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Department of Radiology-Annual Report-July 1, 1994 to June 30, 1995

David C. Levin
Thomas Jefferson University

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Thomas
Jefferson
University

Jefferson
Medical
College

DEPARTMENT OF RADIOLOGY

ANNUAL REPORT

JULY 1, 1994 - JUNE 30, 1995

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

1994/95

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	Chan Park, 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	George W. Gross, M.D.
Quality Assurance Committee	Paul W. Spirn, M.D.
Computer Committee	Gary S. Shaber, M.D.
Contrast Committee	Geoffrey A. Gardiner, M.D.

DEPARTMENT FULL TIME FACULTY - 1994-95

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 Professors

Stephen Karasick, M.D.
Mark M. Mishkin, M.D.

Associate Professors

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.
Mark E. Schweitzer, M.D.
Kevin L. Sullivan, M.D.

Clinical Associate Professor

Paul W. Spirn, M.D.
Joseph Rosen, M.D.

Research Associate Professor

P. Macke Consigny, Ph.D.

Assistant Professors

Archibald A. Alexander, M.D.
Joseph Bonn, M.D.
Emily F. Conant, M.D.
Diane M. Deely, 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.
Eric K. Outwater, M.D.
Catherine W. Piccoli, M.D.
Ana Salazar, M.D.
Marcelle J. Shapiro, M.D.
Lisa M. Tartaglino, M.D.
James J. Zhang, Ph.D.

Clinical Assistant Professors

Levon Nazarian, M.D.
Norman Ristin, M.D.
Sharon R. Segal, D.O.
Lisa M. Tartaglino, M.D.
Terri Tuckman, M.D.
Elaine Wolk, M.D.

Research Assistant Professors

Ji-Bin Liu, 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.

DEPARTMENT OF RADIOLOGY

David C. Levin, M.D., Chairman

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

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 1994-95

GENERAL DIAGNOSTIC RADIOLOGY
(incorporating pulmonary,
skeletal, gastrointestinal, and
genitourinary radiology).

Directed by Gary Shaber, M.D.

Drs. Emily Conant, Diane Deely, George Gross,
Cindy Isaacson, David Karasick, Stephen
Karasick, Anna Lev-Toaff, Norman Ristin,
Joseph Rosen, 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, Marcelle Shapiro, Kevin
Sullivan

NEURORADIOLOGY/ENT
RADIOLOGY

Directed by

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

Drs. Adam Flanders, David Friedman,
Mark Mishkin, 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, Eric Outwater,
Laurence Needleman, 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, Emily Conant,

MAGNETIC RESONANCE IMAGING

Directed by Donald Mitchell, M.D.

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

NUCLEAR MEDICINE

Directed by Chan Park, M.D.

Drs. Charles Intenzo, Sung Kim

RADIOLOGICAL PHYSICS

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

RADIOCHEMISTRY

Dr. Matthew Thakur

HEALTH SERVICES RESEARCH

Dr. Claire Spettell

PHYSIOLOGICAL RESEARCH

Dr. Macke Consigny

DEPARTMENT OF RADIOLOGY
RESIDENTS/FELLOWS
1994-1995

RESIDENTS

Adam Fisher, M.D., Chief Resident
Charul Saini, M.D., Chief Resident

FIRST 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

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

SECOND 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

Eric W. Emig, M.D.
Victoria Kong Endo, M.D.
Robert E. Epstein, M.D.
William B. Morrison, M.D.

NUCLEAR MEDICINE

Michael D. Richard, M.D.
Chinh D. Phan, M.D.

FELLOWS

ULTRASOUND/CT/MRI

Michael R. Carroll, III, M.D.
Eli F. Dweck, M.D.
David S. Leder, M.D.
Ellen Lee, M.D.
Stuart H. J. Mansfield, M.D.
Linda Nan-Young Schmucker, M.D.
Kim M. Wilson, M.D.
Corinne B. Winston, M.D.

NEURO/MRI

Bradford A. Bottger, M.D.
James T. Tsatalis, M.D.

**CARDIOVASCULAR/
INTERVENTIONAL**

Jorge E. Arsuaga, M.D.
Mark J. Garcia, M.D.
Rajesh I. Patel, M.D.

NEURORADIOLOGY/ENT

Deborah M. Ancona-Schultz, M.D.
Francisco A. DeLara, M.D.
David DiPaolo, M.D.
James P. Elder, Jr., M.D.
William Dakai Ko, M.D.
Robert J. Rapoport, M.D.

BREAST IMAGING

Jeannete G. Greer, M.D.

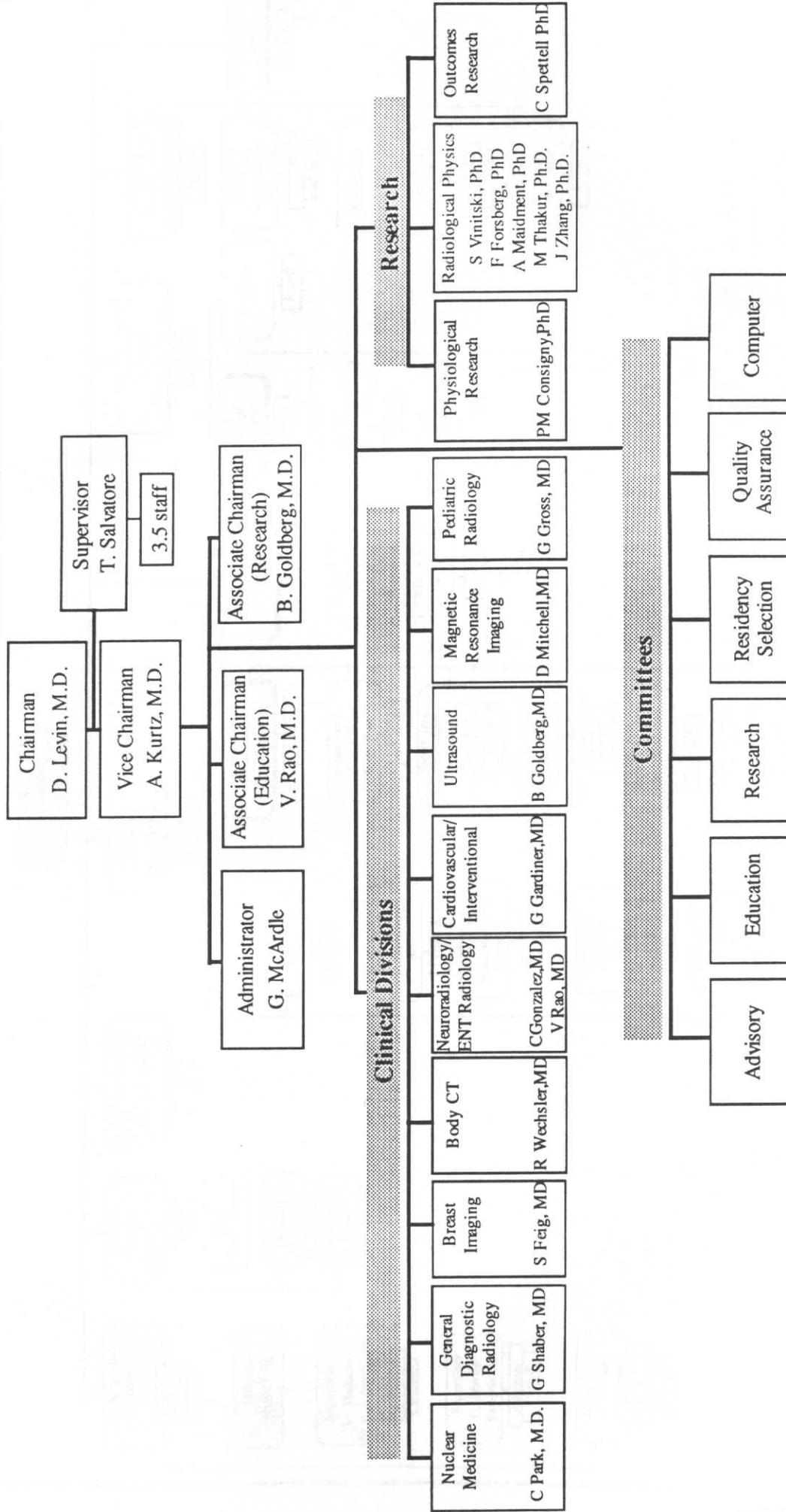
MUSCULOSKELETAL

Patrick Liu, M.D.

MRI

Joseph F. Mammone, M.D.

Department of Radiology



STATE OF THE DEPARTMENT, 1994-95

David C. Levin, M.D.

I am pleased to report a very successful year for the department of radiology. Healthy growth in our clinical practice occurred on campus. Growth was especially strong in neuroradiology/ENT radiology, body MRI, body CT, and CVIR. A number of completely new clinical operations commenced, as will be detailed below. Our research programs also continued to grow, most importantly in the area of outside grant funding and new grant submissions. Our teaching programs remained successful at all levels. This report will be divided into the following sections: (1) Clinical Activities During the Past Year, (2) Planned Clinical Programs for Next Year, (3) Clinical Weaknesses, (4) Research Accomplishments During the Past Year, (5) Research Plans for 1995-96, (6) Research Weaknesses, (7) Opportunities for Extramural Funding, (8) Affiliations and Interdepartmental Activities, (9) Department Administration, (10) Faculty Evaluation, (11) Department Goals, and (12) Issues for the College and Hospital. Immediately following, Dr. Vijay Rao, Associate Chairperson for Education has written her education report for the past year. I would also like to acknowledge the outstanding contributions of Ms. Judy Dubbs in compiling this annual report of the department of radiology. Aside from my state-of-the-department report and the educational report by Dr. Rao, most of the detailed lists summarizing our activities have been painstakingly put together by Ms. Dubbs.

CLINICAL ACTIVITIES DURING THE PAST YEAR

MRI - Body MRI continued to grow rapidly, as it has during the past several years. Procedure volume was up by 21%. This healthy growth is a tribute to all members of the division. As a result of Dr. Eric Outwater's recent research, new clinical indications for MRI in the evaluation of female pelvic diseases have become apparent. He also deserves credit for having developed his T2-weighted MR cholangiography sequences which have led to an increase in clinical demands for these studies. Dr. Mark Schweitzer has become one of the recognized leaders in musculoskeletal MRI and has built very close ties with Jefferson orthopedic surgeons. His exceptional research productivity has been a major factor in this regard. Dr. Don Mitchell continues to expand our knowledge in MRI of the liver, pancreas and adrenals. Dr. Cathy Piccoli is leading our effort in breast MRI and has now built up a significant experience. The assistance of Simon Vinitski, Ph.D. has been most valuable. He has used his technological expertise to optimize many of our imaging techniques in MR. At the very end of the academic year, our new TME MRI unit in Bala Cynwyd opened. This is the fifth unit operated by our department, giving us one of the largest clinical MRI operations in the country. With the installation of an additional 5X platform, new array processors and surface coils, all three of our on-campus MRI units are at state-of-the-art levels in terms of quality and speed.

Ultrasound - We were pleased that after several years of flat procedure volume, growth resumed in ultrasound, primarily in the vascular lab and the COB. The work of Dr. Archie Alexander in endorectal ultrasound has proven of great value in staging rectal carcinoma and evaluating functional rectal disorders. There is now such demand for these studies that we will be expanding our scheduling of them in the near future. Interventional ultrasound has continued to grow, and the leadership of Dr. Rick Feld in this area has been a major factor. Many procedures formerly requiring surgery are now performed percutaneously under ultrasound guidance, including thoracentesis, paracentesis, liver biopsy, thyroid biopsy, retroperitoneal biopsy, compression repair of pseudoaneurysms, aspiration of breast and other cysts, aspiration of abdominal or pelvic fluid collections, and abscess drainages. Intraoperative ultrasound is being increasingly relied upon by Jefferson surgeons during operative procedures of the liver, pancreas and brain. Laparoscopic ultrasound is another new area of involvement for this division, which, as always,

is leading the way worldwide in finding new medical applications of the technology. Largely because of the reputation of our ultrasound division, DuPont installed a prototype ultrasound image transmission system in our department, at no cost to Jefferson. This interesting new technology eliminates personnel time spent waiting for access to a darkroom and improves both quality and consistency of ultrasound images. In addition, the system provides a centralized color printing facility for color Doppler images, reducing the cost of maintaining color printers mounted on individual scanners. The most important benefit of the system has been to permit us to maintain and improve the quality of ultrasound services despite downsizing of the technical staff.

CT - The body CT division also continued to see substantial growth, with an overall increase in procedure volume of 18.7%. CT radiologists have begun inserting indwelling lumbar sympathetic plexus catheters for instillation of anesthetic agents as treatment for reflex sympathetic dystrophy. The technique appears to have some promise in the treatment of this debilitating disease. Hypogastric plexus nerve blocks are now also being done under CT guidance, and this procedure is felt to be useful for pelvic pain due to endometriosis and other conditions. CT of the foot and ankle (and to some extent other skeletal areas as well) has proven to be of great clinical value. Our CT scanner on 10 Main was upgraded to incorporate helical technology, and now all three of our CT units have this important capability.

Nuclear Medicine - One of our most important endeavors this past year has been the incorporation of the division of nuclear medicine into the department of radiology. We have begun the process of merging their operation into that of the rest of the department, including reporting, information management, archiving, scheduling, billing, and other logistical aspects of the practice of nuclear medicine. This will go on for some time to come. Dr. Thakur's laboratory has moved to Jefferson Alumni Hall, and this enabled us to completely renovate the office suite for the nuclear medicine faculty members on 8 Main. Clinically, the nuclear medicine group has begun evaluating brain blood flow in children with pervasive development disorders, speeded up the reading of myocardial perfusion scans with phoned reports on all cases, begun imaging neuroendocrine tumors with In-111 Octreoscan (a polypeptide analog of somatostatin), and begun image fusion of functional SPECT brain scans with MRI or CT scans. The latter technique has been developed by Dr. Zhang. We were able to re-establish a better working relationship with the division of endocrinology. We are also working closely with the division of cardiology in an effort to improve cardiac nuclear medicine services in the stress lab. Peggy Straub has been hired as the new coordinator of that lab. She will report to Carol Williams and we anticipate that Ms. Straub will be able to improve operating efficiency and enable us to schedule more patients. At the present time, stress thallium perfusion imaging is one of the few clinical areas of the department that is not fully utilized. Steps have been taken to improve image quality of nuclear scans in areas like myocardial perfusion, MUGA, parathyroid scans and renal GFR studies. One important expansion of nuclear medicine was their undertaking of a contract with Nuclear Imaging Systems, Inc. (NIS) for overreading of outside cardiac nuclear scans performed in mobile facilities owned by that company. This has brought in significant additional professional revenues.

Cardiovascular/Interventional Radiology - The CVIR division is another area of the department that has experienced significant growth this year, with a procedure volume increase of 14%. They have begun treating thrombosed dialysis shunts using percutaneous techniques (both thrombolysis and balloon angioplasty). They have also greatly increased their involvement in percutaneous placement of venous access lines. During the past year, the use of upper arm implanted ports for permanent venous access increased 153%, while the placement of upper arm peripherally inserted central catheters (PICCs) for long term venous access increased by 79%.

Neuroradiology/ENT radiology - One of our major endeavors of the past year was assuming the responsibility for clinical coverage of radiology services at the Wills Eye Hospital. This is a joint venture, in collaboration with the department of radiology at Pennsylvania Hospital. I am

pleased to report that this collaboration has gone very well and I have received good feedback from the ophthalmologists and neurosurgeons at Wills, as well as the Wills Eye Hospital administration. This required a tremendous effort on the part of our neuro/ENT division, and I give all six of that faculty group great credit for their diligence, initiative and willingness to assume the extra workload. Our involvement at Wills is undoubtedly going to provide a major boost to our clinical, research and teaching missions in neuroradiology/ENT radiology. At the moment, a new angiography room and helical CT scanner are in operation at Wills, and we have just received word that the CON for a new MRI unit was approved. The neuro/ENT division also, of course, will have major responsibility at the new TME/Bala MRI site. In our on-campus operations, neuro and head and neck imaging were up significantly (both in MRI and CT). Neuro MRI grew by 16.6% and ENT MRI by 21.4% compared with last year.

General Diagnostic Radiology - Dr. Gary Shaber became director of the general diagnostic radiology division this past year and has done an excellent job. The division has assumed major new clinical responsibilities in several areas. With the departures of Drs. Joseph Rosen and Norman Ristin, they assumed responsibility for reading all plain films performed at the Ford Road Campus (FRC). Plain film radiography is by far the greatest bulk of the clinical work at the FRC. A new contract also commenced with Mediq, Inc., a mobile x-ray company which performs portable films in nursing homes and other non-hospital facilities. Our general diagnostic division is now providing interpretations of some of these studies, after working out some rather complex logistical arrangements. Mediq is a large company, and we are looking to expand our involvement with them. Within the division itself, a new digital fluoroscopy unit was installed in Core 3, replacing a very old and unreliable unit. Digital fluoroscopy offers a number of potential advantages in performing barium studies, compared with the older screen-film x-ray techniques.

Breast Imaging Center - After considerable planning and much anticipation, we opened our mammography screening center in the COB in December 1994. This has provided badly needed relief of the clinical overload that previously existed at the Breast Imaging Center. Although we had been worried about possible patient dissatisfaction because of lack of personal service at the screening center (a radiologist is not on site there), we have been pleasantly surprised by the positive feedback from patients. They especially appreciate the fact that studies are performed right on schedule and take a very short time. We are already at the point where approximately 40 screening studies are done per day, while the Breast Imaging Center itself is performing 80 of the more complex "problem-solving" studies daily. As a result of the increased capacity provided by the screening center, our overall breast imaging volume has once again begun to rise (prior to this year it had been flat for several years because the capacity of the BIC had been reached). Volume this past year increased 10.4%. We were fortunate in being able to add a considerable amount of needed new mammography equipment during the past year. This includes four new Bennett Contour mammography units at the BIC, and one more of these units plus a new LoRad unit at the screening center. In addition, an advanced ATL HDI ultrasound unit was installed at the BIC, replacing a much older and less effective ultrasound machine. I am somewhat concerned that our volume of stereotactic fine needle aspiration and core biopsy procedures is not growing faster than it is. It appears that there is some resistance to this technique among surgeons, despite the fact that it is clearly a less invasive and more cost effective way of diagnosing women with breast disease. One new procedure that is gaining acceptance is the use of intraoperative ultrasound guidance during removal of free silicone which has leaked out of disrupted silicone implants.

PLANNED CLINICAL PROGRAMS FOR NEXT YEAR

As always, it is important for a technologically oriented specialty like radiology to stay abreast of new developments in the field. We greatly appreciate the support of the hospital administration for our capital budget requests. We also appreciate the opportunity to work with TME, Inc. This has been an excellent relationship which has greatly benefited the department.

