender Equity, American Medical Women's Association

SIMON VINITSKI, PH.D.

- Member, Executive Committee, Center of Excellence in Biomedical Engineering, Drexel University
- Reviewer, *Applied Radiology*
- Reviewer, *IEEE Transactions of Medical Imaging*
- Reviewer, *Journal of Magnetic Resonance Imaging*
- Reviewer, *Magnetic Resonance In Medicine*
- Reviewer, *Medical Physics*

RICHARD J. WECHSLER, M.D.

- Secretary, Philadelphia Roentgen Ray Society
- Member, Executive Committee, Philadelphia Roentgen Ray Society
- Member, Program Committee, Philadelphia Roentgen Ray Society
- Member, Chest Radiology Accreditation Committee of the Commission on Standards and Accreditation, American College Radiology
- Director of Chapter, Pennsylvania Radiological Society
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Radiology*
- Editor's Recognition Award for Distinction in Reviewing, *Radiology*

ANNINA N. WILKES, M.D.

- Certificate of Merit, "Abnormal fetal heart findings: Recognition of cardiac anomalies at routine obstetrical US - Correlation with normal findings" (exhibit). The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL, November/December 1995

JAMES J. ZHANG, PH.D.

- Member, Committee of Brain Council, Society of Nuclear Medicine
- Member, Committee of Computer Council, Society of Nuclear Medicine
- Member, Computer Committee, American Association of Physicists in Medicine
- Member, Organizing Committee, The 2nd World Chinese Conference of Nuclear Medicine, Chinese American Society of Nuclear Medicine

* * * * *

APPENDIX

- Table 1 ACTIVE GRANTS**
- Table 2 PENDING GRANTS**
- Table 3 FY'95 GRANT INCOME AND EXPENSES**

Active Grants

07/01/95 - 06/30/96

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

Revised 07/17/96

NIH/OTHER FEDERAL GRANTS

PRINCIPAL INVESTIGATOR	TITLE OF PROJECT	FUNDING SOURCE	FUNDING DATES	DIRECT COSTS	INDIRECT COSTS	TOTAL COSTS FUNDED
Feig, S. 080-02042	Clinical Evaluation of Digital Mammography	NIH 1 RO1 CA60192 02 year carryover	09/30/93 - 06/30/99 07/01/95 - 06/30/96	\$388,987 \$89,573 (current year)	\$241,620 \$46,463 (current year)	\$630,607 \$136,036 (current year)
Feig, S. 080-05157 UNC (subcontract)	Stereotactic Breast Biopsy vs Open Surgical Biopsy (RDOG V)	NIH 5 UO1 CA62476 03 year	09/30/93 - 07/31/97 08/01/95 - 07/31/96	\$57,324 \$19,761 (current year)	\$38,276 \$13,239 (current year)	\$95,600 \$33,000 (current year)
Goldberg, B. 080-02888	Breast Cancer Detection Using Ultrasound Contrast	NIH 1 RO1 CA60854 01 year	04/01/96 - 01/31/01 04/01/96 - 01/31/97	\$700,981 \$146,424 (current year)	\$456,914 \$85,360 (current year)	\$1,157,895 \$231,784 (current year)
Goldberg, B. 080-08136	A Diagnostic Ultrasound Training Program EUR-0045-A-00-4047-00)	U.S. AID U.S. Agency for International Development	09/29/94 - 03/31/96	\$177,272 \$177,272 (current year)	\$0 \$0 (current year)	\$177,272 \$177,272 (current year)
Goldberg, B. 080-05263 Drexel (J. Reid) (subcontract)	Developing of Ultrasonic Tissue Characterization Methods	NIH 2 PO1 CA52823 05 year	09/30/90 - 09/29/97 09/30/95 - 09/29/96	\$142,710 \$44,902 (current year)	\$95,614 \$30,084 (current year)	\$238,324 \$74,986 (current year)

Goldberg, B. 080-05710 Drexel (M. Wheatley) (subcontract)	Development of a New Class of Ultrasound Contrast Agents	NIH 5 RO1 HL52901 02 year	09/01/94 - 08/31/99 09/01/95 - 08/31/96	\$70,504 -\$16,358 (current year)	\$47,238 -\$10,960 (current year)	\$117,742 -\$27,318 (current year)
Kurtz, A. 080-03250	The Detection and Staging of Ovarian Cancer (RDOG IV)	NIH 1 UO1 CA59648 no cost extension	09/30/92 - 04/30/96 09/30/95 - 04/30/96	\$262,686 -\$0 (current year)	\$106,948 -\$0 (current year)	\$369,634 -\$0 (current year)
Liu, Ji-Bin 080-04704	Tumor Evaluation by 2D and 3D Endoluminal Ultrasound	NIH 1 KO8 CA63494 01 year	09/30/95 - 09/29/98 09/30/95 - 09/29/96	\$187,350 -\$60,000 (current year)	\$13,668 -\$4,416 (current year)	\$201,018 -\$64,416 (current year)
Thakur, M. 080-05711	Pharmacokinetics of Receptorins	NIH Lexin subcontract 1 R43 AI38659-01	08/15/95 - 02/14/96	\$19,760 -\$19,760 (current year)	\$13,240 -\$13,240 (current year)	\$33,000 -\$33,000 (current year)
Thakur, M. 080-05337	Novel Antibody Conjugates for Enhanced Tumor Uptake	DOE DE-FG02- 92ER61485 03 year	09/01/93 - 08/31/96 09/01/95 - 08/31/96	\$528,992 -\$71,856 (current year)	\$302,028 -\$48,144 (current year)	\$831,020 -\$120,000 (current year)
TOTAL NIH/FEDERAL FUNDING				\$2,536,566	\$1,315,546	\$3,852,112
CURRENT YEAR NIH/ FEDERAL FUNDING				\$645,906	\$251,906	\$897,812