In **MRI**, the new TME unit has opened in Bala Cynwyd. This will enable many Jefferson patients living in the northwestern suburbs to have their MRI studies at that site. This will not only be a convenience for them but will enable us to reduce our MRI backlog at the COB, which is currently about eight working days for daytime slots. We have already begun discussions with the hospital administration and TME about the possibility of converting Bala to a multimodality imaging center. Discussions are also in progress about the possibility of a similar center in South Jersey. In the clinical area, Dr. Mark Schweitzer will expand the use of dynamic MRI in imaging musculoskeletal disorders. We hope to obtain our first echo planar imaging hardware/software package this year. This will enable us to do faster MRI scans with better spatial resolution and improve our performance of MR angiography and real-time MR imaging. The **Ultrasound** division will continue to expand the use of endoluminal techniques. One of the interesting new areas (a collaboration between Drs. Goldberg and Steiner) is the use of endoluminal ultrasound in both bronchoscopy and thoracoscopy. Dr. Lev-Toaff and others will use sonohysterography to evaluate endometrial and tubal diseases. Further testing of the DuPont image transmission system will be conducted. Image work stations will be added to provide rapid and convenient access, and possibly to allow us to read and store ultrasound image information digitally and thereby reduce our usage of film. The **Body CT** division will expand its use of nerve blocks in various areas, using catheters inserted percutaneously under CT guidance. Due to rapid expansion in CT volume over the last several years and the considerable amount of consulting the division does every day with clinicians from other services, it has become necessary to enlarge the CT reading room. We hope to accomplish this within the coming year. It will require the relocation of one office and the Franklin head unit.

In **Nuclear Medicine**, we will continue our efforts to improve the operation of the stress lab and get our number of cardiac nuclear medicine scans up to capacity, which is about 20-21 studies per day. We will need the cooperation of the division of cardiology in accomplishing this. We hope to complete the integration of all nuclear medicine operations into the department of radiology, although it may take more than one additional year. We will expand hours of operation somewhat to accommodate delayed nuclear scans so that when needed, these studies can be completed during the evenings or on weekends. This will allow us to report the results more expeditiously. In **CVIR**, the long-awaited renovations will commence on 5 Gibbon. This will give us a third procedure room and also allow us to greatly improve our care of conscious-sedation patients. The **Neuroradiology/ENT Radiology** division will in all likelihood see a considerable expansion of their clinical services at both Wills Eye Hospital and TME Bala. The new CT scanner at Wills will be augmented by the addition of a new MRI unit there. We anticipate that the two will attract a large volume of referrals from the Wills ophthalmologists and the Wills neurosurgical team; many of these referrals are probably lost to outside hospitals and imaging centers at the present time. Clinically, the neuro division will be participating in a protocol for transcatheter intracranial thrombolysis in patients with acute strokes.

In the **General Diagnostic Radiology** division, we are developing a radiology consult service, with the goal of trying to reduce or totally eliminate unnecessary imaging. The initial thrust is a collaboration with the department of family medicine and will focus upon their large outpatient population. Family medicine physicians will be asked to consult with radiologists before ordering certain types of imaging studies on patients with certain diseases. This is expected to expedite the workup of these patients and reduce the number of imaging examinations they undergo. The consult service will operate under the auspices of the senior radiology residents rotating through the emergency department and will be under the supervision of Drs. Robert Steiner and Claire Spettell. Clinically, Dr. Mark Schweitzer has some interesting ideas for new imaging-guided percutaneous interventions in the treatment of musculoskeletal disorders. These include the treatment of bony metastases and adhesive capsulitis. The general diagnostic division will be switching to a new higher resolution DuPont film-screen system. In the GI radiology area, they will start using the new digital fluoroscopic unit, which should speed up

barium studies. We hope to see an increase in barium enemas as a result of the recent analysis by the Congressional Office of Technology Assessment (OTA) which found that the most cost-effective way to screen for colon cancer is a combination of the double contrast barium enema, flexible sigmoidoscopy, and the fecal occult blood test. It is gratifying to see that someone has finally recognized that the barium enema is preferable to colonoscopy for this purpose. The BE provides the same sensitivity and specificity as does colonoscopy for detecting lesions greater than 1.0 cm, but at one-quarter the cost. The general diagnostic division will also probably be expanding its participation in reading of Mediq cases and supporting the radiology operation at the Ford Road Campus.

At the **Breast Imaging Center** we plan to improve our computer operations to streamline such things as patient flow, obtaining management data, getting follow-up visits scheduled, and reporting mammographic results. For the latter purpose, Mr. Charles Lockhard plans to develop a touch screen reporting system. Last but not least, there will be a considerable change in **Pediatric Radiology** with the departure of Dr. George Gross to become chairman of the department of medical imaging at the A. I. duPont Institute (AIDI). Under a plan that he and I have developed, the AIDI radiologists will assume coverage of all aspects of pediatric radiology at TJUH. This plan will be a cost-effective approach for both our departments, and I give Dr. Gross most of the credit for conceiving it. He has been a stalwart of our department for almost nine years, and I look forward to working closely with him and his AIDI colleagues in future years.

CLINICAL WEAKNESSES

In this section of my report last year, I commented upon overcrowding and the lack of needed facilities in two areas of the department--the CVIR division and the breast imaging center. With the opening of the mammography screening center, the problem in the BIC has been totally alleviated. While the CVIR problem has not yet been solved, definite plans are now underway to start the needed renovations next spring. It is important that we be able to provide Jefferson patients with virtually immediate access to interventional radiological procedures on demand, and the third room is badly needed to help us accomplish this. Currently, CVIR also lacks facilities to see patients for follow-up visits after interventional procedures, as well as to properly monitor patients under conscious sedation.

I also commented last year that there has been a significant reduction in the number of personnel in our department over the last three years, and that I felt we had reached the limit of our ability to cut. As an important source of revenue to the hospital, we obviously must have sufficient staff to provide service to patients. If future cuts are needed, hopefully they will come from non-revenue-producing departments in the institution. This is particularly true in light of the 7% increase in procedure volume that occurred this past year. We aren't asking for more personnel but we do need to hold the line where we are now. I might add that the same holds true in terms of physician staffing. At the end of June 1994 (a year ago) two faculty positions were eliminated. Aside from this, Dr. Halpern reduced his clinical coverage this past year in accordance with his GERRAF award and that will continue for another year. Dr. Schweitzer will reduce his clinical coverage this year in accordance with his RSNA Scholar Award. Meanwhile, Drs. Rosen and Ristin left the Ford Road Campus. The rest of our department assumed extra coverage there. The neuroradiologists assumed extra coverage at Wills Eye Hospital, and there were a number of other expansions of our clinical practice as detailed earlier. All of this adds up to a situation where our faculty is now spread quite thin. It will be a difficult challenge to maintain excellence in all three of our primary academic missions--clinical practice, teaching and research. I feel everyone in the department is highly motivated, and hopefully this weakness will be minimized.

Another clinical weakness pertains to our radiology information system. The mainframe computer is old, somewhat slow, and overburdened. It is important that a new computer be

acquired to satisfactorily handle all the data needed to manage the department efficiently. A request for a new computer has been included in this year's capital budget request, but we have not yet heard as of this writing whether it will be approved.

RESEARCH ACCOMPLISHMENTS DURING THE PAST YEAR

Our department can be proud of its research accomplishments during the 1994-95 academic year. As shown in Appendix A, a total of 57 separate grants were in force at some time during the course of the year - 9 from the NIH, 11 from foundations or non-profit medical organizations, and 37 industry-supported clinical trials. The current year total value of these grants (direct plus indirect) was \$3,724,000. This represents an increase of about \$900,000 over the previous year. These grants provided approximately \$756,000 in indirect costs to Jefferson Medical College. The most active area of growth was in industrially-supported clinical trials, where we saw an additional \$600,000 in total costs added to our level of support compared with last year. Dean Gonnella has identified clinical trials as an important area of potential growth in outside funding, and it is gratifying that our department was so successful in obtaining this kind of support.

The annual meeting of the Radiological Society of North America (RSNA), the world's largest medical meeting, is another good benchmark of our research productivity. At the 1994 RSNA meeting, there were 69 Jefferson presentations - 49 scientific papers and 20 refresher courses, special focus presentations, or scientific exhibits. The RSNA is a highly competitive meeting, and the large number of Jefferson presentations (the largest we've ever had) attests to the quality of our research program.

We can be particularly proud of several members of the department for honors they received in research. Mark Schweitzer, M.D. won the coveted RSNA Scholar Award for his project entitled "The Cost-Effectiveness of MRI for the Diagnosis, Evaluation and Management of Osteomyelitis". This is one of the most prestigious awards a young radiologist can attain, and is the result of a nationwide competition. Three years ago, another of our faculty members, Dr. Adam Flanders, also won this award. One year ago, Dr. Ethan Halpern won another coveted national award, the AUR/General Electric Radiology Research Academic Fellowship (GERRAF) award. This past year was the first of two years of support for Dr. Halpern's research under this award. Needless to say, I'm delighted to see three of our young faculty members win such prestigious awards within such a short period of time. The two other individuals who deserve our congratulations are two of our residents, Drs. William Morrison and Timothy Murphy. Last year for the first time, the RSNA established a resident award in each of the twelve categories on its annual program. The award was given to the best resident paper in that category. Since papers are submitted to the RSNA from all over the world, it was a pleasant surprise to have Jefferson residents win in not one but two categories. Dr. Morrison won in the musculoskeletal category and Dr. Murphy in the breast imaging category.

The MRI division continued its exceptional record of research productivity. During the past year, Dr. Mark Schweitzer published 22 papers in the peer-review medical literature. On the vast majority of these, he was either the senior author or served as mentor and second author to one of our residents or fellows who was senior author. He was also first or second author on no less than 30 abstracts that have been submitted for this year's RSNA meeting. Much of his work focuses on MRI of degenerative or traumatic changes of the ankle, knee and shoulder. He is probably the most active researcher in the country right now in musculoskeletal MRI. Dr. Don Mitchell authored 23 papers or book chapters during the past year. His research spans the technical aspects of MRI, the use of contrast agents, and the MRI findings in diseases of the liver, adrenals, pancreas, and pelvic organs. Dr. Eric Outwater published his research on the use of endorectal coil MRI in diagnosing capsular penetration by prostate carcinoma, as well as the use of opposed

phase gradient echo sequences to differentiate benign from malignant adrenal masses. He also continued his research on the MRI findings in diseases of the female pelvis. Dr. Cathy Piccoli continued her work on breast MRI. The entire division participated in a series of commercially funded trials of oral and intravenous MRI contrast agents. In **Body CT**, Dr. Richard Wechsler compared CT and MRI in the detection and characterization of tarsal coalition. Dr. Ethan Halpern completed a project on threshold selection for renal CT angiography shaded surface display, and continued other related work for his GERRAF Award. In **Ultrasound**, Drs. Levon Nazarian and Ethan Halpern each completed studies of different aspects of fetal growth rates. Dr. Alfred Kurtz continued his work as principal investigator on his NIH grant to study detection and staging of ovarian cancer. Dr. Rick Feld recently completed a study of the role of laparoscopic liver sonography on surgical decision-making. He and several colleagues in the CVIR division published a study on the treatment of pelvic abscesses, focusing upon the clinical efficacy of transvaginal sonographically-guided aspiration and drainage. Drs. Barry Goldberg and Ji-Bin Liu collaborated with several members of the department of urology on studies demonstrating the utility of endoluminal sonography in evaluation of a variety of genitourinary tract disorders. Dr. Goldberg also published papers on ultrasound-assisted bronchoscopy and ultrasound contrast agents. Dr. Anna Lev-Toaff studied the utility of a new oral contrast agent in improving sonographic visualization of pancreatic and gastric lesions. She also begun work on evaluating the efficacy of sonohysterography in endometrial and tubal disease. Dr. Archie Alexander continued his work on endoluminal ultrasound in staging of rectal carcinoma. With all this research productivity, it is clear that our ultrasound division has maintained its reputation as the premier group of its type in all of academic radiology.

In **Nuclear Medicine**, Dr. Sung Kim worked on localization of intracellular monoclonal antibodies specific for mycobacteria in experimentally induced pulmonary tuberculous lesions, and also on a phase III clinical trial of Tc-99m-P280 in the detection and localization of disorders characterized by platelet activation. Dr. Charles Intenzo participated in a multicenter trial of Enoxaparin 529 compared with heparin in the treatment of patients with deep vein thrombosis. In the **CVIR** division, Dr. Geoffrey Gardiner, Jr. deserves great credit for his continued diligent leadership of the industry-funded STAR Registry. This is a multicenter registry of percutaneous peripheral vascular interventions which includes 7 institutions. The enrollment phase of this registry began at the beginning of 1991 and was completed at the end of 1994. The registry enrolled 1838 patients with a total of 3550 lesions treated. Data analysis is now in progress. In **Neuroradiology/ENT Radiology**, Dr. David Friedman was lead author on an important paper just recently published in which 33 MRI centers in the Philadelphia area were rated for quality of their images and interpretations. A number of us in the department participated in this project, which was carried out in conjunction with Pennsylvania Blue Shield. It has already aroused considerable attention among national Blue Cross/Blue Shield groups. Dr. Friedman also published a study of the incidence of vertebral artery injury after acute cervical spine injury. Dr. Lisa Tartaglino studied the MRI findings in idiopathic acute transverse myelitis and spinal multiple sclerosis. In addition to her demanding responsibilities as our vice chairman for education, Dr. Vijay Rao was able to publish new findings on fast spin echo imaging of the temporomandibular joint. Dr. Carlos Gonzalez completed several projects with Dr. Simon Vinitski on use of 3-D segmentation techniques in brain MRI.

In the **General Diagnostic Radiology** division, Dr. Robert Steiner and others in the chest section continued their correlation of the radiologic findings and clinical outcomes in a large group of patients with bronchoalveolar cell carcinoma. Dr. Stephen Karasick published a study analyzing trends in usage of barium enema, colonoscopy, and sigmoidoscopy, using Pennsylvania Blue Shield data. In our **Breast Imaging Center**, Dr. Emily Conant gave several important abstracts at the 1994 RSNA meeting, one of which dealt with the relationship between mammographic screening intervals and breast cancer stage at presentation. This received widespread attention and was featured on national television and in a number of major magazines. Dr. Stephen Feig was a forceful spokesman on the controversial subject of screening mammography for women

between ages 40-49, and published several papers on this subject. In **Pediatric Radiology**, Dr. George Gross published interesting studies on the application of neural networks to assessing skeletal age, and on the radiographic appearance of liquid ventilation with perflubron during ECMO.

Our **Ph.D. scientists** were also very active in research. Mathew Thakur, Ph.D. has been a highly productive and well funded researcher for many years, and it is a pleasure to welcome him and James Zhang, Ph.D., M.D. to the department. Dr. Thakur is now completing a DOE grant on the role of biological response modifiers in enhancing tumor uptake of Tc-99m labeled monoclonal antibodies. In addition, he has two American Cancer Society grants and one industrial grant. This research has focused upon the use of radiolabeled peptides, such as a Tc-99m labeled somatostatin analog, for tumor localization. He has also done other work on the use of radiopharmaceuticals in various types of diseases. Macke Consigny, Ph.D. published several interesting papers on techniques of delivering drugs into the arterial wall. These efforts are directed toward reducing restenosis after balloon angioplasty. Simon Vinitzki, Ph.D. has continued his work on tissue segmentation in MRI, which I have been told by knowledgeable observers is now the best available. He has also developed the technique of multiple flip angle MR angiography and worked on such things as correcting imaging nonuniformity in high field MRI, "burst" fast magnetization transfer MRI for imaging arteries of the brain, and anisotropic diffusion type filters to improve lesion detectability. Andrew Maidment, Ph.D. reported the results of an analysis of signal propagation in optically-coupled detectors for digital mammography. He completed several projects relating to 3-D morphologic analysis of breast calcifications, which were funded in part by an RSNA seed grant. He also worked with investigators in the general diagnostic division on optimization of portable chest radiography. Flemming Forsberg, Ph.D. received funding for four separate industrial grants, with several others pending. These pertained mostly to the use of contrast agents in ultrasound. He also published an *in vitro* feasibility study on quantitative ultrasonic diagnosis of silicone breast implant rupture. He continued his work on nonstationary spectral analysis of ultrasound Doppler signals under a Whitaker Foundation grant, and also worked on color flow harmonic imaging. During this past academic year, Claire Spettell, Ph.D. joined us as director of health services and outcomes research. She has been an excellent addition to the faculty, having already become involved in a number of important projects. She began working on the SCVIR Transluminal Arterial Revascularization (STAR) registry, the multi-institutional registry which is headed by Dr. Geoffrey Gardiner, Jr. The registry had hit somewhat of a snag in entering cases, due to problems with the computer program. With Dr. Spettell's help, things smoothed out considerably and about 1100 cases were entered. She was also of great help to Dr. Mark Schweitzer in obtaining his RSNA Scholar Award. She helped Dr. Adam Flanders complete his work on MRI in quantification of the extent of spinal cord injury, and also helped plan a research project dealing with our new radiology consult service. For my part, I continued my interest and activities in health services research, and published a paper on utilization patterns of interventional procedures by radiologists and nonradiologists, using a large midwestern Medicare database from Athena Healthcare, Inc.

Departmental publications are listed later in this report. A total of 314 peer-reviewed papers, abstracts, or book chapters were published by Jefferson radiologists during the 1994-95 academic year.

RESEARCH PLANS FOR 1995-96

Appendix A lists not only our current active grants, but also our pending grants. At the moment, department investigators have seven grants pending with NIH or other federal agencies, three with foundations or non-profit medical organizations, and eleven with industrial sources. Of these 21 pending grants, seven have already been funded, but the funding does not commence until

sometime during the 1995-96 academic year. I am pleased with the determination shown by department investigators in grant submissions and the success that seven of them have already had. This will continue to be one of our highest priorities during the coming year. My thanks go to Judy Dubbs for her tireless and effective work in helping to put all these grant submissions together, for keeping us well-informed about potential funding sources, and for her fine work in administering radiology grants after they have been approved.

Aside from the pending grant proposals shown in Appendix A, there is a broad spectrum of other ideas "percolating" throughout the department almost continuously. We have a very research-oriented faculty which will continue to be productive both on externally and internally funded projects. Some of the research projects that are planned for the coming year are as follows:

In **MRI**, Dr. Schweitzer will begin work on his RSNA Scholar Award project on cost effectiveness of MRI in evaluation and management of osteomyelitis. He will also continue with numerous other projects he has begun relating to the MRI findings in traumatic or degenerative ankle, knee and shoulder disorders. Dr. Mitchell will continue his work on MRI techniques for distinguishing benign from malignant liver lesions, as well as his commercially-funded phase III trial of intravenous iron oxide as an MRI contrast agent. Dr. Eric Outwater will work on comparing MRI findings and morphologic observations in ovarian disease, comparison of CT and chemical shift MRI in adrenal lesions, the use of endorectal MRI in staging rectal carcinoma, and comparison of the efficacy of FSE and fast-STIR sequences for the detection of liver lesions. The **Body CT** division has noted occasional cases of incidental pulmonary emboli detected on helical CT scans of patients who are being studied for other medical conditions. They will investigate the frequency of this phenomenon and the effect of detection of patient management. They will continue their studies of mediastinal and interstitial pulmonary changes in limited and diffuse scleroderma, and will also investigate maximum intensity projection and shaded surface display techniques to produce 3-D images of the abdominal aorta and renal arteries. Dr. Ethan Halpern is working with Michael Albert, Ph.D. to develop an innovative new way of evaluating receiver operating characteristic (ROC) curves, using optimal operating points. In **Ultrasound**, several faculty members will study the potential of 3-D ultrasound imaging of the fetus. Dr. Kurtz will continue his NIH-funded research on detection and staging of ovarian cancer. Dr. Nazarian and several colleagues have made some very exciting discoveries in melanoma patients. Using ultrasound, they have detected unsuspected recurrent lesions very close to the primary site. This discovery could impact the way these patients are staged and surgically treated. Also, work will continue on the development of ultrasound contrast agents. A number of commercially-funded clinical trials of these agents are in progress.