Active Grants

07/01/95 - 06/30/96

(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
Flanders, A. 900-11100	Human Spinal Cord and Processing	SCI Research and Education Fund	08/01/95 - 07/31/96	\$5,000 -\$5,000 (current year)	\$0 -\$0 (current year)	\$5,000 -\$5,000 (current year)
Forsberg, F. 080-08113	Nonstationary Spectral Analysis of Ultrasound Doppler Signals	Whitaker Foundation	08/01/93 - 07/31/96 08/01/95 - 07/31/96	\$146,758 -\$50,605 (current year)	\$29,010 -\$10,121 (current year)	\$175,768 -\$60,726 (current year)
Gardiner, G. 081-08309	SCVIR Transluminal Angioplasty and Revascularization Registry (STAR)	CIRREF (Cardiovascular/ Interventional Radiology Research & Education Foundation)	01/01/92 - 12/31/96 01/01/95 - 12/31/96	\$740,457 -\$201,302 (current year)	\$68,429 -\$19,364 (current year)	\$808,886 -\$220,666 (current year)
Goldberg, B. 080-08254	Ultrasound Institute Affiliate Training Centers	Open Society Institute	01/01/96 - 12/31/96	\$42,500 -\$42,500 (current year)	\$0 -\$0 (current year)	\$42,500 -\$42,500 (current year)
Halpern, E. 080-08609	Application of Ultrasound, Spiral CT and MR Angiography to Screen for Renal Artery Stenosis	GEAUR	07/01/94 - 06/30/96 07/01/95 - 06/30/96	\$100,000 -\$50,000 (current year)	\$0 -\$0 (current year)	\$100,000 -\$50,000 (current year)

Schweitzer, M. 080-08705	The Cost Effectiveness of MRI for the Diagnosis, Evaluation and Management of Osteomyelitis	RSNA Scholars Program	07/01/95 - 06/30/97 07/01/95 - 06/30/96	\$90,000 -- \$45,000 (current year)	\$0 -- \$0 (current year)	\$90,000 -- \$45,000 (current year)
Thakur, M. 080-08371	Imaging Intestinal Adeno- carcinoma with Tc-99m Vasoactive Intestinal Peptide	American Cancer Society	07/01/95 - 06/30/96	\$60,000 -- \$60,000 (current year)	\$15,000 -- \$15,000 (current year)	\$75,000 -- \$75,000 (current year)
TOTAL NON-PROFIT FUNDING				\$1,184,715	\$112,439	\$1,297,154
CURRENT YEAR NON-PROFIT FUNDING				\$454,407	\$44,485	\$498,892

Active Grants

07/01/95 - 06/30/96

(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
Alexander, A. 080-08746	Evaluation of a Prototype Three-Dimensional (3D) Transrectal Ultrasound Imaging (TRUS) System for the Prostate Gland	Advanced Technology Laboratories (ATL)	09/18/95 - 12/01/95	\$7,200 -- \$7,200 (current year)	\$1,800 -- \$1,800 (current year)	\$9,000 -- \$9,000 (current year)
Bonn, J. 080-01787	A Randomized Trial Comparing Percutaneous Transluminal Angioplasty to the PALMAZ stent in de Novo Lesions of the Superficial Femoral Artery	Johnson & Johnson	04/15/94 - 06/30/96	\$40,258 -- \$40,258 (current year)	\$8,051 -- \$8,051 (current year)	\$48,309 -- \$48,309 (current year)
Consigny, P.M. 080-08711	Multi-Channel Balloon Drug Delivery: Inhibition of Intimal Thickening after Balloon Angioplasty by Delivery of Heparin	Boston Scientific IV	07/01/95 - 06/30/96	\$27,000 -- \$27,000 (current year)	\$6,750 -- \$6,750 (current year)	\$33,750 -- \$33,750 (current year)
Consigny, P.M. 080-08773	Restinosis in Pig Iliac Arteries After Stent Placement: Comparison of Covered Vs. Uncovered Stents	Impra, Inc.	09/01/95 - 08/31/96	\$40,145 -- \$40,145 (current year)	\$14,412 -- \$14,412 (current year)	\$54,557 -- \$54,557 (current year)

Feld, R. 080-08684	The Prevention of Deep Vein Thrombosis in Acute Spinal Cord Injury Comparing Enoxaparin Versus Low Dose Heparin Plus External Pneumatic Compression During the First Two Weeks Followed by Enoxaparin Versus Low Dose Heparin in the Remaining Six Weeks	Rhone-Poulenc Rorer Lovenox Spinal Cord Injury Study-611	03/01/95 - 02/28/97	\$96,000 \$11,904 (current year)	\$24,000 \$2,976 (current year)	\$120,000 \$14,880 (current year)
Forsberg, F. 080-08663	Parenchymal Enhancement of Hepatomas with a New Ultrasound Contrast Agent	Sonus Pharmaceuticals	04/01/95 - 03/31/96	\$24,151 \$24,151 (current year)	\$6,037 \$6,037 (current year)	\$30,188 \$30,188 (current year)
Forsberg, F. 080-08669	In Vitro Characterization of Polymer-Based Ultrasound Contrast Agents	Acusphere, Inc.	04/01/95 - 06/30/96	\$8,905 \$8,905 (current year)	\$3,197 \$3,197 (current year)	\$12,102 \$12,102 (current year)
Forsberg, F. 080-08702	Evaluating the Effect of a Polymer-based Ultrasound Contrast Agent on Normal Vascularity Perfusion	Acusphere, Inc.	07/01/95 - 06/30/96	\$18,963 \$18,963 (current year)	\$6,808 \$6,808 (current year)	\$25,771 \$25,771 (current year)
Forsberg, F. 080-08774	In Vitro Backscatter Estimation for Polymer Based Ultrasound Contrast Agents	Acusphere, Inc.	10/15/95 - 01/14/96	\$8,574 \$8,574 (current year)	\$566 \$566 (current year)	\$9,140 \$9,140 (current year)
Forsberg, F. 080-08284	Assessment of NRD-1 in Normal Dogs	Nycomed R & D	08/15/95 - 08/14/96	\$8,813 \$8,813 (current year)	\$3,163 \$3,163 (current year)	\$11,976 \$11,976 (current year)