In **Nuclear Medicine**, work will continue on Tc-99m-MIBI uptake in brain tumors and parathyroid lesions. Dr. Kim will use 3-D bone SPECT to attempt to elucidate the "failed back" syndrome. Dr. Intenzo will work on new approaches to diagnosing reflex sympathetic dystrophy. Dr. Park will study the use of radionuclides in breast disease. The **CVIR** division will use new computer software to allow quantitative analysis of stenoses before and after implantation of the Palmaz stent in superficial femoral artery lesions. They are the core lab for this clinical trial. Most of their other plans relate to STAR Registry projects. These include interobserver variability in measuring angioplasty results in peripheral arteries, causes and consequences of failure of peripheral angioplasty, and results of graft thrombolysis of infrainguinal arterial bypass grafts. Dr. Gardiner plans to seek an extension of industrial funding for this registry. They will also review their experience in procedures which combine intraoperative Palmaz stent placement in the iliac arteries with surgical infrainguinal bypass, and will also study the long term follow-up of Jefferson patients who have had iliac artery Palmaz stents. Working with Dr. Macke Consigny, they will begin animal research on the use of endovascular stent-grafts, a promising new approach to the treatment of aneurysms and stenoses.

A number of interesting projects are planned in **Neuroradiology/ENT Radiology**. Dr. Gonzalez will work with investigators in the department of neurology to study volumetric analysis of cerebral multiple sclerosis lesions using 3-D MRI segmentation. This is a technique perfected by Dr. Vinitiski which allows isolation of different tissues based on their signal characteristics with different pulse sequences. Dr. Rao will use this same technique to study cerebellopontine angle tumors. She will also use dynamic MRI to better differentiate tumor from surrounding nasopharyngeal tissues. Dr. Friedman will study MRI of non-neoplastic intramedullary spinal cord lesions and imaging of inflammatory lesions of the CNS. Dr. Tartaglino will study the combined sensitivity and specificity of MR angiography and Doppler ultrasound in detecting surgically correctable carotid stenosis. Dr. Flanders will complete the work he began as an RSNA Scholar, which focuses upon the relationship between MRI findings and functional recovery in spinal cord injury patients.

In the **General Diagnostic Radiology** division, Drs. Gary Shaber and Andrew Maidment will begin a research collaboration with the DuPont Corporation to evaluate their digital radiography system. This is an interesting new technology which uses photoconductor-based digital capture. Preliminary phantom studies suggest that it may produce x-ray images of much higher spatial resolution than can be obtained with other digital radiography systems that have been on the market for several years. The chest section will study the cost-effectiveness of chest x-rays taken in the emergency department in patients presenting with chest pain. In **Breast Imaging**, Dr. Feig will serve as lead Jefferson investigator on a multicenter NIH grant to develop and evaluate digital mammography. This grant has been delayed because the prototype digital mammography unit was not built on schedule by the manufacturer. However, we expect the unit to be delivered this fall, which will allow commencement of the major part of the planned trial. Dr. Feig is also a participant in the NIH RDOG trial of stereotactic fine needle aspiration biopsy and core biopsy of breast lesions detected by mammography. Dr. Conant will complete her work on relating the stage of breast cancers at diagnosis in women aged 40-49 to the interval between their screening mammograms (one year vs. two years). She will also continue some interesting work she has begun with Dr. Maidment on 3-D analysis of breast calcifications.

In the area of **Health Services Research**, Dr. Spettell plans to submit a grant to study the outcomes of peripheral vascular interventional procedures. She will continue work on the STAR Registry; data entry of initial procedure forms should be completed by this fall and statistical analysis of results will then begin. She will work with Dr. Schweitzer on his RSNA Scholar Award project on the cost-effectiveness of MRI in diagnosing and managing osteomyelitis. She, Dr. Rao, and I will study practice pattern variations in imaging between hospital and private office settings. We will also study the financial impact of MRI on overall national costs of imaging, using the 1993 Part B Medicare database.

Among our **basic science faculty**, I am pleased to note a wealth of interesting ideas for future research. Dr. Thakur, as noted in the previous section, has three pending grants with the NIH, DOE, and the American Cancer Society. In addition, he will work on breast, colorectal, prostate and brain tumor diagnosis. Dr. Vinitiski will continue his work on MRI segmentation, particularly as applied to multiple sclerosis, epilepsy, and brain tumors. He and Dr. Khalili from the department of microbiology and immunology are planning an NIH grant proposal on the development of an experimental animal model for treatment of brain tumors. Dr. Vinitiski and Dr. Gonzalez have submitted an NIH grant on regional analysis of MS lesions using 3-D tissue segmentation of MR images. Dr. Andrew Maidment will expand his research on 3-D morphologic analysis of breast calcifications. He plans on submitting a much larger grant proposal on this subject under the DOD breast imaging initiative. He will also play a primary role in our NIH-funded research on digital mammography, which should move into high gear with delivery of the equipment this fall. Dr. Flemming Forsberg will continue his research on nonstationary spectral analysis of ultrasound Doppler signals, under his Whitaker Foundation grant. He will also participate in developing 3-D ultrasound techniques. He will be submitting a

grant proposal under the DOD initiative on contrast enhanced 3-D ultrasound imaging of the breast. Dr. Zhang submitted a proposal to the American Heart Association on development of a computer program for automated quantitative analysis of myocardial SPECT. This program would be tested against visual analysis and coronary angiography. He will apply a similar approach to myocardial wall motion analysis, compared with echocardiography. Dr. Consigny has submitted a grant proposal to NIH to study re-endothelialization of arteries after angioplasty. He will work with a commercial manufacturer to develop a new multichannel balloon for delivering drugs directly into arterial walls. He will also study factors affecting detachment of endothelial cells by arterial shear stress.

RESEARCH WEAKNESSES

In general, I am very pleased with the breadth and depth of the research programs within the department of radiology. There are very few weaknesses to report. I am, however, concerned about several things.

We have a large research infrastructure in the department, consisting of a number of personnel, laboratory space, and equipment. The sole source of support for much of this infrastructure is the overage fund of the department of radiology. The overage fund, in turn, is primarily dependent upon professional revenues earned by the department. As reimbursements are ratcheted down by managed care companies, I have concerns about the long term solvency of the overage fund. If things ever got to the point where our research infrastructure could no longer be supported, our ability to attract outside funding would vanish. Hopefully this concern will never prove to be a serious impediment to our research program, but we obviously need to begin looking to other sources of support.

In a similar vein, I am still concerned that some of our Ph.D. scientists do not have outside funding from major federal or foundation sources. I have discussed this with the individuals involved and they are aware of the need to seek this type of funding.

In nuclear medicine, I am concerned that many of the clinical research publications from that division in recent years have been published in a single journal which is not generally considered to be of high quality. I have spoken to all members of the group and urged them to target their research for publication in the highest quality journals. I also continue to be concerned about the lack of quality, peer-reviewed research from our chest radiology section.

OPPORTUNITIES FOR EXTRAMURAL FUNDING

Grant proposals currently pending are shown in Appendix A. I feel that possibilities are present in several different areas. First, the Department of Defense recently announced a major initiative in breast imaging research. A group of department investigators has met with Judy Dubbs and I on several occasions to plan for this, and it appears that several proposals will be forthcoming for the September 1995 deadline. Second, Dr. Mathew Thakur has been very successful in obtaining outside funding in the past, and I feel that his area of expertise is a likely source of additional funding in the future. He is planning grant proposals to the DOE, NIH, and American Cancer Society; these will generally be in the area of evaluation of radiolabeled peptides and antisense molecules as radiopharmaceutical agents for diagnosis and therapy. Third, there is growing interest in the use of contrast agents in ultrasound, and I feel that additional possibilities for NIH funding exist in this area as well. Finally, in accordance with a suggestion recently made by Dean Gonnella, we will continue to seek industrial funding for clinical trials. As can be seen from the past year's list of industrial grants, we have been quite successful in getting this type of support in the past.

AFFILIATIONS AND INTERDEPARTMENTAL ACTIVITIES

Important developments occurred in our relationships with the radiology departments in two affiliated institutions. First, this past year marked the beginning of our collaboration with the department of radiology at Pennsylvania Hospital in providing radiology services at Wills Eye Hospital. This collaboration has worked out very well. Credit for this goes to the neuroradiology divisions of the two departments. Dr. Robert Campbell and I meet regularly with the administration at Wills Eye Hospital to continue trying to improve radiology operations there. A biplane angiography laboratory and a new CT scanner have opened at Wills during the past year, and the state recently approved a CON for a new MRI unit, which should be installed during the coming year. Despite some growing pains, the neuroradiologists have established excellent working relationships with the ophthalmologists and the neurosurgery group at Wills. These relationships have been largely in the clinical sphere so far, but some joint educational and research programs are planned for the coming year. The second development is our new relationship with the department of medical imaging at the A.I. DuPont Institute. Dr. George Gross, head of pediatric radiology here at TJUH for the last eight years, has now been appointed chairman of the department at AIDI. He and I have worked out an agreement whereby all pediatric radiology services at Jefferson will be provided by his group. From the point of view of cost-effectiveness, this was a favorable development for both our departments.

By the very nature of radiology, our department relates to almost every other clinical department in the institution. We have many joint teaching and research activities with these other departments. Just a few examples of these relationships are as follows: The radiology consult service described earlier will be a collaboration between the departments of radiology and family medicine. Initially this project will have an important research component, wherein some family medicine patients receive prior consults from radiology before having certain types of imaging studies, while other patients have their studies ordered directly by family medicine physicians without prior consultation. The aim of this project is to see whether the consult service reduces utilization of imaging. Dr. Matthew Thakur is collaborating with Dr. David Andrews of the department of neurosurgery in a study of I-123 labeled IUDR as an imaging agent for gliomas. Dr. Archie Alexander and others continue to collaborate with scientists at the Jefferson Cancer Institute in NIH grant proposals. Dr. Simon Vinitiski and Dr. Khalili of the department of microbiology and immunology are also working together on grant proposals, as noted earlier. Our interventional radiology team has developed a close working relationship with the division of vascular surgery, in which our interventional radiologists perform intraoperative Palmaz stent placement in iliac arteries in the operating room, while at the same time the vascular surgeons perform infrainguinal bypass grafting. This is a cost-effective way of performing two distinctly different procedures on the same patient at the same time. Dr. Adam Flanders is working with investigators from the departments of neurosurgery and radiation oncology on an RTOG grant comparing whole brain irradiation with vs. without stereotactic radiosurgery boost in patients with unresected brain metastases. Drs. Emily Conant, Cathy Piccoli, and Flemming Forsberg have worked with Jefferson plastic surgeons in the operating room using intraoperative ultrasound guidance in the removal of free silicone from ruptured breast implants. Dr. Conant has submitted this experience for publication. Dr. Schweitzer has developed a close and mutually supportive relationship with a number of Jefferson orthopedic surgeons both in clinical care and research. Many other examples of collaboration in research with other departments can be found within our list of publications.

DEPARTMENT ADMINISTRATION

Our department administrator, Mr. George McArdle, and his team have once again made exceptional contributions to Thomas Jefferson University Hospital and the department of radiology. His dedication, integrity, and capacity for hard work are an inspiration for everyone

who works with him. Some of his accomplishments during the past year are as follows: (1) Amalgamation of the division of nuclear medicine into the department of radiology; (2) Oversight of a major renovation of the physician office space in nuclear medicine; (3) Administrative reorganization of our neuroradiology operation at the Wills Eye Hospital; (4) Oversight of the difficult transition and downsizing of the radiology department at the Ford Road Campus to a much smaller operation; (5) Opening of the mammography screening center in the COB; (6) Collaboration with TME, Inc. in opening the new MRI facility in Bala; (7) Upgrade of the CT scanner on 10 Main to helical technology; (8) Major renovations to the body MRI and neuroradiology reading areas and conference space on Main 10; (9) Resolved a number of logistical problems in connection with our new contract with Mediq; (10) Replacement of our oldest fluoroscopy room with a new digital fluoroscopy unit on 3 Gibbon; (11) Developed an incentive formula for our marketing representative; (12) Developed and instituted a plan to incorporate Biomedical Engineering into our equipment service structure; (13) Developed a program for monitoring utilization and revenues under our new capitation contracts; (14) Helped us consummate the agreement under which the department is participating in the Pennsylvania Radiology MSO.

In addition to all of these responsibilities, Mr. McArdle still found time to serve on institutional committees evaluating computer hardware and software for the new hospital and practice plan management information systems.

Mr. McArdle never ceases his efforts to reduce operating costs wherever possible. As just one example, during the past year, our senior technical manager on 3 Gibbon resigned to spend more time with her young children. Mr. McArdle promoted Mr. Richard Blob up from within the ranks to replace her. However, the position vacated by Mr. Blob was then eliminated and the responsibilities of that position were assumed by other senior administrative personnel. We have one of the leanest department administrations I know of among all academic radiology departments, yet under Mr. McArdle's leadership it functions smoothly and effectively and with a high level of morale.

Our departmental administration is truly in excellent hands!

FACULTY EVALUATION

We have what I feel is a very effective method of internal review and evaluation of faculty performance. Toward the end of each academic year I request a written report from each faculty member which is divided into three parts. The first part is a review of their activities of the past year in clinical care, education, research (including any grant support from an outside source), and administrative roles within the department and the university. The second part of the report asks them to comment upon their plans for the coming year in the same four areas. The third part of the report consists of four attachments - (1) papers, books, and chapters published during the past year, (2) abstracts published during the past year, (3) formal scientific presentations at national meetings or as an invited lecturer, (4) a list of honors, awards, editorial activities, or service to national medical organizations. I review each of these reports carefully, then meet individually with each faculty member to discuss their report and comment upon it. Faculty members are also encouraged to bring to my attention any complaints, suggestions, or concerns they might have.

DEPARTMENT GOALS

Practice expansion - As noted earlier, we have had a fairly successful year in terms of practice expansion. Our overall department procedure volume grew by over 7%; TME Bala opened; we assumed responsibility for radiology at Wills Eye Hospital; we contracted with Mediq; we opened a new mammography screening center, etc. Continued practice expansion remains one of our

most important goals for the future. We will continue trying to make service improvements (through such things as improved scheduling and shortened turnaround time of reports), expand our marketing activities, look for new referral sources, and build up our new facilities like those referred to above. It is important that we do this without adding additional faculty slots and without compromising either our research or teaching programs.

Teleradiology - The subject of teleradiology was listed as one of our goals last year, and it remains so today. We have named a small teleradiology subcommittee (headed by Andrew Maidment, Ph.D.) of our departmental computer committee. RFPs have been sent out and a number of manufacturers have responded with proposals. In mid-July 1995, Drs. Maidment, Schweitzer, Halpern, and I made a site visit to a major teleradiology practice in the North Carolina, and all of us were impressed with the functionality of their system. Our goal initially will be to electronically transmit images from our TME Bala and Langhorne sites directly into the department, and have our radiologists read these images from workstation video monitors. This would save on film and would allow us to provide instantaneous consultation and reporting of studies done at remote sites. As we eventually move to more remote sites as part of our practice expansion, teleradiology will be a major key to success. Although the concept of teleradiology seems simple at first glance, there are numerous pitfalls and problems to be surmounted. The challenge is to design and implement the system correctly from the outset.

Improved cardiac imaging capability - We are anxious to expand cardiac imaging at Jefferson in two important areas - cardiac nuclear medicine and cardiac MRI. As mentioned earlier, the department is well equipped for cardiac nuclear medicine, but at the moment we have considerable excess capacity. Hopefully the addition of our new stress lab coordinator and improvements in scheduling will increase referrals, but we need the cooperation of the division of cardiology. Cardiac MRI has never gotten off the ground here at Jefferson, despite the excellence of our body MRI division. Here again, the collaboration of our cardiology colleagues is important.

Jefferson Cardiovascular Center - The Jefferson Cancer Center has been an important positive development for the institution during the past few years, and I would like very much to see a parallel development in cardiovascular disease. An abortive attempt at forming a Jefferson Cardiovascular Center occurred several years ago, but this was not successful and there are no imminent plans for resurrecting it. Jefferson has a wealth of physician expertise in cardiac surgery, cardiology, vascular medicine, vascular surgery, vascular ultrasound, and interventional radiology. With this talent and the widespread prevalence of cardiovascular disease, the ingredients seem to be here for a successful cardiovascular center. It would be a boon to the hospital and several major clinical departments, including ours. One of my goals is to rekindle interest in this possibility.

Collaborative activities - During the past year, close collaboration has been established between our department and both the Wills Eye Hospital and the A.I. duPont Institute. A major goal of our department is to support and enlarge these collaborations and to make them an important part of our practice, teaching and research programs.

Department morale - With the major changes occurring in the delivery of health care in the Philadelphia area and nationally, one hears constant talk of "downsizing" and "re-engineering". What this often translates to is fewer jobs, more work and lower incomes. Everyone in the department at virtually all levels feels these pressures, and obviously they are a source of worry. The department of radiology is a large "family" consisting of over 350 people, and I am convinced that we have the knowhow, dedication, and resources to succeed and perhaps even prosper, despite tough times ahead. An important goal is to keep up morale among our faculty, trainees, technologists, secretaries, administrative personnel, etc. If we achieve this goal, I am confident that our other goals can be achieved as well.

ISSUES FOR THE COLLEGE AND HOSPITAL

One of the major issues facing our university, as I mentioned in this section last year, is to maintain its competitive position in the face of realignments and restructuring that are occurring in health care in this region. It is crucial that Jefferson align itself with strong partners in an appropriate structure. At the moment, no one knows what the "appropriate structure" is - one only need consider the vastly different approaches taken by some of our competitors in the Philadelphia area to realize that there is no one sure path to success. Of the various approaches that have been taken, I like Jefferson's the best, and I support the efforts our senior officers are making in trying to form alignments. This is perhaps the most important issue facing all of us.

Almost as important is the restructuring going on within the institution itself. The formation of the Jefferson Faculty Foundation, the Jefferson PHO, and a new centralized institutional management information system offer potential solutions to institutional problems, but they also contain pitfalls and raise concerns among practice plan physicians. Will our revenue collections be as high under a new system? Will faculty benefits be preserved? Will the costs of a PHO and a faculty foundation outweigh the benefits? Will our overage fund be burdened with new expenses, thereby threatening the support for our research programs? One of the great strengths of Jefferson has been a spirit of mutual trust and cooperation between the University and its practice plan physicians. It is very important that these new institutional structures be developed and managed with extreme care so this good relationship can be preserved. Every department should come out of this restructuring with the sense that it is better after the changes than before.