Forsberg, F. 080-08289	Contrast Evaluation of Hepatic VX-2 Tumors in Rabbits	Nycomed R & D	12/15/95 - 12/14/96	\$31,771 --- \$31,771 (current year)	\$11,406 --- \$11,406 (current year)	\$43,177 --- \$43,177 (current year)
Gardiner, G. 080-01878	Enoxaparin 529: A Multi- center, Randomized, Partial- ly Blind, Parallel Group, Clinical Trial to Compare the Efficacy & Safety of Twice & Once Daily Subcutaneously Administered Enoxaparin and Continuous Infusion Heparin in the Treatment of Patients with Deep Vein Thrombosis with or without Pulmonary Embolism	Rhone-Poulenc Rorer Enoxaparin 529	09/01/94 - 08/31/95 09/01/95 - 08/31/96	\$119,040 --- \$30,336 (current year)	\$29,760 --- \$7,584 (current year)	\$148,800 --- \$37,920 (current year)
Gardiner, G. 080-08665	The Prevention of Deep Vein Thrombosis in Acute Spinal Cord Injury Comparing Enoxaparin versus Low Dose Heparin Plus External Pneu- matic Compression During the First Two Weeks Followed by Enoxaparin Versus Low Dose Heparin for the Re- maintaining Six Weeks	Rhone-Poulenc Rorer Lovenox Spinal Cord Injury Study-611	04/06/95 - 04/05/96	\$64,000 --- \$0 (current year)	\$16,000 --- \$0 (current year)	\$80,000 --- \$0 (current year)

Gardiner, G. 080-08680	Enoxaparin 307: A Double-Blind, Placebo-Controlled, Clinical Trial Comparing the Efficacy and Safety of Prolonged Outpatient Enoxaparin and Placebo Therapies in the Prevention of Venous Thromboembolic Disease in Patients Undergoing Elective Primary Hip or Knee Replacement	Rhone-Poulenc Rorer Enoxaparin 307	10/04/94 - 10/03/96	\$105,472 -- \$68,096 (current year)	\$26,368 -- \$17,024 (current year)	\$131,840 -- \$85,120 (current year)
Goldberg, B. 080-01558	Endoluminal Evaluation of the Urethra and Anal-Rectal Region Using a Special Ultrasound Probe (TULIP II)	Intra-Sonix	10/17/94 - 10/16/95	\$2,400 -- \$2,400 (current year)	\$600 -- \$600 (current year)	\$3,000 -- \$3,000 (current year)
Goldberg, B. 080-08701	Natural Hepatomas Visualized with a Polymer-Based Ultrasound Contrast Agent	Acusphere, Inc.	07/01/95 - 06/30/96	\$25,921 -- \$25,921 (current year)	\$9,306 -- \$9,306 (current year)	\$35,227 -- \$35,227 (current year)
Goldberg, B. 080-08700	Detecting VX-2 Tumors in Rabbits with a Polymer-Based Ultrasound Contrast Agent	Acusphere, Inc.	07/01/95 - 06/30/96	\$17,204 -- \$17,204 (current year)	\$6,176 -- \$6,176 (current year)	\$23,380 -- \$23,380 (current year)
Goldberg, B. 080-08709	Evaluation of MX-115 in Rabbits with VX2 Tumors	ImaRx	07/01/95 - 10/31/95	\$10,890 -- \$10,890 (current year)	\$3,910 -- \$3,910 (current year)	\$14,800 -- \$14,800 (current year)
Goldberg, B. 080-01914	Development of a Simulator for Ultrasound Scanning	MedSim, Inc.	11/01/94 - 11/30/96 11/01/95 - 11/30/96	\$136,585 -- \$48,055 (current year)	\$34,146 -- \$12,014 (current year)	\$170,731 -- \$60,069 (current year)

Goldberg, B. 080-01661	The Effects of Ultrasound Bone Healing Investigational Study in the Normal Dog	Exogen, Inc.	03/15/96 - 07/14/96	\$5,000 -- \$5,000 (current year)	\$0 -- \$0 (current year)	\$5,000 -- \$5,000 (current year)
Goldberg, B. 080-05759	Contrast Evaluation of Hepatomas in Woodchucks	Nycomed, Inc.	04/04/96 - 12/31/96	\$26,954 -- \$26,954 (current year)	\$9,677 -- \$9,677 (current year)	\$36,631 -- \$36,631 (current year)
Intenzo, C. 080-01879	Enoxaparin 529: A Multi-center, Randomized, Partially Blind, Parallel Group, Clinical Trial to Compare the Efficacy & Safety of Twice & Once Daily Subcutaneously Administered Enoxaparin and Continuous Infusion Heparin in the Treatment of Patients with Deep Vein Thrombosis with or without Pulmonary Embolism	Rhone-Poulenc Rorer Enoxaparin 529	09/01/94 - 12/31/96	\$26,880 -- \$7,056 (current year)	\$6,720 -- \$1,764 (current year)	\$33,600 -- \$8,820 (current year)
Levin, D. 081-01008	Support for Imaging Research	DuPont	05/01/91 - 04/30/96	\$560,000 -- \$112,000 (-05 year)	\$140,000 -- \$28,000 (-05 year)	\$700,000 -- \$140,000 (-05 year)
Mitchell, D. 080-08661	A Phase III Safety and Efficacy Investigation of Code 7227 as a Magnetic Resonance Agent for Imaging the Liver and Spleen	Advanced Magnetics, Inc.	03/01/95 - 02/29/96	\$30,192 -- \$30,192 (current year)	\$7,548 -- \$7,548 (current year)	\$37,740 -- \$37,740 (current year)

Mitchell, D. 080-01701	A Phase II, Dose-Ranging and Comparative Study of the Safety and Efficacy of Gadobenate Dimeglumine in MRI in Patients with Focal Liver Lesions	Bracco Diagnostics	02/08/96 - 10/31/96	\$60,225 -- \$60,225 (current year)	\$15,056 -- \$15,056 (current year)	\$75,281 -- \$75,281 (current year)
Mitchell, D. 080-01916	An Open-Label Binational Multicenter Study of SH U 555 A Injection Using Single Intravenous Injection in Subjects with Known Focal Liver Lesions	Berlex Laboratories	05/01/96 - 04/30/97	\$55,480 -- \$55,480 (-01 year)	\$13,870 -- \$13,870 (-01 year)	\$69,350 -- \$69,350 (-01 year)
Needleman, L. 080-08707	A Multicenter, Double-Blind, Placebo-Controlled Safety and Efficacy Evaluation of Echogen Injection as an Ultrasound Contrast Enhancing Agent in Adult Patients Undergoing Examination of the Liver, Kidneys and/or Peripheral Vessels	Sonus Pharmaceuticals	06/22/95 - 06/21/96	\$32,530 -- \$32,530 (current year)	\$8,132 -- \$8,132 (current year)	\$40,662 -- \$40,662 (current year)
Needleman, L. 080-08715	An Open Label Study of the Safety and Efficacy of Albunex in Transcranial Doppler	Mallinckrodt Medical Inc.	07/15/95 - 01/15/96	\$12,280 -- \$12,280 (current year)	\$3,070 -- \$3,070 (current year)	\$15,350 -- \$15,350 (current year)

Needleman, L. 080-08447	Placebo-Controlled, Cross-over, Single-Blind Study of the Safety, Subject Acceptance and Efficacy of Levovist Injection (a Galatose-Based Microbubble Preparation) in Subjects Undergoing Vascular Sonography with Harmonic Imaging	Berlex Laboratories	04/25/96 - 04/24/97	\$57,150 -- \$57,150 (current year)	\$14,300 -- \$14,300 (current year)	\$71,450 -- \$71,450 (current year)
Needleman, L. 080-08427	Renal Transplant Model to Evaluate Efficacy of an Ultrasound Contrast Agent	Nycomed R & D Addendum IV	06/03/96 - 12/31/96	\$44,970 -- \$44,970 (-01 year)	\$16,144 -- \$16,144 (-01 year)	\$61,114 -- \$61,114 (-01 year)
Schweitzer, M. 080-01704	A Multicenter, Double-Blind, Multidose, Within-Patient Study to Evaluate the Safety, Tolerance, and Efficacy of MP1177/10 in MRI of the Musculoskeletal System	Mallinckrodt Medical Inc.	01/01/96 - 12/31/96	\$48,375 -- \$48,375 (current year)	\$12,094 -- \$12,094 (current year)	\$60,469 -- \$60,469 (current year)
TOTAL INDUSTRIAL FUNDING				\$1,753,328	\$459,067	\$2,212,395
CURRENT YEAR INDUSTRIAL FUNDING				\$922,798	\$251,435	\$1,174,233
TOTAL FUNDING				\$5,474,609	\$1,887,052	\$7,361,661
TOTAL CURRENT YEAR FUNDING				\$2,023,111	\$547,826	\$2,570,937

Table 2

Pending Grants
07/01/95 - 06/30/96
(Report reflects entire award period and first year of award)
Revised 07/17/96
NIH/GRANTS

PRINCIPAL INVESTIGATOR	TITLE OF PROJECT	FUNDING SOURCE	FUNDING DATES	DIRECT COSTS	INDIRECT COSTS	TOTAL COSTS FUNDED
Conant, E.	2-D and 3-D Digital Analysis of Breast Calcifications: A Technique to Improve Mammographic Specificity	U.S. Army DAMD17-96-1-6280	07/01/96 - 06/30/98	\$97,929	\$50,053	\$147,982
Consigny, M.	Re-endothelialization of Arteries after Angioplasty	NIH	07/01/96 - 06/30/98	\$253,345	\$144,355	\$397,700
Halpern, E.	Helical CT for Pulmonary Embolism: Outcomes Analysis	NIH	04/01/97 - 03/31/01	\$663,089	\$156,782	\$819,871
Nazarian, L. (D. Leeper, PhD)	Modification of Hyperthermia Response Project 5: Acidification of Human Melanoma	NIH Program Project	02/01/97 - 01/31/01	\$87,643	\$54,339	\$141,982
Piccoli, C. (Shankar, P.M.) Drexel	Ultrasonic Tissue Characterization Using the K Distribution Non-Rayleigh Statistics	NSF	10/01/96 - 09/30/99	\$79,564	\$49,795	\$129,359
Thakur, M.	Augmenting Tumor Uptake for Scintigraphy and RIT	NIH	12/01/96 - 11/30/99	\$481,689	\$315,017	\$796,706
Thakur, M.	Tc-99 Somatostatin Analogues for Imaging Tumors	NIH/RhoMed, Inc. SEIR	07/01/96 - 12/31/96	\$19,808	\$13,271	\$33,079
				\$19,808	\$13,271	\$33,079
				\$163,994	\$102,161	\$266,155
				\$24,867	\$15,883	\$40,750
				\$20,639	\$12,796	\$33,435
				\$56,948	\$22,596	\$79,544
				\$131,251	\$62,552	\$193,803
				\$698,555	\$278,136	\$976,691
				\$1,683,067	\$783,612	\$2,466,679
			TOTAL NIH GRANT FUNDING			
			TOTAL FIRST YEAR NIH FUNDING			