TEACHING PROGRAMS

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

INTRODUCTION

The shrinking job market in Radiology was perhaps the biggest hurdle encountered by the graduating fellows and residents nationwide this year. I am pleased to report that all of our graduates were successful in obtaining desirable positions of their choice, in spite of such a shortage. Our department continues to enjoy national recognition for the quality of our teaching programs for residents, fellows and medical students. Our faculty should be commended for making education of our trainees a priority in spite of continually mounting pressures to increase clinical workload and maintain research productivity.

RESIDENCY TRAINING PROGRAM

Our residency is recognized nationally as one of the best training programs. We continue to compete successfully with other top programs in the country for best applicants. We were once again pleased with the results of the residency match program (NRMP). While we filled all of our positions with choice candidates, several programs in the country did not fill their quota. I would like to thank George W. Gross, M.D. for an outstanding job that he has done each year as the Chairman of the Residency Selection committee. Because Dr. Gross has assumed new responsibilities as the Chairman of Radiology at A.I. DuPont Institute, Levon Nazarian, M.D., will serve as the new Chairman of the Residency Selection Committee, effective July 1995. I offer him my congratulations and best wishes. I have no doubt that Dr. Nazarian will do a terrific job in this capacity.

It gives me great pleasure to report that each of our senior residents passed the written and oral examinations given by the American Board of Radiology. Our program performance average in the written part of the examination was ranked in the 89th percentile in Diagnostic Radiology and 86th percentile for Physics nationwide. Two of our four graduating residents chose to stay with us to pursue a fellowship in combined Body MRI and Neuroradiology/Head and Neck MRI. One resident will do a fellowship in Musculoskeletal Imaging at the Hospital of the University of Pennsylvania. The fourth resident joined the medical staff at Wilford Hall Medical Center to fulfill his commitment to the US Air Force.

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 resident trainee award to be given to a resident for best scientific paper in each of the 12 subspecialties. It gives me great pleasure to report that our residents won this prestigious award in two subspecialties in this competition. Timothy Murphy, M.D., won the award in Mammography for his paper titled "Appearance of Bilateral Breast Carcinoma: Mammographic and Histologic Correlation" and William Morrison, M.D., won the award in Musculoskeletal Radiology for his paper titled "Diagnosis of Osteomyelitis in Diabetic Feet with Use of MR Imaging: Accuracy, Clinical Utility and Cost Effectiveness". In fact our institution was the only one with two resident awards.

The year end resident critiques of the program were quite upbeat overall. The newly instituted pediatric radiology rotation at A.I. DuPont for third year residents has been a great addition to the education program. This rotation compensates for the lack of variety of pediatric pathology at our institution.

The residents expressed dissatisfaction with the physics course this year. In keeping with our commitment to provide excellent education, we invited Ted Villafana, Ph.D. from the Medical College of Pennsylvania to give a review course to our senior residents. Our internal physics course is now being revamped. At the recommendation of the physics instructors, this course will be spread through the next academic year, instead of being given as a concentrated summer course. Other changes in the residency include revisions in night call responsibilities. The third and fourth year residents will participate in the cross-sectional imaging call with the fellows, which will relieve some burden on the fellows. This upper year resident will also be available as a consultant for the junior resident on general radiology call. The general radiology call resident will be able to leave following noon conference the next day. This will bring us in conformity with other radiology programs in the country.

A radiology consult service is being developed by Robert Steiner, M.D., to begin effective July 1995. The senior resident stationed in the emergency department will assume additional responsibility of consulting with the referring physicians to outline the appropriate imaging studies. This will be a very valuable experience for the residents in this era of cost containment.

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 (including neuroradiology and neurointerventional procedures) performed in the Neurosensory Institute at the Wills Eye Hospital. Our fellows welcomed the opportunity to gain experience in neurointerventional procedures with Robert Rosenwasser, M.D., head of the Division of Vascular Neurosurgery and Surgical Neurointerventional Radiology. This has added a new dimension to their neuroradiology training. Coverage of Wills Eye Hospital radiology has broadened the education of our fellows in neuro-ophthalmologic imaging. The combined neuroradiology fellowship program with The Children's Hospital of Philadelphia continues to be very successful and in high demand.

Our visiting fellowships remain very popular in the various subspecialty areas, which 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 attend 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 electives remain very popular and was completed by 163 members (75%) 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 each completed by 13 senior students. Electives in US/CT/MRI and CVIR were completed by 4 and 2 students respectively. All of these courses received rave reviews from the students.

We were disappointed with the decision of the JMC Curriculum Committee not to incorporate Radiology lectures into the ICM course for sophomore students. The Radiology lectures in Cross-Sectional Anatomy with CT and MRI correlation for freshman class during the gross anatomy course were again well received as in the past.

CONTINUING MEDICAL EDUCATION PROGRAMS

This year, the CME activities continued to expand in spite of the drain on faculty time. A new course in musculoskeletal radiology was instituted by general diagnostic division as described below. Another course in shoulder imaging is planned for next year.

The Foot and Ankle Imaging Symposium. This new course directed by David Karasick, M.D. was given in April, 1995 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 60 radiologists, orthopedists and podiatrists.

Second Annual Penn-Jeff Conference. The second annual Penn-Jeff Conference, an academically oriented meeting sponsored jointly by the CVIR divisions of the University of Pennsylvania and Thomas Jefferson University was held in June, 1995 and was a great success. This meeting provided an update on relevant basic science and clinical aspects of interventional radiology. The program was presented by the faculties of the two divisions and was organized by Geoffrey Gardiner, M.D.

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, 1995. It was attended by approximately 130 residents in Diagnostic Radiology from all around the eastern U.S. and was very well received.

Fifteenth Annual Leading Edge in Diagnostic Ultrasound Conference. The ultrasound division's Fifteenth Annual Leading Edge in Diagnostic Ultrasound held in Atlantic City was a major success again this year. 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, endovaginal ultrasound, Doppler ultrasound and vascular diagnosis, urologic and prostate ultrasound, and fetal and adult echocardiography.

Eighth Annual Philip J. Hodes Lecture. In honor of Philip J. Hodes, M.D., the Eighth Annual Philip J. Hodes Lecture was given and was very successful. The guest speaker was William R. Brody, M.D., Ph.D., Provost of the Academic Health Center, University of Minnesota, who gave an outstanding presentation on "Challenges Facing the Academic Health Center in the New Competitive Managed Care Environment".

Radiology Grand Rounds. Grand Rounds in Radiology were held bi-weekly and included 15 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. Under the aegis of Jefferson Ultrasound Research and Education Institute (JUREI), great strides have been made 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, the Armenian General Benevolent Union, USAID, 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. By preparing visiting fellows to return to their homelands and start training programs there, the Institute can extend its impact on a global scale, and in this way, can reach far more individuals than it could otherwise.

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, and one in China 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 increasing pressures on faculty and the impending threat of downsizing training programs. 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. Our goals include maintaining a leadership role in developing international educational programs with JUREI serving as the model.

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FORMAL SCIENTIFIC PRESENTATIONS

ARCHIE A. ALEXANDER, M.D.

- June 29-
July 1, 1994
- Organizacion de Exposiciones y Congresos, S.A., Symposium on Present and Future of Vascular Imaging, Madrid, Spain
- "Current topics in peripheral vascular imaging with Doppler"
 - "Abdominal and pelvic applications of Doppler imaging"
- September 12-14, 1994
- Primer Simposio Internacional de Actualizacion en Ultrasonografia, Rosario, Argentina
- "Ecograffa intrarectal. Tecnica anatomia ecografica de la prostata"
 - "Hiperplasia nodular benigna"
 - "Cancer de prostata"
 - "Funcion guiada de prostata"
 - "Doppler en obstetricia"
 - "Mal formaciones congenitas"
- September 29-
October 1, 1994
- Advisory Group Prostate Cancer, American Cancer Society, Philadelphia, PA
- Prostate cancer conference
- October 10, 1994
- Salik Lecture, Sinai Hospital of Baltimore, Baltimore, MD
- "New horizons in ultrasound"
- December 7, 1994
- Medical Center of Delaware, Wilmington, DE
- "Advances in clinical applications of ultrasound and MRI in GI cancers"

JOSEPH BONN, M.D.

- September 21-24, 1994
- Western Angiography and Interventional Radiology Society Annual Meeting, Aspen, CO
- "Peripherally inserted central catheters"
 - "Management and problem solving in venous access"
 - "Treatment of malignant biliary disease"
- October 11-14, 1994
- Interventional Radiology and Vascular Imaging 1994; University of Pennsylvania Medical Center, Philadelphia, PA
- "Venous access: PICCs"
 - "Liver transplants: Vascular interventions"
- November 27-
December 2, 1994
- The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Hysterosalpingography and selective salpingography" (refresher course)
 - "Clinical comparison of surgically tunneled catheters with percutaneous peripherally inserted central venous catheters"

- March 25-31, 1995 The 20th Annual Scientific Meeting of the Society of Cardiovascular
Interventional Radiology, Ft. Lauderdale, FL
- "Procedural, mechanical and thrombotic complications of venous access" (plenary)
 - "Long-term venous access devices" (workshop)
- June 2-4, 1995 Second Annual Penn-Jeff Conference on Interventional Radiology,
Skytop, PA
- "Peripheral vascular disease - Surgical and interventional treatment 1994-1995"

EMILY F. CONANT, M.D.

- November 27-
December 2, 1994 The 80th Scientific Assembly and Annual Meeting of the
Radiological Society of North America, Chicago, IL
- "Patterns of mammographic screening compliance in women with nonpalpable and palpable breast carcinomas"
 - "Age analysis of 3,159 consecutive nonpalpable and palpable breast lesions"
 - "Intra-operative ultrasound guidance in the removal of free silicone from the ruptured breast implant"
 - "The appearance of bilateral breast carcinoma: Mammographic and pathologic correlation"
 - "The appearance of bilateral breast carcinoma: Mammographic and pathologic correlation" (exhibit)

P. MACKE CONSIGNY, Ph. D.

- October 10, 1994 University of Pennsylvania Interventional Radiology and
Imaging Conference, Philadelphia, PA
- "Mechanisms of restenosis after angioplasty"
- November 27-
December 2, 1994 The 80th Scientific Assembly and Annual Meeting of the
Radiological Society of North America, Chicago, IL
- "Release of extracellular matrix-degrading enzymes after angioplasty"
- March 25-31, 1995 The 20th Annual Scientific Meeting of the Society of Cardiovascular
and Interventional Radiology, Ft Lauderdale, FL
- "Release of extracellular matrix-degrading enzymes after balloon angioplasty"
 - "Immunolocalization of proliferating smooth muscle cells in the artery after balloon angioplasty"
- April 3-7, 1995 Second International Congress and Comprehensive Course,
Zermatt, Switzerland
- "Intimal hyperplasia"
 - "Pathogenesis and pathophysiology of atherosclerosis"
- June 2-4, 1995 Second Annual Penn-Jeff Conference on Interventional Radiology,
Skytop, PA

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

DIANE M. DEELY, M.D.

November 29,
December 2, 1994

The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Is aspiration biopsy a necessary or helpful adjunct to core biopsy in percutaneous bone biopsy?: A prospective series of 100 patient"

March 30, 1995

Community Medical Center, Toms River, NJ

- "MRI of the foot and ankle"

STEPHEN A. FEIG, M.D.

July 24-28, 1994

The 36th Annual Meeting of the American Association of Physics in Medicine (AAPM), Anaheim, CA

- "Objective criteria for breast phantom image quality testing: Methods to comply with the mammographic quality Standards Act of 1992" (poster)

August 5-7, 1994

The 56th Midsummer Radiological Conference of the Rocky Mountain Radiological Society, Keystone, CO

- "Screening mammography age 40-49. Why all the hullabaloo?"
- "Breast calcifications: The good, the bad, and the ugly"
- "Problem-solving mammography"

October 6-9, 1994

Women's Imaging II, Advances in a New Subspecialty, McLean, VA, sponsored by the Department of Radiology and the Division of Continuing Medical Education, University of Alabama, Birmingham, AL and the Department of Radiology, The Western Pennsylvania Hospital, Pittsburgh, PA

- "How to reduce unnecessary biopsies without missing breast cancer"
- "Problem-solving mammography"
- "Breast cancer screening 1994"

October 11, 1994

Capitol Hill Briefing on New Frontiers in Breast Cancer Imaging and Early Detection, The United States Capital Building, sponsored by the United States Department of Health and Human Services and the National Cancer Institute, Washington, DC

- "Development of digital mammography for clinical evaluation" (poster)

November 27-
December 2, 1994

The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Categorical Course on the Technical Aspects of Breast Imaging, Chicago, IL

- "Risk, benefit, and controversies"
- "New method for monitoring breast phantom image quality"
- "Establishment of objective criteria for breast phantom image quality testing: A method for complying with the Mammography Quality Standards Act of 1992" (exhibit)

- December 7, 1994
Fitzgerald-Mercy Hospital, Mercy Catholic Medical Center,
Department of Radiology, Darby, PA
- "Breast calcifications"
- December 8, 1994
Radiology Grand Rounds, Long Island Jewish Hospital, Albert
Einstein College of Medicine, New Hyde Park, NY
- "Analysis of breast calcifications"
 - "Breast masses"
 - "Problem-solving mammography"
- January 7, 1995
Clinical Reviewer Training Program, American College of
Radiology Mammography Accreditation Program, Reston, VA
- "Clinical image evaluation"
 - "Case judgment workshop"
- March 9-11, 1995
Fifth Annual Breast Imaging Conference, Orlando Regional
Healthcare System, Lake Buena Vista, FL
- "Analysis of microcalcifications"
 - "Needle localization of nonpalpable lesions"
 - "Microcalcifications viewbox seminar"
- March 10-11, 1995
Annual Meeting, American Society of Breast Disease, New York
Metropolitan Breast Cancer Group, Memorial Sloan-Kettering
Cancer Center, New York City, NY
- "Digital imaging"
- April 6-8, 1995
American Cancer Society National Conference on Gynecologic
Cancers, Washington, DC
- "Mammography screening of women age 40-49: Benefit,
radiation risk and cost-effectiveness"
 - "Breast cancer screening: Techniques, quality control and
future directions"
- May 4-5, 1995
Radiology Centennial Commemorative Conference, sponsored by
the United States Food and Drug Administration and National
Cancer Institute, National Institutes of Health, Bethesda, MD
- "Evaluation of new imaging procedures for breast cancer:
Proper process"
- May 10-13, 1995
Society of Breast Imaging 2nd Postgraduate Course, Orlando, FL
- "The status of digital mammography"
 - "Background and analysis of clinical trials for breast cancer
screening"
 - "Quality control: How to recognize and solve problems"
- June 16-18, 1995
Symposium on Mammography sponsored by American College of
Radiology, Tysons Corner, VA
- "Mammography equipment"
 - "Evaluation of calcifications"
 - "Screening controversies"

RICK I. FELD, M.D.

- November 27-
December 2, 1994
- The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Carotid Doppler sonography" (workshop)
 - "Laparoscopic US of the liver in surgical decision-making"
- March 27-30, 1995
- The 39th Annual Convention of the American Institute of Ultrasound in Medicine, San Francisco, CA
- "Controversial issues in US guided abdominal biopsy"
- May 10-12, 1995
- The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- "Abscess detection and drainage"
 - "Interventional ultrasound: Difficult biopsies"

ADAM E. FLANDERS, M.D.

- November 27-
December 2, 1994
- The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "MR imaging characteristic predictive of neurologic deficit and motor recovery in the upper extremities following spinal cord injury (SCI)"
 - "Impact of non-radiologists in the interpretation of neuroradiologic CT and MRI studies"

FLEMMING FORSBERG, Ph.D.

- September 16-18, 1994
- Annual Meeting of the Norwegian Society for Diagnostic Ultrasound, Geilo, Norway
- "Advances in US contrast media: Their use in animals and humans"
 - "Color Doppler amplitude displays; a new tool for evaluating contrast agents"
- September 19, 1994
- Nycomed Imaging A/S, Oslo, Norway
- "Ultrasound contrast agents"
 - "Experiences with P73 - a new US contrast media"
- September 22, 1994
- Electronics Institute, Technical University of Denmark, Lyngby, Denmark
- "Ultrasound contrast agents - principles and applications"
- September 28, 1994
- Department of Medical Engineering and Physics, King's College School of Medicine and Dentistry, London, England
- "On the use of ultrasound contrast agents in animals and humans"
- November 2-4, 1994
- IEEE 1994 Ultrasonics Symposium, Cannes, France
- "In vivo evaluation of a new ultrasound contrast agent"
 - "Doppler simulation for pulsatile flow having nonaxial components" (poster)

- "Intra-operative and three-dimensional ultrasound guided explantation of silicone breast implants"
- November 27 -
December 2, 1994 The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chigaco, IL

 - "Computer simulation of nonstationary, pulsed doppler signals"
 - "Parenchymal enhancement and tumor detection with a novel us contrast media"
- December 8, 1994 Saint Louis Ultrasonography Society, Saint Louis, MO

 - "Color amplitude imaging and vascular ultrasound contrast agents"
- February 1, 1995 Ultrasound Research Seminar, Drexel University, Philadelphia, PA

 - "Ultrasound contrast agents - principles and applications"
- March 13-14, 1995 Ultrasound Training Program, Nycomed Imaging A/S, Oslo, Norway.

 - "Acoustic physics and instrumentation"
 - "Principles of Doppler ultrasound"
- March 27-30, 1995 The 39th Annual Convention of the American Institute of Ultrasound in Medicine, San Francisco, CA,

 - "Tumor Detection Using an Ultrasound Contrast Agent"
 - "Acoustic Properties of Silicone Breast Implants"
 - "In Vivo Gray Scale and Color Flow Harmonic Imaging"
 - "Pressure Effect on the Backscattering of an Ultrasound Contrast Agent"
- May 10-12, 1995 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ

 - "Physics of Ultrasound Contrast Agents"
 - "New Imaging Techniques with Contrast Agents"
 - "Physics of Color and Spectral Doppler"
- May 18, 1995 Johnson Research Foundation, University of Pennsylvania Medical School, Phildadelphia, PA,

 - "Advances in ultrasound contrast agents"
- June 8, 1995 "Color Doppler - Present, Future and Beyond", GEMS TiP-TV, live satellite broadcast (Galaxy 7), continental

 - "Physics of Doppler"
 - "Physics of ultrasound contrast"
- June 25-29, 1995 Medical CT and Ultrasound: Current Technology and Applications, AAPM 1995 Summer School, New London, CT

 - "Principles of Doppler imaging"

DAVID P. FRIEDMAN, M.D.

November 27-
December 2, 1994

The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "MR imaging of non-neoplastic intramedullary spinal cord lesions: Localization to specific motor or sensory pathways and vascular territories"

April 21-27, 1995

The 33rd Annual Meeting of the American Society of Neuroradiology, Chicago, IL

- "Imaging spectrum of lesions affecting the insular cortex and adjacent white matter"

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

November 27-
December 2, 1994

The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Thrombolysis of lower extremity arterial bypass grafts"

June 2-4, 1995

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

- "Diagnosis and treatment of non-atherosclerotic vascular diseases"

BARRY B. GOLDBERG, M.D.