Pending Grants

07/01/95 - 06/30/96

(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
Dagher, A.	In Vivo Estimation of the Magnetization Transfer Bound-Pool Fraction	Whitaker Foundation	12/01/96 - 11/30/98	\$110,126 -- \$54,431 (-01 year)	\$13,750 -- \$6,795 (-01 year)	\$123,876 -- \$61,226 (-01 year)
Dagher, A.	Investigating the Effects of Varying Frequency in Brain Saturation Transfer	RSNA (Seed grant)	11/01/96 - 10/31/97	\$19,912 -- \$19,912 (-01 year)	\$0 -- \$0 (-01 year)	\$19,912 -- \$19,912 (-01 year)
Dagher, A.	Evaluation of Concussion in Professional Football Players Using Magnetic Resonance Spectroscopy	NFL	09/01/96 - 08/31/97	\$172,611 -- \$172,611 (-01 year)	\$42,153 -- \$42,153 (-01 year)	\$214,764 -- \$214,764 (-01 year)
Gonzalez, C.	Validation of Magnetic Resonance 3D Tissue Segmentation in an Animal Model of Brain	The Brain Tumor Society	10/01/96 - 09/31/98	\$98,167 -- \$48,591 (-01 year)	\$0 -- \$0 (-01 year)	\$98,167 -- \$48,591 (-01 year)
Lev-Toaff, A. (subcontract) Univ. of California	Review of Volume Sonographic Studies Across Networks: A Feasibility Study	Society of Radiologists in Ultrasound	01/01/96 - 12/31/97	\$21,550 -- \$21,550 (-01 year)	\$0 -- \$0 (-01 year)	\$21,550 -- \$21,550 (-01 year)
TOTAL FOUNDATION/ NON-PROFIT FUNDING				\$422,366	\$55,903	\$478,269
TOTAL FIRST YEAR FOUNDATION FUNDING				\$317,095	\$48,948	\$366,043

Pending Grants

07/01/95 - 06/30/96

(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
Consigny, P.M.	Stenosis in Pig Iliac Arteries After Covered Stent Placement: Influence of Device Diameter	Impra, Inc.	07/01/96 - 06/30/97	\$35,133	\$12,613	\$47,746
Forsberg, F.	Diasonics Research Projects	Diasonics Ultrasound, Inc.	07/01/96 - 06/30/97	\$50,000	\$12,500	\$62,500
Forsberg, F.	The Effects of Ultrasound Bone Healing on Fractured Bone in Dogs	Exogen, Inc.	07/01/96 - 06/30/97	\$18,396	\$6,604	\$25,000
Forsberg, F.	Transient Response Imaging with FS069	Mallinckrodt	08/01/96 - 07/31/97	\$11,092	\$3,982	\$15,074
Gardiner, G.	A Randomized, Prospective, Controlled Study Evaluating the Safety & Efficacy of the Cordis Peripheral Stent and Delivery System Versus PTA in the Treatment of Iliac Artery Occlusive Disease	Cordis Corporation	09/01/96 - 08/31/97	\$56,500	\$14,125	\$70,625
Goldberg, B.	Study of the Safety, Patient Acceptance, and Efficacy of Levovist Injection in Female Patients Undergoing Doppler Sonography, including Harmonic Imaging, for Evaluation of Breast Mass or Abnormality	Berlex Laboratories	07/01/96 - 06/30/01	\$400,000	\$100,000	\$500,000

Goldberg, B.	MRX 115 Ultrasound Imaging	DuPont Merck	09/01/96 - 08/31/97	\$44,464 -- \$44,464 (-01 year)	\$11,116 -- \$11,116 (-01 year)	\$55,580 -- \$55,580 (-01 year)
Outwater, E.	A Phase III Safety & Efficacy Study of Combixex Code 7227 as a MRI Agent for the Evaluation of Lymph Node Disease (Abdomen/Pelvis)	Advanced Magnetics	08/01/96 - 08/01/97	\$36,480 -- \$36,480 (-01 year)	\$9,120 -- \$9,120 (-01 year)	\$45,600 -- \$45,600 (-01 year)
Outwater, E.	A Phase III Safety & Efficacy Study of Combixex Code 7227 as a MRI Agent for the Evaluation of Lymph Node Disease (Lung)	Advanced Magnetics	08/01/96 - 08/01/97	\$36,480 -- \$36,480 (-01 year)	\$9,120 -- \$9,120 (-01 year)	\$45,600 -- \$45,600 (-01 year)
Piccoli, C.	A Phase III Safety & Efficacy Study of Combixex Code 7227 as a MRI Agent for the Evaluation of Lymph Node Disease (Breast)	Advanced Magnetics	08/01/96 - 08/01/97	\$36,480 -- \$36,480 (-01 year)	\$9,120 -- \$9,120 (-01 year)	\$45,600 -- \$45,600 (-01 year)
Rao, V.	A Phase III Safety & Efficacy Study of Combixex Code 7227 as a MRI Agent for the Evaluation of Lymph Node Disease (Head/Neck)	Advanced Magnetics	08/01/96 - 08/01/97	\$36,480 -- \$36,480 (-01 year)	\$9,120 -- \$9,120 (-01 year)	\$45,600 -- \$45,600 (-01 year)
Thakur, M.	Interferon β -2b for Improving Radioimmunoscintigraphy and Radioimmunotherapy	Schering Plough	08/01/96 - 07/31/99	\$243,715 -- \$77,881 (-01 year)	\$118,202 -- \$37,772 (-01 year)	\$361,917 -- \$115,653 (-01 year)
TOTAL INDUSTRIAL FUNDING				\$968,740	\$306,502	\$1,275,242
TOTAL FIRST YEAR NIH FUNDING				\$482,906 (-01 year)	\$146,072 (-01 year)	\$628,978 (-01 year)
TOTAL FUNDING PENDING				\$3,074,173	\$1,146,017	\$4,220,190
TOTAL FUNDING PENDING -First Year				\$1,498,556 (-01 year)	\$473,156 (-01 year)	\$1,971,712 (-01 year)

PRINCIPAL INVESTIGATOR Grant Number Total grant period	TITLE OF PROJECT	FUNDING SOURCE	TOTAL DIRECT COSTS		TOTAL INDIRECT COSTS		TOTAL INCOME	ACTUAL DIRECT EXPENSES		ACTUAL INDIRECT EXPENSES		TOTAL EXPENSES FY'95
			FY'95	FY'95	FY'95	FY'95		FY'95	FY'95	FY'95	FY'95	
Feig, S. 080-02042 09/30/93-06/30/99	Clinical Evaluation of Digital Mammography	NIH 1 RO1 CA60192	\$52,023	\$25,698	\$77,721	\$3,450	\$35	\$3,485				
Feig, S. 080-05157 (Subcontract) 09/30/93-07/31/97	Stereotactic Breast Biopsy vs Open Surgical Biopsy	NIH 5 UO1 CA62476-03 (UNC)	\$18,114	\$12,136	\$30,250	\$1,262	\$846	\$2,108				
Feld, R. 080-08684 03/01/95-02/28/97	The Prevention of Deep Vein Thrombosis in Acute Spinal Cord Injury Comparing Enoxaparin Versus Low Dose Heparin Plus External Pneumatic Compression During the First Two Weeks Followed by Enoxaparin vs Low Dose Heparin for the Remaining Six Weeks	Rhone Poulenc Rorer	\$4,032	\$1,008	\$5,040	\$11,906	\$2,976	\$14,882				
Forsberg, F. 080-08113 08/01/93-07/31/96	Nonstationary Spectral Analysis of Ultrasound Doppler Signals	Whitaker Foundation	\$48,919	\$9,670	\$58,589	\$12,916	\$2,583	\$15,499				
Forberg, F. 080-08663 04/01/95-03/31/96	Parenchymal Enhancement of Hepatomas with a New Ultrasound Contrast Agent	Sonus	\$18,117	\$4,529	\$22,646	\$13,796	\$4,038	\$17,834				
Forsberg, F. 080-08669 04/01/95-06/30/96	In Vitro Characterization of Polymer-Based Ultrasound Contrast Agents	Acusphere	\$7,128	\$2,559	\$9,687	\$5,601	\$2,011	\$7,612				

PRINCIPAL INVESTIGATOR Grant Number Total grant period	TITLE OF PROJECT	FUNDING SOURCE	TOTAL DIRECT COSTS		TOTAL INDIRECT COSTS		TOTAL INCOME		ACTUAL DIRECT EXPENSES		ACTUAL INDIRECT EXPENSES		TOTAL EXPENSES FY'95
			FY'95	FY'95	FY'95	FY'95	FY'95	FY'95	FY'95	FY'95	FY'95	FY'95	
Forsberg, F. 080-08702 07/01/95-06/30/96	Evaluating the Effect of a Polymer-Based Ultrasound Contrast Agent on Normal Vascularity Perfusion	Acusphere	\$18,963	\$6,808	\$25,771	\$15,586	\$3,404	\$18,990					
Forsberg, F. 080-08774 10/15/95-01/14/96	In Vitro Backscatter Estimation for Polymer Based Ultrasound Contrast Agents	Acusphere	\$8,574	\$566	\$9,140	\$6,796	\$566	\$7,362					
Forsberg, F. 080-08284 08/15/95-08/14/96	Assessment of NRD-1 in Normal Dogs	Nycomed R & D	\$7,711	\$2,768	\$10,479	\$4,988	\$1,791	\$6,779					
Forsberg, F. 080-08289 12/15/95-12/14/96	Contrast Evaluation of Hepatic VX-2 Tumors in Rabbits	Nycomed R & D	\$17,209	\$6,178	\$23,387	\$6,109	\$5,703	\$11,812					
Gardiner, G. 080-08309 01/01/92-12/31/96	SCVIR Transluminal Angioplasty and Revascularization Registry (STAR)	CIRREF	\$185,112	\$17,107	\$202,219	\$166,798	\$15,012	\$181,810					
Gardiner, G. 080-01878 09/01/94-08/31/96	Enoxaparin 529: A Multicenter, Randomized, Partially Blind, Parallel Group, Clinical Trial to Compare the Efficacy & Safety of Twice and Once Daily Subcutaneously Administered Enoxaparin and Continuous Infusion Heparin in the Treatment of Patients with Deep Vein Thrombosis with or without Pulmonary Embolism	Rhone Poulenc Rorer	\$59,520	\$14,880	\$74,400	\$30,339	\$7,584	\$37,923					