July 17-22, 1994

The 7th Congress of World Federation for Ultrasound in Medicine and Biology, Sapporo, Hokkaido, Japan

- "Global aspects of ultrasound education"
- "Diagnostic ultrasound: Past, present and future"
- "Advances in ultrasound contrast agents"
- "New horizons in ultrasound"
- "Endoluminal 3D, ultrasound angio"

July 25-26, 1994

Korean Ultrasound Society, Seoul, South Korea

- "Advances in ultrasound"

July 27, 1994

Hong Kong Radiology Society, Hong Kong

- "Ultrasound contrast agents"

August 3, 1994

Tenth International Veterinary Radiology Association Meeting, Philadelphia, PA

- "The use of diverse animal models in the evaluation of new ultrasound contrast agents"

August 6, 1994

Current Concepts in Diagnostic Ultrasound for Physicians and Sonographers, Houston, Texas

- "Advances in color imaging"
- "Ultrasound contrast agents and ultrasound angio"

September 20-22, 1994

Second Congress of Polish Society of Ultrasound, Cracow, Poland

- "New horizons in diagnostic ultrasound"

- September 23-28, 1994 Tenth Anniversary of Affiliation of Jefferson and the University of Rome, Rome, Italy
- "Imaging in the diagnosis and staging of GI cancer"
- October 11, 1994 Capitol Hill Briefing on New Frontiers in Breast Cancer Imaging and Early Detection, Washington, D.C.
- "New frontiers in breast ultrasound" (exhibit)
- October 14-16, 1994 Third Annual Meeting and Postgraduate Educational Course of the Society of Radiologists in Ultrasound, 1994, Chicago, IL
- "Advances in ultrasound contrast agents"
- November 5, 1994 Conference on Developing a Long-Term Plan for Imaging Research, National Cancer Institute of the National Institute of Health, Bethesda, MD
- "Ultrasound: Applications"
- November 27-
December 2, 1994 The 80th Scientific Assembly and Annual Meeting of the Radiologic Society of North America, Chicago, IL
- "Ultrasound imaging in tropical diseases in North America"
- January 31, 1995 Conference on Developing a Long-Term Plan for Imaging Research, NIH, Bethesda, MD
- "Ultrasound: Clinical applications"
- February 5-11, 1995 Vail 1995 Clinical Ultrasound Symposium, Vail, CO
- "Health care reform and ultrasound"
 - "Ultrasound contrast agents: Current status, future directions"
 - "Advances in color imaging"
 - "Endoluminal ultrasound"
- March 27-30, 1995 39th Annual Convention of the American Institute of Ultrasound in Medicine, San Francisco, CA
- "Induced acoustic emission as a contrast mechanism for detection of hepatic abnormalities"
 - "Governmental and future practice of ultrasound"
 - "Laparoscopic ultrasound: Clinical applications" (exhibit)
- April 17-18, 1995 Northeast Ohio Ultrasound Society Meeting, Cleveland, OH
- "Advances in ultrasound"
- Mt. Sinai Medical Center, Cleveland, OH
- "Color Doppler ultrasound"
- Case Western Reserve University, Radiology Department, Cleveland, OH
- "Color Doppler ultrasound"
- May 4, 1995 Radiology Centennial Commemorative Conference, NIH, Washington, DC
- "Current and future advances in ultrasound"

May 19-20, 1995 The 80th Annual Meeting of the Pennsylvania Radiological Society, Hershey, PA

- "Laparoscopic ultrasound: Clinical applications" (exhibit)

June 17-20, 1995 Argentine Ultrasound Society Meeting, Buenos Aires, Argentina

- "Advances in color imaging"
- "3-D ultrasound"
- "Endoluminal ultrasound"
- "Ultrasound contrast agents"

CARLOS F. GONZALEZ, M.D.

October 28, 1994 The Sixth PAN-Philadelphia Neurosurgery Conference, Philadelphia, PA

- "Cavernous angiomas and asymptomatic lesions"

February 19-21, 1995 Instituto Nacional de Neurologia y Neurocirugia Manuel Velasco Suarez, Mexico City, Mexico

- "T1 effects in the 3D segmentation in patients with MS. International course and meeting in Neurosciences"
- "Intracranial aneurysms flow analysis of their on-going progression and treatment"
- "Improved intracranial tumor characterization in 3D feature map"

April 26, 1995 Mercy Catholic Medical Center, Darby, PA

- "Imaging of the tumoral lesions of the base of the skull"

June 21-23, 1995 Neuroradiology Symposium, Mexico City, Mexico

- "Utilization of the diagnostic methods of neuroimaging MRI and CT"

GEORGE W. GROSS, M.D.

November 27- December 2, 1994 The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Use of low osmolality contrast media (LOCM) in neonates on extracorporeal membrane oxygenation (ECMO) life support " (exhibit)

February 26- March 2, 1995 The 11th Annual Meeting of CNMC ECMO Symposium, Keystone, CO

- "Liquid ventilation with perflubron in neonates - chest radiographic findings" (exhibit)
- "Utilization of low osmolality contrast media (LOCM) during neonatal ECMO life support" (exhibit)

April 27-30, 1995 The 38th Annual Meeting of the Society for Pediatric Radiology, Washington, DC

- "Liquid ventilation with perflubron in neonates" (exhibit)
- "Liquid ventilation with perflubron in neonates - chest radiographic findings"

ETHAN J. HALPERN, M.D.

- May 4, 1995 Blue Ribbon Lecture, Philadelphia Roentgen Ray Society, Philadelphia, PA
- "Non-invasive evaluation of the renal arteries"
- May 10-12, 1995 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- "Ultrasound evaluation of the renal arteries"

CHARLES M. INTENZO, M.D.

- January 19, 1995 Endocrine Grand Rounds, Lankenau Hospital, Philadelphia, PA
- "Neuroendocrine tumor imaging"
- February 20, 1995 Radiology Lecture Series, Hahnemann University, Philadelphia, PA
- "Thyroid scanning"
- April 24, 1995 Radiology Lecture Series, Hahnemann University, Philadelphia, PA
- "Lung ventilation/perfusion update"

DAVID KARASICK, M.D.

- October 21, 1994 Lecturer, Mercy Catholic Hospital, Department of Radiology, Philadelphia, PA
- "Imaging of osteomyelitis and septic arthritis"
- May 1-6, 1995 The 94th Annual Meeting of the American Roentgen Ray Society, Washington, DC
- "Imaging of spinal fractures and cord injuries complicating ankylosing spondylitis: The role of MRI"

STEPHEN KARASICK, M.D.

- September 28, 1994 Lecturer, Mercy Catholic Hospital, Department of Radiology, Philadelphia, PA
- "Uroradiology"
- November 17, 1994 Lecturer, Bryn Mawr Hospital, Bryn Mawr, PA
- "Uroradiology"
- January 14-16, 1995 The Society of Uroradiology, 1995 Annual Postgraduate Course, Palm Beach, FL
- "Cutaneous ileocystomy (bladder chimney): Clinical application and radiologic appearance"
 - "Hysterosalpingography" (workshop)
- February 28, 1995 The 1995 Annual Meeting of the Society of Gastrointestinal Radiologists, Tucson, AZ

- "Experience with evacuation proctography (defecography) emphasizing age and gender variation in a large patient population"

May 1-6, 1995

The 1995 Annual Meeting American Roentgen Ray Society, Washington, DC

- "Experience with evacuation proctography (defecography) emphasizing age and gender variation in a large patient population"

SUNG M. KIM, M.D.

September 21-26, 1994

The 1st Korean and Korean-American Meeting of the Society of Nuclear Medicine, Seoul, Korea

- "Gallium imaging in lymphoma"
- "Update in nuclear medicine"
- "Monoclonal antibody imaging in colorectal cancer: Oncoscint"

June 10-15, 1995

The 42nd Annual Meeting of the Society of Nuclear Medicine, Minneapolis, MN

- "Bone SPECT evaluation of the "Failed Back" syndrome"

ALFRED B. KURTZ, M.D.

September 30, 1994

State University of New York, Health Science Center at Brooklyn, Brooklyn, NY

- "The first trimester pregnancy"
- Case presentation

October 14-16, 1994

Third Annual Postgraduate Educational Course, The Society of Radiologists in Ultrasound, Chicago, IL

- Scientific session
- "The fetal central nervous system"

November 21-22, 1994

Mount Sinai Medical Center, Cleveland Clinic, University Hospital, and MetroHealth, Cleveland, OH

- "Ovarian cancer - multiple modality approach"

Cleveland Radiological Society and the Northeast Ohio Ultrasound Society, Cleveland, OH

- "Ultrasound first trimester evaluation"

December 8, 1994

Bryn Mawr Hospital, Bryn Mawr, PA

- Ultrasound conference for residents

January 11, 1995

Overlook Hospital, Summit, NJ

- Case presentations to residents
- "First trimester ultrasound evaluation"

February 25-26, 1995

South Florida Radiological Society, Miami, FL

- "First trimester ultrasound-abnormal and normal"

- "Ultrasound evaluation of routine obstetrical measurements"
- "Multiple gestations"
- "Fetal structural abnormalities (A)-CNS (B)-skeletal"
- "Placental abnormalities, biophysical profile and Doppler U/S (fetal distress near term)"

April 17, 1995

Presbyterian Medical Center, Philadelphia, PA

- "The fetal central nervous system"

May 10-12, 1995

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

- "The fetal chest (non-cardiac)"
- "The fetal GI tract"
- OB ultrasound tutorial
- "Ob/gyn case analysis"

June 9-12, 1995

The Colorado Radiological Society, Colorado Springs, CO

- "First trimester ultrasound"
- "Duplex Doppler ultrasound of the extremity vasculature"
- "Duplex Doppler analysis for ovarian cancer"

DAVID C. LEVIN, M.D.

July 6, 1994

Central Pennsylvania Radiological Society, Harrisburg, PA

- "Self-referral issues in Pennsylvania radiology"

September 17, 1994

Society of Chairmen of Academic Radiology Departments, New Orleans, LA

- "Capitated contracts for radiology"

September 29-30, 1994

Dartmouth-Hitchcock Medical Center, Lebanon, NH

- Embryologic-angiographic correlations in complete and corrected transposition of the great vessels"
- "Self-referral in diagnostic imaging: Consequences for our health care system"

October 8, 1994

TME Scientific Advisory Committee Conference, Lake Tahoe, NV

- "Quality assessment methodology for MRI: Ratings of 33 centers"

October 13, 1994

State University of New York Health Science Center, Brooklyn, NY

- "Self-referral and overutilization in diagnostic imaging"

November 7, 1994

University of Pennsylvania Symposium on Health Services Research in Radiology and Surgery, Philadelphia, PA

- "Unnecessary utilization and costs associated with self-referral in diagnostic imaging"

November 29-
December 2, 1994

The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Patterns of referral in vascular ultrasound of the extremities and abdomen: The role of radiologists, surgeons, and other specialists"

- "Participation by radiologists, cardiologists, and surgeons in noncardiac percutaneous transluminal angioplasty in a nine-state Medicare population"
- "Role of radiologists in percutaneous interventions in the abdomen"
- "Diagnostic and interventional coronary angiography"

March 25, 1995

Society of Cardiovascular and Interventional Radiology, Fort Lauderdale, FL

- "Health services research and interventional radiology"

April 1, 1995

Roentgen Centennial Convocation of the Philadelphia Roentgen Ray Society, Philadelphia, PA

- "Radiology: Where we've been and where we're going"

May 1-6, 1995

The 94th Annual Meeting of the American Roentgen Ray Society, Washington, DC

- "The role of radiologists in percutaneous interventional procedures in the genitourinary tract"

May 8, 1995

The 25th Annual Meeting of the Israel Radiological Society Jerusalem, Israel

- "Future trends in diagnostic radiology"

May 23, 1995

New England Society of Cardiovascular and Interventional Radiology, Boston, MA

- "Performance of interventional radiological procedures by radiologists and nonradiologists"

ANNA S. LEV-TOAFF, M.D.

November 27-
December 2, 1994

The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Laparoscopic ultrasound: Clinical applications"

February 26-
March 3, 1995

The 24th Annual Meeting of the Society of Gastrointestinal Radiologists, Tucson, AR

- "The efficacy and safety of an oral ultrasound contrast agent in patients with suspected abdominal pathology: A phase II trial"

March 26-29, 1995

The 39th Annual Convention of the American Institute of Ultrasound in Medicine, San Francisco, CA

- "Laparoscopic ultrasound: Clinical applications" (exhibit)

May 10-12, 1995

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

- "First trimester"
- "Oral ultrasound contrast agents"

May 19-20, 1995

The 1995 Annual Meeting of Pennsylvania Radiological Society, Hershey, PA

- "Laparoscopic ultrasound: Clinical applications" (exhibit)

JI-BIN LIU, M.D.

- October 9, 1994 The 2nd Affiliated Hospital, Xian Medical University, Xian, China
• "Ultrasound contrast agents"
- October 12, 1994 Wuhan Union Hospital, Tongji Medical University, Wuhan,
China
• "Endoluminal ultrasound and ultrasound contrast agents"
- October 18, 1994 Zhongshan Hospital, Shanghai Medical University, Shanghai,
China
• "New developments in diagnostic ultrasound"
- October 21, 1994 Shandong Medical University, Jinan, China
• "Laparoscopic ultrasound and three-dimensional ultrasound"
- October 24, 1994 The First Affiliated Hospital, Shanxi Medical College, Taiyuan,
China
• "Clinical applications of diagnostic ultrasound"
- October 28, 1994 Peking Union Medical College Hospital, Beijing, China
• "New horizons in ultrasound"
- November 27-
December 2, 1994 The 80th Scientific Assembly and Annual Meeting of the
Radiological Society of North America, Chicago, IL
• "Endoluminal urethral ultrasound: Clinical applications"
• "Laparoscopic ultrasound" (exhibit)
- March 27-30, 1995 The 39th Annual Convention of the American Institute of
Ultrasound in Medicine, San Francisco, CA
• "Laparoscopic ultrasound: Clinical applications" (exhibit)
- May 19-20, 1995 The 80th Annual Meeting of the Pennsylvania Radiological
Society, Hershey, PA
• "Laparoscopic ultrasound: Clinical applications" (exhibit)

ANDREW A. MAIDMENT, Ph.D.

- August 15, 1994 Seminário do Departamento de Diagnostic Imagem, Universidade
de São Paulo, Ribeirão Preto, Brazil
• "Digital mammography"
- August 16, 1994 Seminário do Departamento de Física Medico, Universidade de São
Paulo, Ribeirão Preto, Brazil
• "The physics of mammography"
- August 18, 1994 Seminário do Laboratorio de Dosimetria, Instituto de Física da
Universidade de São Paulo, São Paulo, Brazil
• "Digital mammography"
- August 19, 1994 Seminário do Departamento de Diagnostico p Imagem, Escola
Paulista de Medicina, São Paulo, Brazil
• "The physics of mammography"

- August 23, 1994 IUPESM Young Investigators Symposium, World Congress in Medical Physics and Biomedical Engineering, Rio de Janeiro, Brazil
- "Prototype clinical imaging system for digital mammography"
- September 15, 1994 United States Food and Drug Administration, Center for Devices and Radiological Health, Staff College, Rockville, MD
- "Digital mammography"
- November 27-
December 2, 1994 The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Method for 3D morphologic analysis of breast calcifications"
 - "Systematic approach to high-quality bedside chest radiograph"
 - "Three-dimensional morphologic analysis of breast calcifications"
 - "Evaluation of grids in bedside chest radiology"
 - "Clinical digital mammographic system: Limited results"
- June 1, 1995 Visiting Professor, Bryn Mawr Hospital, Bryn Mawr, PA
- "Radiographic physics quality assurance methods"
- June 8, 1995 Visiting Professor, Bryn Mawr Hospital, Bryn Mawr, PA
- "Radiographic physics quality assurance methods"

DONALD G. MITCHELL, M.D.

- November 27, 1994
December 2, 1994 The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Proton, photon or needle"
 - "MRI imaging of the abdomen"
- January 17, 1995 Radiology Grand Rounds, Long Island Jewish Hospital, Long Island, NY
- "MRI of the abdomen"
 - "MRI of the liver"
- April 11-12, 1995 Armed Forces Institute of Pathology, Washington, D.C.
- "Gastrointestinal imaging"
 - "MRI of the pancreas and biliary system"
 - "MRI of focal liver lesions"
 - "MRI of diffuse and vascular liver disease"
- May 15-18, 1995 Eighteenth Annual Course, Society of Computed Body Tomography and Magnetic Resonance, New York, NY
- "Abdominal cases to learn from" (Workshop)
 - "MR contrast agents"

LEVON N. NAZARIAN, M.D.

- September 1-2, 1994 Visiting Professor, Loyola University Medical Center, Maywood, IL

- "First trimester ultrasound"
- "Second and third trimester fetal anomalies"

November 27-
December 2, 1994

The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "The normal sonographic appearance of synovial fluid in the ankle"

February 23, 1995

Radiology Grand Rounds, The New York Hospital - Cornell Medical Center, New York, NY

- "Laparoscopic and endoluminal ultrasound"

March 27-30, 1995

The 38th Annual Convention of the American Institute of Ultrasound in Medicine, San Francisco, CA

- "Sonography of ankle tendons: Normal size and relationships"

May 10-12, 1995

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

- "Superficial imaging"
- "Musculoskeletal ultrasound" (breakout session)

LAURENCE NEEDLEMAN, M.D.

September 29, 1994

St Vincents Medical Center of Richmond, Staten Island, NY

- "Interpreting vascular ultrasound"

October 1-2, 1994

Ultrasound Update-1994, UC Davis Medical Center, Sacramento, CA

- "Cerebrovascular ultrasound update"
- "Renal arteries: Doppler applications"
- "Ultrasound of renal transplants"

October 6, 1994

Michigan Radiological Society, Detroit, MI

- Film reading session
- "Color flow ultrasound"

October 7, 1994

Henry Ford Hospital, Department of Radiology, Detroit, MI

- Case presentations
- "Renal Doppler"

October 21, 1994

Current Practice of Vascular Ultrasound sponsored by Sonix Corporation, Washington, DC

- "Cerebrovascular pathophysiology"
- "Interpretation rounds"
- Panel discussion on carotid ultrasound interpretation

October 27, 1994

New York Ultrasound Club, New York, NY

- "Renal Doppler ultrasound"

November 27-
December 2, 1994

The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Deep venous thrombosis: Doppler sonography"
- "Vascular applications of US: Peripheral vessels"

- December 15-16, 1994 Geisinger Clinic Department of Radiology, Danville, PA
- "Abdominal Doppler ultrasound"
 - "Pelvic Doppler ultrasound"
 - Case presentations
- March 23-24, 1995 Mercer Medical Center and Jefferson Medical College Divisions of Maternal Fetal Medicine, A Special View, Princeton, NJ
- "Eyes open to the hypertensive patient"
- March 27-30, 1995 The 39th Annual Convention of the American Institute of Ultrasound in Medicine, San Francisco, CA
- "Evaluation of arterial diseases in humans using an ultrasound contrast"
 - "Venous ultrasound"
 - "Unknown cases"
 - "Calf vein evaluation"
- April 19-21, 1995 The Annual Meeting of the American College of Emergency Physicians, Pennsylvania Chapter, Philadelphia, PA
- "Acute deep venous thrombosis: Doppler vs IPG vs venogram"
- April 22, 1995 Noninvasive Vascular Testing: The Whole Story. University of Maryland at Baltimore, Baltimore, MD
- "Lower limb venous duplex scanning - standard diagnosis and the challenges of clinical reality"
 - "Future trends in noninvasive vascular testing"
- May 7-8, 1995 Department of Radiology Diagnostic Ultrasound 19th Annual Spring Symposium, State University of New York Health Science Center at Brooklyn, Brooklyn, NY
- "Duplex and color Doppler basics and interpretation"
 - "Carotid and vertebral arteries"
 - "Center: Carotid Doppler"
- May 10-12, 1995 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson Hospital, Atlantic City, NJ
- "The future of ultrasound contrast agents" (Panel discussion)
 - Vascular case studies

HECTOR V. ORTEGA, M.D.