PRINCIPAL INVESTIGATOR Grant Number	TITLE OF PROJECT	FUNDING SOURCE	TOTAL DIRECT COSTS		TOTAL INDIRECT COSTS		TOTAL INCOME		ACTUAL DIRECT EXPENSES		ACTUAL INDIRECT EXPENSES		TOTAL EXPENSES FY'95
			FY'95	FY'95	FY'95	FY'95	FY'95	FY'95	FY'95	FY'95	FY'95	FY'95	
			\$52,736	\$13,184	\$65,920	\$78,129	\$17,024	\$95,153					
Gardiner, G. 080-08680 10/04/95-10/03/97	Enoxaparin 307: A Double-Blind, Placebo-Controlled, Clinical Trial Comparing the Efficacy & Safety of Prolonged Outpatient Enoxaparin and Placebo Therapies in the Prevention of Venous Thromboembolic Disease in Patients Undergoing Elective Primary Hip or Knee Replacement	Rhone Poulenc Rorer											
Gardiner, G. 080-08665 04/06/95-04/05/96	Enoxaparin 611: The Prevention of Deep Vein Thrombosis in Acute Spinal Cord Injury Comparing Enoxaparin versus Low Dose Heparin Plus External Pneumatic Compression During the First Two Weeks Followed by Enoxaparin Versus Low Dose Heparin for the Remaining Six Weeks	Rhone Poulenc Rorer	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Goldberg, B. 080-05263 (Subcontract) 09/30/95-09/29/96	Developing of Ultrasonic Tissue Characterization Methods	NIH 2PO1 CA52823-05 (Drexel)	\$45,073	\$29,913	\$74,986	\$45,073	\$29,913	\$74,986	\$45,073	\$29,913	\$74,986		
Goldberg, B. (Subcontract) 080-05710 07/01/94-06/30/99	Development of a New Class of Ultrasound Contrast Agents	NIH 5 RO1 HL52901-02 (Drexel)	\$16,358	\$10,960	\$27,318	\$8,000	\$5,360	\$13,360	\$8,000	\$5,360	\$13,360		

PRINCIPAL INVESTIGATOR	TITLE OF PROJECT	FUNDING SOURCE	TOTAL DIRECT COSTS		TOTAL INDIRECT COSTS		TOTAL INCOME	ACTUAL EXPENSES		TOTAL EXPENSES
			FY'95	FY'95	FY'95	FY'95		FY'95	FY'95	
Total grant period			\$88,636	\$0	\$88,636	\$0	\$88,636	\$86,614	\$0	\$86,614
Goldberg, B. 080-08136 09/24/94-03/31/96	A Diagnostic Ultrasound Training Program	USAID	\$88,636	\$0	\$88,636	\$0	\$88,636	\$86,614	\$0	\$86,614
Goldberg, B. 080-01558 10/17/94-10/16/95	Endoluminal Evaluation of the Urethra and Anal-Rectal Region Using a Special Ultrasound Probe	Intra-Sonix	\$700	\$175	\$875	\$158	\$1,766	\$158		\$1,924
Goldberg, B. 080-01914 11/01/94-10/31/95	Development of a Simulator for Ultrasound Scanning	Med-Sim	\$68,292	\$17,073	\$85,365	\$11,787	\$47,149	\$11,787		\$58,936
Goldberg, B. 080-08647 01/01/95-06/30/95	Evaluation of Filimix in VX-2 Tumor Models in Rabbits	Israel Chemicals, Ltd.	\$4,115	\$1,477	\$5,592	\$462	\$1,287	\$462		\$1,749
Goldberg, B. 080-02888 04/01/96-01/31/01	Breast Cancer Detection Using Ultrasound Contrast	NIH 1 RO1 CA60854-01	\$43,927	\$25,608	\$69,535	\$0	\$0	\$0		\$0
Goldberg, B. 080-08254 01/01/96-12/31/96	Ultrasound Institute Affiliate Training Centers	Open Society Institute	\$21,250	\$0	\$21,250	\$0	\$0	\$0		\$0
Goldberg, B. 080-08700 07/01/95-06/30/96	Detecting VX-2 Tumors in Rabbits with a Polymer-Based Ultrasound Contrast Agent	Acusphere	\$17,204	\$6,176	\$23,380	\$4,704	\$13,104	\$4,704		\$17,808
Goldberg, B. 080-08701 07/01/95-06/30/96	Natural Hepatomas Visualized with a Polymer-Based Ultrasound Contrast Agent	Acusphere	\$25,921	\$9,306	\$35,227	\$5,139	\$14,316	\$5,139		\$19,455
Goldberg, B. 080-08709 06/01/95-02/29/96	Evaluation of MX-115 in Rabbits with VX2 Tumors	ImaRx	\$9,680	\$3,475	\$13,155	\$2,607	\$7,907	\$2,607		\$10,514

PRINCIPAL INVESTIGATOR	TITLE OF PROJECT	FUNDING SOURCE	TOTAL DIRECT COSTS		TOTAL INDIRECT COSTS		TOTAL INCOME	ACTUAL EXPENSES		TOTAL EXPENSES
			FY'95	FY'95	FY'95	FY'95		FY'95	FY'95	
Total grant period			\$4,375	\$0	\$4,375	\$0	\$4,375	\$5,128	\$0	\$5,128
Goldberg, B. 080-01661 03/15/96-07/14/96	The Effects of Ultrasound Bone Healing Investigational Study in the Normal Dog	Exogen	\$4,375	\$0	\$4,375	\$0	\$4,375	\$5,128	\$0	\$5,128
Goldberg, B. 080-05759 04/04/96-12/31/96	Contrast Evaluation of Hepatomas in Woodchucks	Nycomed R & D	\$8,985	\$3,226	\$12,211	\$4,995	\$13,914	\$4,995	\$4,995	\$18,909
Halpern, E. 080-08609 07/01/94-06/30/96	Application of Ultrasound, Spiral CT and MR Angiography to Screen for Renal Artery Stenosis	GE-AUR	\$50,000	\$0	\$50,000	\$0	\$50,000	\$0	\$0	\$50,000
Intenzo, C. 080-01879 09/01/94-08/31/96	Enoxaparin 529: A Multicenter, Randomized, Partially Blind, Parallel Group, Clinical Trial to Compare the Efficacy & Safety of Twice and Once Daily Subcutaneously Administered Enoxaparin and Continuous Infusion Heparin in the Treatment of Patients with Deep Vein Thrombosis with or without Pulmonary Embolism	Rhone Poulenc Rorer	\$11,520	\$2,880	\$14,400	\$1,764	\$7,056	\$1,764	\$1,764	\$8,820
Kurtz, A. 080-03250 09/30/92-04/30/96	The Detection and Staging of Ovarian Cancer (RDOG IV)	NIH 1R01 CA59648	\$46,940	\$31,450	\$78,390	\$19,906	\$29,710	\$19,906	\$19,906	\$49,616
Levin, D. 080-01008 05/01/91-04/30/96	Support for Imaging Research	Du Pont	\$124,444	\$31,111	\$155,555	\$37,464	\$149,857	\$37,464	\$37,464	\$187,322

PRINCIPAL INVESTIGATOR Grant Number	TITLE OF PROJECT	FUNDING SOURCE	TOTAL DIRECT COSTS		TOTAL INDIRECT COSTS		TOTAL INCOME	ACTUAL DIRECT EXPENSES		ACTUAL INDIRECT EXPENSES		TOTAL EXPENSES
			FY'95	FY'95	FY'95	FY'95		FY'95	FY'95	FY'95	FY'95	
	Total grant period		\$50,000	\$3,680	\$53,680	\$11,795	\$879	\$12,674				
Liu, J.B. 080-04704 09/30/95-09/29/96	Tumor Evaluation by 2D and 3D Endoluminal Ultrasound	NIH 1 KO8 CA63494-01										
Mitchell, D. 080-08601 06/03/94-11/01/94	A Multicenter, Double-Blind, Multidose, Within Patient Study to Evaluate the Safety, Tolerance, and Efficacy of MP-1177/10 Injection in MRI of the Liver	Mallinckrodt Medical	\$16,512	\$4,128	\$20,640	\$20,431	\$5,160	\$25,591				
Mitchell, D. 080-08661 03/01/95-02/29/96	A Phase II Safety & Efficacy Investigation of Code 7227 as a Magnetic Resonance Agent for Imaging the Liver and Spleen	Advanced Magnetics	\$41,933	\$10,483	\$52,416	\$31,946	\$7,986	\$39,932				
Mitchell, D. 080-01701 02/08/96-10/31/96	A Phase II, Dose-Ranging and Comparative Study of the Safety and Efficacy of Gadobenate Dimeglumine in MRI in Patients with Focal Liver Lesions	Bracco Diagnostics	\$33,459	\$8,365	\$41,824	\$0	\$0	\$0				
Mitchell, D. 080-01916 05/01/96-04/30/97	An Open-Label Binational Multicenter Study of SH U 555 A Injection Using Single Intravenous Injection in Subjects with Known Focal Liver Lesions	Berlex Labs	\$9,247	\$2,312	\$11,559	\$182	\$46	\$228				

PRINCIPAL INVESTIGATOR Grant Number	TITLE OF PROJECT	FUNDING SOURCE	TOTAL DIRECT COSTS		TOTAL INDIRECT COSTS		TOTAL INCOME		ACTUAL DIRECT EXPENSES		ACTUAL INDIRECT EXPENSES		TOTAL EXPENSES FY'95
			FY'95	FY'95	FY'95	FY'95	FY'95	FY'95	FY'95	FY'95	FY'95	FY'95	
Schweitzer, M. 080-01704	A Multicenter, Double-Blind, Multidose, Within-Patient Study to Evaluate the Safety, Tolerance, and Efficacy of MP1177/10 in MRI of the Musculoskeletal System	Mallinckrodt Medical	\$24,187	\$6,047	\$30,234	\$488	\$122	\$610					
Thakur, M. 080-05711 (Subcontract)	Pharmacokinetics of Recserpins	NIH 1 R43 AI38659-01 (Lexin)	\$19,760	\$13,240	\$33,000	\$18,646	\$12,493	\$31,139					
Thakur, M. 080-05337	Novel Antibody Conjugates for Enhanced Tumor Uptake	DOE DE-FG02-92ER61485	\$59,880	\$40,120	\$100,000	\$55,530	\$36,677	\$92,207					
Thakur, M. 080-08371	Imaging Intestinal Adenocarcinoma with Tc-99m	American Cancer Society	\$60,000	\$15,000	\$75,000	\$60,000	\$15,000	\$75,000					
07/01/95-06/30/96	Vasoactive Intestinal Peptide												
TOTAL ACTIVITY			\$1,672,749	\$452,274	\$2,125,023	\$1,170,995	\$287,972	\$1,458,968					