- July 14-16, 1994 The Fourth International Course in Ultrasound, Mugerza Hospital Monterrey, Nuevo Leon, Mexico
- "Doppler of the abdomen"
 - "Study of the development of brain aneurysms using mathematical models and angiographic studies"
 - "Echographic hemodynamics"
 - "Diagnostic correlation in vessels of the neck using MRA, Doppler and DSA"

- September 12-14, 1994
Primer Simposio Internacional de Actualizacion en Ultrasonografia, Rosario, Argentina
- "Doppler of the abdomen"
 - "Study of the development of brain aneurysms using mathematical models and angiographic studies"
 - "Echographic hemodynamics"
 - "Diagnostic correlation in vessels of the neck using MRA, Doppler and DSA"
- February 13, 1995
Presbyterian Medical Center of Philadelphia, Medical Imaging Department, Philadelphia, PA
- "US MRA and digital instrumentation flow"
- February 17, 1995
Mini-Symposium on Functional Vascular Anatomy and Experimental Endovascular Technics, National Institute of Neurology and Neurosurgery Manuel Velasco, Suarez, Mexico
- "Mathematic models as an important tool in vascular research (predictive value)"
- February 20-25, 1995
1995 International Course on Controversies in Neuroscience, National Institute of Neurology and Neurosurgery Manuel Velasco, Suarez, Mexico
- "Intracranial aneurysms: Flow analysis of their ongoing progression and treatment"
 - "Computer simulation analysis of carotid bifurcation"
- March 29-
April 2, 1995
International Symposium on Radiological Imaging, San Javier Hospital, Guadalajara, Mexico
- "Analysis of fluids I: Value of mathematic models in vascular atherothrombotic disease"
 - "Analysis of fluids II: Value of mathematic models in diseases (aneurisms)"
- April 17-22, 1995
The 14th Reunion of Asociacion Mexicana de Ultrasonido en Medicina, Morelia, Mexico
- "Doppler physics"
 - "Hemodynamics in the development and formation of brain aneurysm"
 - "Correlation between MRA, DSA and Doppler in vascular pathology"
- ERIC K. OUTWATER, M.D.**
- November 27-
December 2, 1994
The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Diagnosis of adrenal adenomas with chemical shift MR imaging"
 - "Imaging of prostatic carcinoma with endorectal coil: Assessment of diagnostic criteria for seminal vesicle invasion"
- August 20, 1994
Florida Heart Institute, Orlando, FL
- "MRI kidneys and adrenals"

- "MRI of benign liver lesions"
- "MRI of female pelvis"

December 7, 1994

Annual Oncology Hematology Conference on Cancers of the Esophagus & Colo-Rectum: Controversies in Multi-Modality Therapy, University of Delaware, Wilmington, DE

- "MR imaging of rectal cancer"

March 30, 1995

MRI Group of New Jersey, New Brunswick, NJ

- "MR imaging of the pancreas and biliary tree"

May 10-12, 1995

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

- "Ultrasound and MRI of female pelvic anatomy"

CHAN H. PARK, M.D.

August 5-6, 1994

The 6th Severance Alumni Reunion and Scientific Session, Absecon, NJ

- "Thallium myocardial scan for diagnosis of CAD"

September 9, 1994

Our Lady of Lourdes, Department of Surgery, Camden, NJ

- "Radionuclide studies and their use in surgery"

September 21-26, 1994

The 1st Korean and Korean-America Meeting of the Society of Nuclear Medicine, Seoul, Korea

- "Update in nuclear medicine"
- "Clinical PET in oncology"
- "Neuroendocrine imaging"

November 9, 1994

Philadelphia Nuclear Medicine Conference, University of Pennsylvania Hospital, Philadelphia, PA

- "Three-dimensional display of SPECT studies and its clinical utility"

November 27-
December 2, 1994

The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "3-D rendering of Tc-99m ethyl cystenate dimer brain SPECT in the evaluation of Alzheimer's disease"
- Keynote speech at Korean Radiological Society of North American and Korean Radiological Society during RSNA Meeting

January 23, 1995

Tumor Board, Ajou University, Suwon, Korea

- "Breast imaging and protocol review"

March 2, 1995

Medicine Grand Rounds, Ajou University, Suwon, Korea

- "RN gastric emptying measurements"

March 10, 1995

Koshin Medical School, Pusan, Korea

- "Functional tumor imaging - Current practice and future promise"

- March 11, 1995 Gastroenterology Meeting, Ajou University, Suwon, Korea
 • "GI nuclear radiology"
- March 16, 1995 Senior Student Lecture, Ajou University, Suwon, Korea
 • Applications of nuclear medicine in neurology"
- March 17-18, 1995 Wonju Medical School, Wonju, Korea
 • "Nuclear cardiology"
 • "Neuro-nuclear medicine"
- March 24, 1995 Asan Medical School Hospital, Seoul, Korea
 • "Clinical applications of brain SPECT"
- March 28, 1995 Chung-ang University, Seoul, Korea
 • "Brain SPECT"
- March 29-30, 1995 Ajou University, Suwon, Korea
 • "Nuclear radiology"
 • "Clinical applications of nuclear medicine in medical practice"
- March 31, 1995 Radiology Grand Round, Young Dong Severance, Seoul, Korea
 • "Role of nuclear medicine in practice"
- April 7, 1995 Orthopedic Grand Round, Ajou University, Suwon, Korea
 • "Bone scanning in benign skeletal disorders"
- April 14, 1995 Senior Class, Ajou University, Suwon, Korea
 • "Nuclear cardiology"
- April 21, 1995 Radiology Grand Round, Yonsei University, Seoul, Korea
 • "Clinical applications of NM in medical practice"
- April 25, 1995 Radiology Grand Round, Ajou University, Suwon, Korea
 • "Functional imaging: Its clinical importance"
- April 30, 1995 Breast Cancer Symposium, Yonsei University, Seoul, Korea
 • "Scintimammogram and PET"
- May 3, 1995 Monthly Radiology Meeting, Dan Book University, Chun-Ann, Korea
 • "Value of nuclear medicine in radiology practice"
- May 19, 1995 Monthly Radiology Meeting, Ke Myung University Medical School, Tae Gu, Korea
 • "Functional tumor imaging"
- May 26, 1995 Korean Society of Nuclear Medicine Annual Meeting, Seoul, Korea
 • "Current status of nuclear medicine in the USA"
 • "^{99m}Tc MIBI scintimammogram - Preliminary Result"
 (poster presentation)
- May 27, 1995 Nuclear Medicine Technology Annual Meeting, Ajou University, Suwon, Korea

- "Current issues of nuclear medicine in Korea and USA"
 - "Technique of ^{99m}Tc MIBI scintimammography"
- June 2, 1995 Chon Book University Medical School, Chon Ju, Korea
- "Brain SPECT"
- June 5, 1995 Endocrine Conference, Ajou University, Suwon, Korea
- "Management of well differentiated thyroid cancer"
- June 20, 1995 Chon Nam University Medical School, Kwang Ju, Korea
- "Radionuclide imaging in radiologic practice"

CATHERINE W. PICCOLI, M.D.

- September 16, 1994 Invited Faculty, The Society of Diagnostic Medical Sonographers (SDMS), The 11th Annual Conference and Exhibition, Chicago, IL
- "The basics of breast sonography"
 - "Advances in breast sonography"
- October 21, 1994 Pennsylvania Hospital, Department of Radiology, Philadelphia, PA
- "Breast MRI"
- January 10, 1995 Greater Delaware Valley Ultrasound Society, Philadelphia, PA
- "Breast ultrasound"
- January 30, 1995 Presbyterian Hospital, Department of Radiology, Philadelphia, PA
- "Breast MRI"
- April 12, 1995 Charlton Hospital, Department of Radiology, Fall River, MA
- "The basics of breast ultrasound"
 - "Interventional techniques and advances in breast ultrasound"
- May 10-12, 1995 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- "Breast ultrasound: 1995 update"
- May 14, 1995 The Proceedings of the Society of Computed Body Tomography and Magnetic Resonance, New York, NY
- "Breast MRI diagnosis: Effect of clinical and mammographic findings on recommendations for biopsy"

VIJAY M. RAO, M.D.

- October 6, 1994 Blue Ribbon Lecture, Philadelphia Roentgen Ray Society, Philadelphia, PA
- "Skull base imaging: Anatomy and pathology"

- November 27 -
December 2, 1994 The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Imaging of the temporomandibular joint and the mandible"
- December 30, 1994 Progress in Medicine, CME '94, All India Institute of Medical Sciences, New Delhi, India
- "Advances in head and neck magnetic resonance imaging"
- January 18, 1995 The Reading Hospital and Medical Center, Reading, PA
- "Skull base imaging: Anatomy and pathology"
 - "Head and neck imaging: Interesting cases"
- January 26, 1995 Mercy Catholic Medical Center, Fitzgerald Mercy Division, Darby, PA
- "Head and neck imaging: Interesting cases"
- April 4-8, 1995 The 43rd Annual Meeting of the Association of University Radiologists, San Diego, CA
- "Guidelines for a national radiology curriculum"
- April 21, 1995 Presbyterian Medical Center of Philadelphia, Philadelphia, PA
- "Head and neck imaging"

ANA M. SALAZAR, M.D.

- March 19-23, 1995 The Annual Meeting of the Society of Thoracic Radiology, Amelia Island, FL
- "MR in acquired cardiovascular disease"
- April 19-21, 1995 American College of Emergency Physicians: Pennsylvania Chapter Annual Meeting, Philadelphia, PA
- "Imaging evaluation of the aorta: Acute traumatic injury and dissection"

MARK E. SCHWEITZER, M.D.

- October 3, 1994 University of California, San Francisco, CA
- "MRI of the wrist"
 - "Normal musculoskeletal MRI variants"
 - "MRI of marrow"
- October 6, 1994 Hungary Radiological Society, Sopran, Hungary
- "Tumor to trauma"
 - "MRI of marrow"
 - "MRI of bone and soft tissue tumors"
- October 8, 1994 Pannon Agricultural University, Kaposvar, Hungary
- "Axial MRI of the knee"
 - "MRI of the foot and ankle"
 - "MRI of the shoulder"
 - "MRI of the hip"

- October 9, 1994 Heim Pal Children's Hospital, Budapest, Hungary
 • "MRI of the shoulder"
- October 17, 1994 Bryn Mawr Hospital, Bryn Mawr, PA
 • "MRI of the wrist"
- November 15, 1994 Albany Medical College, Albany, NY
 • "MRI of the foot and ankle"
- November 15, 1994 New York State Radiology Society, Central Section, Albany, NY
 • "MRI of marrow"
- November 27, 1994
 December 2, 1994 The 80th Scientific Assembly and Annual Meeting of the
 Radiological Society of North America, Chicago, IL
 • "MR of the MCL revisited: Accuracy of the various MRI signs"
 • "Polymyositis: MR findings, utility and effectiveness"
 • "Shoulder joint fluid on MR images: When does its presence
 have clinical significance?"
- January 12, 1995 Delaware Valley Magnetic Resonance Imaging Society,
 Philadelphia, PA
 • "MRI of the foot and ankle"
- January 17, 1995 The Fourth Annual International Course of the College of
 International due Pied CIP, Zurich, Switzerland
 • "MRI of the hindfoot"
- January 17, 1995 University of Zurich, Zurich, Switzerland
 • "Clinic and imaging of the foot"
- February 8, 1995 University of Medicine and Dentistry, Newark, NJ
 • "MRI of marrow"
 • "MRI of the foot and ankle"
- February 28-29, 1995 The 18th Annual Musculoskeletal Symposium, Telluride, CO
 • "MR of the shoulder"
 • "MR pulse sequences"
 • "MR of arthritis"
- March 14, 1995 Medical Society of Delaware hosted by the Arthritis Foundation,
 Delaware Chapter, Wilmington, DE
 • "MR imaging of rheumatologic disorders"
- March 28, 1995 Brigham and Women's Hospital, Harvard Medical School,
 Boston, MA
 • "MRI of marrow"
 • "MRI of the foot and ankle"
- April 6, 1995 University of California, San Diego, CA
 • "MRI of the foot and ankle"

SHARON R. SEGAL, D.O.

November 27-
December 2, 1994

The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Upper extremity duplex venous imaging" (exhibit)

May 10-12, 1995

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

- Stump the stars

MARCELLE J. SHAPIRO, M.D.

March 25-31, 1995

The 20th Annual Scientific Meeting of the Society of Cardiovascular and Interventional Radiology, Ft. Lauderdale, FL

- "Biliary interventions" (workshop)

June 2-4, 1995

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

- "Atherosclerotic vascular disease: Diagnosis and medical treatment"

PAUL W. SPIRN, M.D.

May 19, 1995

Pennsylvania Hospital, Philadelphia, PA

- "WILD - Widespread infiltrative lung disease unravelled"

ROBERT M. STEINER, M.D.

July 1-3, 1994

The 7th World Conference on Lung Cancer, Colorado Springs, CO

- "Pulmonary neoplasm. Ultrasound-guided bronchoscopy and thoracoscopy utilizing miniaturized catheter transducers"

November 18, 1994

The Third Annual Schuylkill Valley Regional Cancer Symposium, Reading, PA

- "Anatomy of the chest and abdomen: Correlation of plain film, CT, and MRI"

November 27-
December 2, 1994

The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Evolving role of radiologists in percutaneous thoracic interventional procedures"

January 15, 1995

Cooper Medical Hospital, University Medical Center, Camden, NJ

- "Acyanotic congenital heart disease"

January 24, 1995

Presbyterian Medical Center, Philadelphia, PA

- "Essentials cardiac radiology"

January 25, 1995

Cooper Hospital, Rutgers University Medical Center, Camden, NJ

- "Cyanotic heart disease"

- February 20, 1995 Armed Forces Institute of Pathology, Washington, DC
- "Congenital heart disease in the adult patient"
- March 5-10, 1995 The 9th European Congress of Radiology, Vienna, Austria
- "Bone marrow imaging" (refresher course)
 - "Radiology of scleroderma: The value of HRCT"
- March 14-18, 1995 The 12th Annual Meeting of the Society of Thoracic Radiology
Amelia Island, FL
- "Adenopathy in diffuse and limited scleroderma"
- May 1, 1995 Massachusetts General Hospital, Boston, MA
- "Cyanotic congenital heart disease"
- May 10, 1995 North American Society of Cardiac Imaging - Teach the Teachers
Symposium on Cardiac Imaging, New York, NY
- "Congenital heart disease in the adult patient"
- June 1, 1995 Deborah Heart and Lung Center, Browns Mills, NJ
- "Pericardial imaging"

KEVIN L. SULLIVAN, M.D.

- October 11, 1994 University of Pennsylvania Interventional Radiology and
Imaging Conference, Philadelphia, PA
- "Peripheral arterial thrombolysis"
 - "Dialysis access screening"
- March 25-31, 1995 The 20th Annual Scientific Meeting of the Society of Cardiovascular
and Interventional Radiology, Ft. Lauderdale, FL
- "Accuracy and safety of CO2 inferior vena cavography"
 - "Embolization" (workshop)
 - "Thrombolysis" (workshop)
 - "Dialysis access interventions" (moderator, scientific session)
- May 18, 1995 Newark Angiography Society, Beth Israel Hospital, Newark, NJ
- "The effect of screening and dialysis access angioplasty on
access thrombosis"
- June 2-4, 1995 Second Annual Penn-Jeff Conference on Interventional Radiology,
Skytop, PA
- "Interventions in the venous system"

LISA M. TARTAGLINO, M.D.

- October 5, 1994 Grand Rounds, Albert Einstein Hospital, Department of Radiology,
Philadelphia, PA
- "MR imaging of myelopathy"
- January 20, 1995 Radiology Lecture Series, Pennsylvania Hospital, Philadelphia,
PA

- "MR imaging of non-tumoral intramedullary processes"

April 21-27, 1995

The 33rd Annual Meeting of the American Society of Neuroradiology, Chicago, IL

- "Comparison of MR angiography and Doppler sonography in angiographically determined occlusive and preocclusive carotid artery disease"
- "The MR appearance of multiple sclerosis in the spinal cord and correlation with clinical type"

MATHEW L. THAKUR, Ph.D.

July 26, 1994

RhoMed, Inc, Albuquerque, NM

- "Tc-99m labeled peptides as agents for imaging prostate cancer"

August 22-25 1994

Pre-congress Symposium to the European Association of Nuclear Medicine Annual Meeting, Dusseldorf, Germany

- "Radiolabeled receptor specific monoclonal antibodies in imaging inflammatory foci"
- "Technetium-99m labeled antimelanoma monoclonal antibody (Mab) ME 9.2.27: Comparative evaluation of direct and preformed chelation methods"

September 8, 1994

Wistar Institute, Philadelphia, PA

- "Radiolabeled monoclonal antibodies: Influence of biological response modifiers"

October 18-20 1994

Pre-congress Symposium to the 6th World Congress in Nuclear Medicine and Biology, Cairns, Australia

- "Protein labeling: Direct or indirect methods: Does it make a difference?"
- "Labelled blood cells: Will labeled antibodies or peptides replace current methods"

October 23-28 1994

The 6th World Congress in Nuclear Medicine and Biology, Sydney, Australia

- "White blood cell scintigraphy"

June 12-15 1995

The 42nd Annual Meeting of the Society of Nuclear Medicine, Minneapolis, MN

- "Mechanisms of localization of the new radiotracers and radiolabeled blood cells"
- "Tc-99m-RC-160: A somatostatin analog for imaging prostate cancer: Comparison with I-125-RC-160 and In-111-Octreotide"
- "Preparation of Tc-99m-antisense and distribution in normal mice"

TERRI TUCKMAN, M.D.

May 10-12, 1995

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

- "Current topics in fetal neurosonography"
- Stump the stars

SIMON VINITSKI, Ph.D.

December 19, 1994

Yale University, New Haven, CT

- "Safety aspects in magnetic resonance imaging"

January 20, 1995

Rutgers University, New Brunswick, NJ

- "Quality assurance and acceptance test in MRI"

RICHARD J. WECHSLER, M.D.

October 3, 1994

Visiting Professor, Heim Pal Children's Hospital, Budapest, Hungary

- "Applications of abdominal spiral CT"

October 4, 1994

Visiting Professor, Szent Imre Hospital, Budapest, Hungary

- "Applications of chest spiral CT"
- Interesting chest cases

October 7, 1994

The 9th Annual Sopron Ultrasound Days, Sopron, Hungary

- "CT of abdominal trauma"
- "Vascular applications of spiral CT"

October 26, 1994

Visiting Professor, Albany Medical Center, Albany, NY

- "CT of abdominal trauma"
- Interesting CT cases

October 26, 1994

Northeastern New York Radiological Society Meeting, Albany, NY

- "Applications of spiral CT in the thorax and abdomen"

November 27,
December 2, 1994

The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Superior hypogastric blocks for chronic pelvic pain in the presence of endometriosis: CT techniques and results"

January 25, 1995

Visiting Professor, Baystate Medical Center, Springfield, MA

- "Thoracic and abdominal applications of spiral CT"
- Interesting cases

January 25, 1995

Western Massachusetts Radiological Society, Holyoke, MA

- "CT of abdominal trauma"

March 19-23, 1995

The 12th Annual Meeting of the Society of Thoracic Radiology, Amelia Island, FL

- "CT diagnosis of esophagopericardial fistula"

ANNINA N. WILKES, M.D.

March 27-30, 1995 The 39th Annual Convention of the American Institute of
Ultrasound in Medicine, San Francisco, CA
• "Basic fetal echocardiography: Beyond the four chamber view"
(exhibit)

May 10-12, 1995 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas
Jefferson University Hospital, Atlantic City, NJ
• "Sonomammography"

JAMES J. ZHANG, Ph.D.

November 27-
December 2, 1994 The 80th Scientific Assembly and Annual Meeting of the
Radiological Society of North America, Chicago, IL
• "Computer-assisted automatic myocardial wall motion analysis
on gated SPECT imaging"

March 21-24, 1995 Department of Radiology, Ajou University, Sewen, Korea
• "Quality control in nuclear medicine"
• "Computer application in nuclear medicine"
• "Radiation safety and procedure in nuclear medicine"

March 27, 1995 Department of Biomedical Engineering, College of Health Science,
Yonsei University, Wonju, Korea
• "Biomedical engineering in radiology science"

March 28, 1995 Department of Radiology, Severance Hospital, Yonsei University
College of Medicine, Seoul, Korea
• "Anatomic and functional imaging fusion in diagnostic
radiology"

May 2, 1995 Department of Biomedical Engineering, Drexel University,
Philadelphia, PA
• "Medical imaging processing: Diagnostic imaging in
radiology: Part 1"

May 11, 1995 Department of Biomedical Engineering, Drexel University,
Philadelphia, PA
• "Medical imaging processing: Diagnostic imaging in
radiology: Part 2"

June 10-15, 1995 The 42th Annual Meeting of the Society of Nuclear Medicine,
Minneapolis, MN
• "Automated computer myocardial wall motion analysis in gated
MIBI SPECT: Correlation with echocardiography"
• "A simple user friendly fusion tool for functional and
anatomical images"

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HONORS, EDITORIAL ACTIVITIES, SERVICE TO REGIONAL OR NATIONAL ORGANIZATIONS

ARCHIE A. ALEXANDER, M.D.

- Member, Advisory Group on Prostate Cancer, American Cancer Society
- Reviewer, American Institute of Ultrasound in Medicine, Abdomen Scientific Review Committee for the Annual Convention
- Reviewer, *Radiology*
- Reviewer, *Cancer Research*
- Editor's Recognition Award for Distinction in Reviewing, Radiology

JOSEPH BONN, M.D.

- Elected to Fellowship, Society of Cardiovascular and Interventional Radiology
- Recipient U.S. Patent #5,382,230 for Vascular Access Sheath for Interventional Devices, 1995
- Chairman, Annual Meeting Committee, Society of Cardiovascular and Interventional Radiology
- Chairman, Annual Meeting Scientific Program Committee, Society of Cardiovascular and Interventional Radiology
- Secretary/Treasurer, Philadelphia Angiography & Interventional Radiology Society
- Member, Executive Council Advisory Committee, Society of Cardiovascular and Interventional Radiology
- Member, Executive Council, Society of Cardiovascular and Interventional Radiology
- Member, Young Investigator Award Subcommittee, Society of Cardiovascular and Interventional Radiology
- Member, Transcatheter Therapy of Peripheral Vascular Disease Committee, Council on Cardiovascular Radiology, American Heart Association
- Associate Editor and Deputy Editor, Interventional-Cardiovascular section, *Radiology*
- Associate Editor, *Journal of Vascular and Interventional Radiology*
- Abstract Reviewer, *Journal of Vascular and Interventional Radiology*
- Reviewer, Interventional-Cardiovascular section, *Radiology*

EMILY F. CONANT, M.D.

- Member, Mammography Accreditation Program, American College of Radiology
- Member, Advisory Board, Senator Allyson Schwartz: Women Staying Healthy Together Health Conference
- Reviewer, *American Journal of Roentgenology*

P. MACKE CONSIGNY, Ph.D.

- Member, Research Committee, Society of Cardiovascular and Interventional Radiology
- Member, Executive Council Advisory Committee, Society of Cardiovascular and Interventional Radiology
- Member, Board of Directors, Cardiovascular and Interventional Radiology Research and Education Foundation (CIRREF)
- Member, Executive Council, Council on Cardiovascular Radiology, American Heart Association

- Member, Nominating Committee, Council on Cardiovascular Radiology, American Heart Association
- Member, Credentials Committee, Council on Cardiovascular Radiology, American Heart Association
- Reviewer, *Investigative Radiology*
- Reviewer, *Journal of Vascular and Interventional Radiology*
- Grant Reviewer, Cardiovascular and Interventional Radiology Research and Education Foundation, Fairfax, VA

DIANE M. DEELY, M.D.

- Member, Expert Panel Orthopedic Radiology and Pathology
- Reviewer, *American Journal of Roentgenology*

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
- Member, Executive Committee, Society of Breast Imaging
- Secretary, Society of Breast Imaging
- Treasurer, Society of Breast Imaging
- Editor, Society of Breast Imaging Newsletter
- Guest Examiner, American Board of Radiology
- Member, Clinical Image Reviewer Training Committee, American College of Radiology Mammography Accreditation Program
- Member, Clinical Image Reviewer Subcommittee, American College of Radiology Mammography Accreditation Program
- Member, Committee on Mammography Reporting and Data Base System, American College of Radiology
- Center for Disease Control - American College of Radiology Cooperative Agreement for Quality Assurance in Mammography
 - Member, Oversight Committee
 - Co-Chairman, Committee on Correlation of Phantom and Clinical Image Quality
 - Member, Committee on Radiologists Education
 - Member, Data Analysis and Research Committee
 - Member, Imaging Systems Focus Group
 - Member, Quality Assurance Manual Development Committee
- 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)
- Member, Program Committee, Capitol Hill Forum on New Frontiers in Breast Cancer Imaging and Early Detection sponsored by National Cancer Institute and United States Department of Health and Human Services
- Editor, Breast Diseases, A Year Book Quarterly (Published by C.V. Mosby - Year Book Medical Publishers)

- Co-Editor, *Breast Diseases, An International Journal* (Published by Elsevier Medical Publishers)
- 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, *Journal of the American Medical Association*
- Reviewer, Manuscripts, *RadioGraphics*
- Reviewer, Scientific Exhibits, *RadioGraphics* ()
- Reviewer, *Cancer*
- Reviewer, *Radiology*
- Reviewer, *Breast Cancer Research and Treatment*
- Reviewer, *Journal of the National Cancer Institute*
- Recipient, 1994 Editor's Recognition Award with Distinction, *Radiology*

RICK I. FELD, M.D.

- Vice President, Greater Delaware Valley Ultrasound Society
- First Place. Scientific Exhibit (Video). Laparoscopic Ultrasound: Clinical Applications. American Institute of Ultrasound in Medicine Annual Meeting, San Francisco, CA, March, 1995.
- Reviewer, *Journal of Vascular and Interventional Radiology*
- Reviewer, *Clinical Imaging*
- Reviewer, *International Medical Image Registry*

ADAM E. FLANDERS, M.D.

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

FLEMMING FORSBERG, Ph.D.

- Member, Sample Awards Committee, Society of Diagnostic Medical Sonographers
- Member, Faculty 1995 Summer School, American Association of Physicists in Medicine
- Reviewer, *Radiology*
- Reviewer, *Ultrasound in Medicine and Biology*
- Reviewer, *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*

DAVID P. FRIEDMAN, M.D.

- Reviewer, *American Journal of Roentgenology*

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

- Member, Technology Assessment Committee, Society of Cardiovascular and Interventional Radiology Research and Education Foundation
- ACR Task Force on Appropriateness Criteria, Expert Panel on Cardiovascular Imaging
- Member, Editorial Board, *Cardiovascular and Interventional Radiology*

- Associate Editor, *Journal of Vascular & Interventional Radiology*
- Associate Editor, *Radiology*
- Reviewer, *Radiology*
- Reviewer, *Cardiovascular and Interventional Radiology*
- Reviewer, *Journal of Vascular and Interventional Radiology*

BARRY B. GOLDBERG, M.D.

- President, World Federation for Ultrasound in Medicine and Biology
- Medical Advisor in Ultrasound, World Health Organization
- Board Examiner, The American Board of Radiology
- Chairperson, Archives Committee, American Institute of Ultrasound in Medicine
- Member, Awards Committee, American Institute of Ultrasound in Medicine
- Member, Research and Education Fund Committee, American Institute of Ultrasound in Medicine
- Member, American College of Radiology Commission on Ultrasound
- Chairman, Committee on Government Relations, American College of Radiology Commission on Ultrasound
- Member, Museum Exhibits Committee, 1995 Centennial Celebration, American College of Radiology
- Member, Public Information Advisory Board, Radiological Society of North America
- Consultant Evaluator for Radiology, The American Medico-Legal Foundation
- Editorial Advisor, *Journal d'Echographie et de Medecine par Ultrasons*
- Member, International Advisory Board, *Indian Journal of Medical Ultrasound*
- Member, Editorial Board, *Journal of Clinical Ultrasound in Medicine*
- Member, Editorial Advisory Board, *Ultrasound in Medicine and Biology*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Cancer*
- Reviewer, *Radiology*

CARLOS F. GONZALEZ, M.D.

- Reviewer, *European Journal of Neuroradiology*

ETHAN J. HALPERN, M.D.

- Recipient, General Electric-AUR Radiology Research Academic Fellowship, 1994.
- Reviewer, *Investigative 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.

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

SUNG M. KIM, M.D.

- Secretary, The Korean-American Society of Nuclear Medicine
- Member, Brain Counsel Committee, Society of Nuclear Medicine
- Member, Computer Council Committee, Society of Nuclear Medicine
- Member, Nuclear Medicine Science Committee, American College of Nuclear Physician
- Member, Radiopharmaceutical Affairs Committee, American College of Nuclear Physician

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
- Honorary Mention. Scientific Exhibit. Basic Fetal Echocardiography: Beyond the Four-Chamber View. American Institute of Ultrasound in Medicine Annual Meeting, San Francisco, CA, March 1995.
- Reviewer, Ultrasound Manuscript, *Radiology*
- Reviewer, *Journal of Ultrasound in Medicine*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *RadioGraphics*
- Reviewer, *American Journal of Obstetrics and Gynecology*
- Reviewer, *Obstetrics and Gynecology*
- Reviewer, *Cancer*
- Editor's Recognition Award for Special Distinction in Reviewing, *Radiology*
- Editor's Recognition Award for Special Distinction in Reviewing, *RadioGraphics*

DAVID C. LEVIN, M.D.

- Chairman, Expert Panel on Cardiovascular Imaging of the ACR Task Force on Appropriateness Criteria/Diagnostic Patient Care Guidelines, American College of Radiology
- Chairman, Subcommittee on Socioeconomic Issues, Refresher Course Committee, Radiological Society of North America
- President-elect, Society of Chairmen of Academic Radiology Departments
- Keynote address, The 25th Annual Meeting of the Israel Radiological Society
- Ad hoc Appropriateness/Coding Committee, American College of Radiology
- Ad hoc Publications Committee, Association of University Radiologists
- Scientific Advisor, Radiological Society of North America Research and Education Fund
- Public Information Advisory Board, Radiological Society of North America
- Council Advisory Committee, Society of Cardiovascular and Interventional Radiology

- Committee on Health Policy and Practice, Radiological Society of North America
- Commission on Research and Technology Assessment, American College of Radiology
- Radiology Advisory Committee, Keystone Health Plan East (HMO)
- Committee on Transcatheter Therapy of Peripheral Vascular Disease, Council on Cardiovascular Radiology, American Heart Association
- Cardiac Catheterization Committee, American College of Cardiology
- Committee on Diagnostic Radiology, Pennsylvania Radiological Society
- Committee on Blue Cross, Blue Shield, and State Health Care Programs, Pennsylvania Radiological Society
- Program Committee, Pennsylvania Radiological Society
- Publications Committee, Pennsylvania Radiological Society
- Editorial Board, *Academic Radiology*
- Editorial Consultant, *Journal of Vascular and Interventional Radiology*
- Reviewer, *Radiology*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *New England Journal of Medicine*

ANNA S. LEV-TOAFF, M.D.

- First Place. Scientific Exhibit (Video). Laparoscopic Ultrasound: Clinical Applications. American Institute of Ultrasound in Medicine Annual Meeting, San Francisco, CA, March, 1995.
- Member, Scientific Exhibits Committee, Pennsylvania Radiological Society
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Obstetrics and Gynecology*
- Reviewer, *Radiology*

JI-BIN LIU, M.D.

- RSNA Scientific Exhibit Award: Certificate of Merit. The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL, 1994.
- AIUM Scientific Exhibit Award: First Prize. The 39th Annual Convention of the American Institute of Ultrasound in Medicine, San Francisco, CA, March 1995.
- Scientific Exhibit Award: First Prize. The 80th Annual Meeting of the Pennsylvania Radiological Society, Hershey, PA, May 1995.
- First Place. Scientific Exhibit (Video). Laparoscopic Ultrasound: Clinical Applications. American Institute of Ultrasound in Medicine Annual Meeting, San Francisco, CA, March, 1995.

ANDREW D.A. MAIDMENT, Ph.D.

- First Place, Young Investigators Competition, International Union for Physical and Engineering Sciences in Medicine
- Chairman, Task Group #16, Noise Power Spectrum Analysis, American Association of Physicists in Medicine
- Member, Committee on Correlation of Phantom and Clinical Image Quality, 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, Center for Disease Control Cooperative Agreement for Quality Assurance Activities in Mammography, American College of Radiology

- Member, Physics Subcommittee, Committee of Chest Radiology Accreditation, 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, Diagnostic X-ray Committee, American Association of Physicists in Medicine
- Reviewer, *Medical Physics*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, Physics papers and works in progress, The 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America

DONALD G. MITCHELL, M.D.

- Member, Board of Trustees, Society of Magnetic Resonance
- Member, Advisory Committee of Clinical and Cancer Control Investigations Epidemiology, Diagnosis and Therapy, American Cancer Society (bi-annual review of grants)
- Member, Program Committee, The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- Member, Physics Subcommittee, The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- Consultant, Health Technology Assessment Information, Service of ECRI
- Editor, Body Section, *Current Review of Magnetic Resonance Imaging*
- Co-Editor, Clinical Desktop Section, *MResource Guide*
- Associate Editor, *Journal of Magnetic Resonance Imaging*
- Member, Editorial Board, *Topics Magnetic Resonance Imaging*
- Member, Editorial Board, *Magnetic Resonance Quarterly*
- Member, Editorial Board, *Abdominal Imaging*
- Member, Editorial Board, MRI, *Radiology*
- Reviewer of Abstracts, *Society of Magnetic Resonance*
- Reviewer, *Academic Radiology*
- Reviewer, *Journal of Computer Assisted Tomography*
- Reviewer, *American Journal of Roentgenology*

LEVON N. NAZARIAN, M.D.

- First Place. Scientific Exhibit (Video). Laparoscopic Ultrasound: Clinical Applications. American Institute of Ultrasound in Medicine Annual Meeting, San Francisco, CA, March, 1995.

LAURENCE NEEDLEMAN, M.D.

- First Place. Scientific Exhibit (Video). Laparoscopic Ultrasound: Clinical Applications. American Institute of Ultrasound in Medicine Annual Meeting, San Francisco, CA, March, 1995.
- Honorary Mention. Scientific Exhibit. Basic Fetal Echocardiography: Beyond the Four-Chamber View. American Institute of Ultrasound in Medicine Annual Meeting, San Francisco, CA, March 1995.
- Chairman, Board of Directors, Joint Review Committee on Education in Cardiovascular Technology, American College of Radiology

- Chairman, Abstract Committee, Cardiovascular Section, 1994 American Institute of Ultrasound in Medicine Annual Meeting
- 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, Society of Radiologists in Ultrasound, Professional Practice and Standards Committee
- Abstract Reviewer, American Heart Association Annual Meeting (Vascular section)
- Occasional Reviewer, *Journal of Clinical Ultrasound*
- Occasional Reviewer, *Journal of Ultrasound in Medicine*
- Reviewer, *JVIR*

HECTOR V. ORTEGA, M.D.

- Selected to appear in Jefferson's Outstanding Employee Exhibit, April 1995.

ERIC K. OUTWATER, M.D.

- President, Greater Delaware Valley MRI Society
- Reviewer, Scientific exhibits at RSNA for *Radiographics*, December 1994
- Reviewer, *Radiology*
- Reviewer, *Magnetic Resonance in Medicine*
- 1994 Editor's Recognition Award for Special Distinction in Reviewing, *Radiology*
- 1994 Editor's Certificate of Recognition for Review of Manuscripts, *Radiographics*
- 1994 Editor's Award, prolific reviewer, *Radiology*

CHAN H. PARK, M.D.

- Chairman, Scientific Program, The 6th Severance Alumni Reunion and Scientific Session
- President, Korean Society of Nuclear Medicine and Korean Society of Nuclear Medicine in America
- President, Severance Alumni Association of Greater Philadelphia Area
- Vice President, Working Group, Greater Delaware Valley Nuclear Cardiology
- Executive Committee Member, Korean Society of Nuclear Medicine in America
- Member, Technology Committee, American College of Nuclear Physicians
- Member, Brain Council Committee, Society of Nuclear Medicine
- Member, Computer Council Committee, Society of Nuclear Medicine
- Member, Society of Chiefs of Academic Nuclear Medicine Sections (SCANS)

CATHERINE W. PICCOLI, M.D.

- Member, Medical Advisory Board, Linda Creed Foundation, Philadelphia PA
- Clinical Reviewer, Mammography Accreditation Program, American College Radiology
- Reviewer, *American Journal of Roentgenology*

VIJAY M. RAO, M.D.

- Chairperson, Ad Hoc Committee on Curriculum, 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
- Member, Board of Censors, Philadelphia Roentgen Ray Society
- Radiographics Panel, The 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- Reviewer, *American Journal of Neuroradiology*
- Reviewer, *Neuroradiology*
- Reviewer, *Radiology*
- Reviewer, *Radiographics*

ANA M. SALAZAR, M.D.

- Reviewer, *American Journal of Roentgenology*

MARK E. SCHWEITZER, M.D.

- Recipient, 1995 Radiological Society of North America Scholar's Award
- Recipient, 1995 Picker AUR Faculty Development Award
- Reviewer, *Radiology*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Radiographics*
- Reviewer, *Annals of Internal Medicine*
- Reviewer, *Journal of Clinical Ultrasound*

SHARON R. SEGAL, D.O.

- Member, Editorial Board, *American Osteopathic College of Radiology*

MARCELLE J. SHAPIRO, M.D.

- Member, Scientific Program Committee, Annual Meeting of the Society of Cardiovascular and Interventional Radiology
- Workshop Coordinator, Biliary Interventions, Society of Cardiovascular and Interventional Radiology
- Public Relations and Marketing Committee, Society of Cardiovascular and Interventional Radiology
- Reviewer, *Radiology*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Journal of Vascular & Interventional Radiology*

ROBERT M. STEINER, M.D.

- Chairperson, Annual Meeting Society of Thoracic Radiology
- Chairperson, Training and Standards of Care Committee, Society of Thoracic Radiology
- Chairperson, Chest Accreditation Commission, American College of Radiology
- Chairperson, Annual Orator Committee, Philadelphia Roentgen Ray Society
- Chairperson, Nomination Committee, Philadelphia Roentgen Ray Society
- Secretary, Society of Thoracic Radiology
- Member, Joint Coordination Committee, North American Society Cardiac Imaging and Society of Thoracic Radiology
- Member, Intersociety Commission, American College of Radiology
- Member, Standards and Guidelines Committee, American College of Radiology
- Member, Education Committee, North American Society of Cardiac Imaging
- Member, Diagnostic Radiology, Pennsylvania Radiologic Society
- Member, Nomination Committee, Pennsylvania Radiological Society
- Member, Executive Committee, Philadelphia Roentgen Ray Society
- Guest Editor, Symposium on Congenital Heart Disease in Adults, *Journal of Thoracic Imaging*
- Editorial Board, *American Journal of Cardiac Imaging*
- Editorial Board, *Heart and Vessel*
- Manuscript Reviewer, *Journal of Thoracic Imaging*
- Manuscript Reviewer, *Cancer*
- Abstractor and Manuscript Reviewer, *Radiology*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *RadioGraphics*

KEVIN L. SULLIVAN, M.D.

- Member, Research Committee, Society of Cardiovascular and Interventional Radiology
- Editorial Board, *Journal of Vascular and Interventional Radiology*
- Reviewer, *Radiology*
- Recipient, 1994 Editor's Recognition Award with Distinction, *Radiology*

MATHEW L. THAKUR, Ph.D.

- Chairman, Advisory Committee, RhoMed Scientific
- Member, Scientific Program Committee, European Association of Nuclear Medicine Annual Conference
- Member, Scientific Program Committee, The 6th World Congress in Nuclear Medicine and Biology
- Member, Scientific Program Committee, The 42nd Annual Meeting of the Society of Nuclear Medicine
- Member, Scientific Exhibit Committee, The 42nd Annual Meeting of the Society of Nuclear Medicine
- Member, Scientific Program Committee, The Indo-American Society of Nuclear Medicine
- Ad hoc member, Grant Review Services, National Institutes of Health
- Ad hoc member, Grant Review Services, American Cancer Society
- Member, Grant Review Services, Canadian Medical Research Council
- Member, Grant Review Services, Veterans Administration
- Member, Advisory Committee, US Pharmacopeia
- Member, Advisory Committee, Kuwait Medical Research Council
- Editorial Board, *Journal of Nuclear Medicine and Biology*

- Editorial Board, *Nuclear Medicine Communications*
- Editorial Board, *Journal of Nuclear Medicine*
- Reviewer, *Journal of Nuclear Medicine*
- Reviewer, *Cancer Research*
- Reviewer, *Nuclear Medicine Communications*
- Reviewer, *Journal of Nuclear Medicine and Biology*
- Reviewer, *Laboratory Investigation*
- Reviewer, *Journal of Immunological Methods*

TERRI TUCKMAN, M.D.

- 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, Philadelphia, PA
- Reviewer, *Journal of Magnetic Resonance Imaging*
- Reviewer, *Magnetic Resonance Imaging*
- Reviewer, *Magnetic Resonance In Medicine*
- Reviewer, *Medical Physics*

RICHARD J. WECHSLER, M.D.

- Inducted, Fellow of American College of Radiology
- Secretary, Philadelphia Roentgen Ray Society
- Member, Program Committee, Philadelphia Roentgen Ray Society
- Member, Executive Committee, Philadelphia Roentgen Ray Society
- Member, Chest Radiology Accreditation Committee on Standards and Accreditation, American College of Radiology
- Member, Board of Directors, Pennsylvania Radiological Society
- Reviewer, *Radiology*
- Recipient, 1994 Editor's Recognition Award for Distinction in Reviewing, *Radiology*

ANNINA N. WILKES, M.D.

- Honorary Mention. Scientific Exhibit. Basic Fetal Echocardiography: Beyond the Four-Chamber View. American Institute of Ultrasound in Medicine Annual Meeting, San Francisco, CA, March 1995.

JAMES J. ZHANG, Ph.D.

- Member, Brain Counsel Committee, Society of Nuclear Medicine
- Member, Computer Council Committee, Society of Nuclear Medicine
- Member, Computer Committee, American Association of Physics in Medicine

- Member, Organizing Committee, The 2nd World Chinese Conference of Nuclear Medicine, Chinese American Society of Nuclear Medicine

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APPENDIX

APPENDIX I - MEMBERS

APPENDIX II - INDEX

APPENDIX III - GLOSSARY

APPENDIX

Table 1 ACTIVE GRANTS

Table 2 PENDING GRANTS

Table 3 FY'94 GRANT INCOME AND EXPENSES

Table 1

Active Grants

07/01/94 - 06/30/95

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

Revised 06/30/95

NIH GRANTS

PRINCIPAL INVESTIGATOR	TITLE OF PROJECT	FUNDING SOURCE	FUNDING DATES	DIRECT COSTS	INDIRECT COSTS	TOTAL COSTS FUNDED
Feig 080-02042	Clinical Evaluation of Digital Mammography	NIH 1 RO1 CA60192 02 year	09/30/93 - 08/31/98 09/01/94 - 8/31/95	\$388,987 \$89,573 (-02 year)	\$241,620 \$46,463 (-02 year)	\$630,607 \$136,036 (-02 year)
Feig 080-05152 Subcontract (UNC)	Stereotactic Breast Biopsy vs Open Surgical Biopsy (RDOG V)	NIH 1 UO1 CA62476 02 year	09/30/93 - 06/30/97 09/01/94 - 07/31/95	\$56,172 \$11,841 (-02 year)	\$37,503 \$7,934 (-02 year)	\$93,675 \$19,775 (-02 year)
Goldberg, B. 080-03219	Effects of Prenatal US on Postnatal Development	NIH 2RO1HD21678	04/01/86 - 07/31/94	\$952,374 \$152,912 (-06 year)	\$358,099 \$51,200 (-06 year)	\$1,310,473 \$204,112 (-06 year)
Goldberg, B. (Graziani, L.) 080-02548	Ultrasound and Ventilator Studies in Preterm Infants	NIH	05/01/91 - 04/30/96 05/01/94 - 04/30/95	\$90,624 \$12,620 (-04 year)	\$59,216 \$8,455 (-03 year)	\$149,840 \$21,075 (-03 year)
Goldberg, B. 080-08615	Diagnostic Ultrasound Training Program (for Dr. Andrei Yefimenko)	NCI/Courtesy Associates	07/06/94 - 09/15/94	\$4,241 \$4,241 (-01 year)	\$0 \$0 (-01 year)	\$4,241 \$4,241 (-01 year)

Goldberg, B. 080-05123	Developing of Ultra- sonic Tissue Characteriza- tion Methods	NIH 2PO1 CA52823- 04A1	10/01/94- 09/30/97 10/01/94 - 09/30/95	\$142,710 \$43,898 (-04 year)	\$95,614 \$29,411 (-04 year)	\$238,324 \$73,309 (-04 year)
Goldberg, B. (Wheatley, M.)	Development of a New Class of Ultrasound Contrast Agents	NIH	07/01/94 - 06/30/99 07/01/94 - 06/30/95	\$70,504 \$0 (-01 year)	\$47,238 \$0 (-01 year)	\$117,742 \$0 (-01 year)
Kurtz, A. 080-03250	The Detection and Staging of Ovarian Cancer (RDOG IV)	NIH 1RO1 CA59648 03 year	09/30/92 - 09/29/95 09/30/94 - 09/29/95	\$262,682 \$89,196 (-03 year)	\$106,948 \$59,761 (-03 year)	\$369,630 \$148,957 (-03 year)
Thakur, M. 080-08132	Evaluation of Biological Response Modifiers in Enhancement of Tumor Uptake of Tc-99m Labeled Monoclonal Antibodies	DOE DEGF 02 92 ER 61485	09/01/92 - 08/31/95 09/01/94 - 08/31/95	\$465,847 \$144,631 (-03 year)	\$276,738 \$96,903 (-03 year)	\$742,585 \$241,534 (-03 year)
			TOTAL NIH GRANT FUNDING	\$2,434,141	\$1,222,976	\$3,657,117
			CURRENT YEAR NIH FUNDING	\$548,912 (current year)	\$300,127 (current year)	\$849,039 (current year)

Active Grants

07/01/94 - 06/30/95

(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
Consigny, M. 080-01077	Re-endothelialization of Arteries After Angioplasty	American Heart Association	07/01/93 - 06/30/95	\$36,364 -- \$18,182 (-02 year)	\$3,636 -- \$1,818 (-02 year)	\$40,000 -- \$20,000 (-02 year)
Forsberg, F. 080-08113	Nonstationary Spectral Analysis of Ultrasound Doppler Signals	Whitaker Foundation	08/01/93 - 07/31/96 08/01/94 - 07/31/95	\$146,758 -- \$50,023 (-02 year)	\$29,010 -- \$9,663 (-02 year)	\$175,768 -- \$59,686 (-02 year)
Gardiner, G. 080-08309	SCVIR Transluminal Angioplasty & Revascularization Registry (STAR)	CRREF (Cardiovascular/Interventional Radiology Research & Education Foundation)	01/01/92 - 12/31/95 includes 1 yr. extension (1/1/95-12/31/95)	\$650,257 -- \$201,302 (-03 year)	\$59,409 -- \$19,364 (-03 year)	\$709,666 -- \$220,666 (-03 year)
Goldberg, B. 080-08124	A Diagnostic Ultrasound Training Program	U.S. AID U.S. Agency for International Development	01/01/94 - 12/31/94	\$157,965 -- \$157,965 (-01 year)	\$0 -- \$0 (-01 year)	\$157,965 -- \$157,965 (-01 year)
Goldberg, B. 080-01679	A Diagnostic Ultrasound Training Program	Soros Foundations	01/01/94 - 12/31/94	\$30,550 -- \$30,550 (-01 year)	\$0 -- \$0 (-01 year)	\$30,550 -- \$30,550 (-01 year)

Goldberg, B. 080-08136	A Diagnostic Ultrasound Training Program	U.S. AID U.S. Agency for International Development	09/29/94 - 03/31/96	\$177,272 -- \$177,272 (-01 year)	\$0 -- \$0 (-01 year)	\$177,272 -- \$177,272 (-01 year)
Goldberg, B. 080-01353	A Diagnostic Ultrasound Training Program	Soros Foundations	01/03/95 - 03/28/96	\$16,640 -- \$16,640 (-01 year)	\$0 -- \$0 (-01 year)	\$16,640 -- \$16,640 (-01 year)
Halpern, E. 080-08609	Application of Ultrasound, Spiral CT and MR Angio- graphy to Screen for Renal Artery Stenosis	GE-AUR	07/01/94 - 06/30/95	\$50,000 -- \$50,000 (-01 year)	\$0 -- \$0 (-01 year)	\$50,000 -- \$50,000 (-01 year)
Maidment, A. 080-01462	3-D Morphological Analysis of Breast Calcifications	RSNA	11/01/93 - 10/31/94	\$23,422 -- \$23,422 (-01 year)	\$0 -- \$0 (-01 year)	\$23,422 -- \$23,422 (-01 year)
Nazarian, L. 080-08666	Diagnostic Ultrasound Training Program	Armenian General Benevolent Union	04/06/95 - 06/28/95	\$33,468 -- \$33,468 (-01 year)	\$0 -- \$0 (-01 year)	\$33,468 -- \$33,468 (-01 year)
Thakur, M. 080-08354	Radiolabeled Somatostatin Analogues in Prostate Cancer	American Cancer Society	07/01/94 - 06/30/95	\$60,000 -- \$60,000 (-01 year)	\$15,000 -- \$15,000 (-01 year)	\$75,000 -- \$75,000 (-01 year)
			TOTAL NON-PROFIT FUNDING CURRENT YEAR NON-PROFIT FUNDING	\$1,382,696 -- \$818,824 (current year)	\$107,055 -- \$45,845 (current year)	\$1,489,751 -- \$864,669 (current year)

Active Grants

07/01/94 - 06/30/95

(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. 080-01783	Evaluation of an Ultrasound Contrast Agent in an Animal Model (VX tumors-20 rabbits)	Sterling-Winthrop	04/15/94 - 04/14/95	\$19,132 -- \$19,132 (-01 year)	\$6,868 -- \$6,868 (-01 year)	\$26,000 -- \$26,000 (-01 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	\$227,810 (14.5 months) -- \$188,532 (-01 year)	\$45,562 (14.5 months) -- \$37,706 (-01 year)	\$273,372 (14.5 months) -- \$226,238 (-01 year)
Consigny, P.M. 080-01318	Effect of Hydrogel Coating on Endothelial Denudation by Angioplasty Balloons	Boston Scientific	09/01/93-08/31/94	\$4,370 -- \$4,370 (-01 year)	\$1,093 -- \$1,093 (-01 year)	\$5,463 -- \$5,463 (-01 year)
Consigny, M. 080-01797	Delivery of Heparin to the Rabbit Iliac Artery Using Hydrogel-coated Angioplasty Balloons	Boston Scientific III	04/01/94-03/31/95	\$22,160 -- \$22,160 (-01 year)	\$5,540 -- \$5,540 (-01 year)	\$27,700 -- \$27,700 (-01 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 for the Remaining Six Weeks	Rhone Poulenc Rorer Lovenox Spinal Cord Injury Study - 611	03/01/95 - 02/28/96	\$96,000 -- \$96,000 (-01 year)	\$24,000 -- \$24,000 (-01 year)	\$120,000 -- \$120,000 (-01 year)
Forsberg, F. 080-01313	Assessment of a New Class of Ultrasound Contrast Agents (Animals)	Sonus Pharmaceuticals	09/01/93 - 08/31/94	\$40,160 -- \$40,160 (-01 year)	\$10,040 -- \$10,040 (-01 year)	\$50,200 -- \$50,200 (-01 year)
Forsberg, F. 080-01782	Evaluation of an Ultrasound Contrast Agent in an Animal Model (6 Rabbits)	Sterling-Winthrop	04/15/94 - 04/14/95	\$10,302 -- \$10,302 (-01 year)	\$3,698 -- \$3,698 (-01 year)	\$14,000 -- \$14,000 (-01 year)
Forsberg, F. 080-08663	Parenchymal Enhancement of Hepatomas with a New Ultrasound Contrast Agent	Sonus Pharmaceuticals	04/01/95 - 03/31/96	\$15,997 -- \$15,997 (-01 year)	\$3,999 -- \$3,999 (-01 year)	\$19,996 -- \$19,996 (-01 year)
Forsberg, F. 080-08669	In Vitro Characterization of Polymer-Based Ultrasound Contrast Agents	Acusphere, Inc.	04/01/95 - 09/30/95	\$8,905 -- \$8,905 (-01 year)	\$3,197 -- \$3,197 (-01 year)	\$12,102 -- \$12,102 (-01 year)

<p>Gardiner, G. 080-08337</p>	<p>Enoxaparin: 567 A Double Blind, Parallel Group, Randomized Trial to Compare the Efficacy & Safety of Enoxaparin 40 MG SC TID and Unfractionated Heparin 5000 IU SC TID During 6-12 Days for Prevention of Deep Venous Thrombosis (DVT) in 850 Patients after Planned Elective Curative Cancer Surgery</p>	<p>Rhone-Poulenc Rorer Enoxaparin 567</p>	<p>04/14/94 - 04/13/95</p>	<p>\$48,640 --- \$48,640 (-01 year)</p>	<p>\$12,160 --- \$12,160 (-01 year)</p>	<p>\$60,800 --- \$60,800 (-01 year)</p>
<p>Gardiner, G. 080-01878</p>	<p>Enoxaparin 529: A Multi-center, Randomized, Partially Blind, Parallel Group, Clinical Trial to Compare the Efficacy and 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.</p>	<p>Rhone-Poulenc Rorer Enoxaparin 529</p>	<p>9/1/94-8/31/95</p>	<p>\$119,040 --- \$119,040 (-01 year)</p>	<p>\$29,760 --- \$29,760 (-01 year)</p>	<p>\$148,800 --- \$148,800 (-01 year)</p>

Gardiner, G. 080-086680	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 Enoxaparin 307	10/04/94 - 10/03/95	\$105,472 -- \$105,472 (-01 year)	\$26,368 -- \$26,368 (-01 year)	\$131,840 -- \$131,840 (-01 year)
Gardiner, G. 080-086665	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 Lovenox Spinal Cord Injury Study - 611	4/6/95 - 4/5/96	\$64,000 -- \$64,000 (-01 year)	\$16,000 -- \$16,000 (-01 year)	\$80,000 -- \$80,000 (-01 year)
Goldberg, B. 080-01792	Evaluation of FS069: A Novel Ultrasound Contrast Agent	Molecular Biosystems, Inc.	05/01/94 - 04/30/95	\$58,036 -- \$58,036 (-01 year)	\$20,835 -- \$20,835 (-01 year)	\$78,871 -- \$78,871 (-01 year)
Goldberg, B. 080-01558	Endoluminal Evaluation of the Urethra and Anal-Rectal Region Using a Special Ultrasound Probe	Intra-Sonix (TULIP II System)	10/17/94 - 10/16/95	\$2,400 -- \$2,400 (-01 year)	\$600 -- \$600 (-01 year)	\$3,000 -- \$3,000 (-01 year)

Goldberg, B. 080-01914	Development of a Simulator for Ultrasound Scanning	Med-Sim	11/01/94 - 10/31/95	\$88,530 -- \$88,530 (-01 year)	\$22,132 -- \$22,132 (-01 year)	\$110,662 -- \$110,662 (-01 year)
Goldberg, B. 080-08647	Evaluation of Filmix in VX- 2 Tumor Models in Rabbits	Israel Chemicals, Ltd.	01/01/95 - 06/30/95	\$8,231 -- \$8,231 (-01 year)	\$2,955 -- \$2,955 (-01 year)	\$11,186 -- \$11,186 (-01 year)
Goldberg, B. 080-08648	Evaluation of Filmix in VX- 2 Tumor Models in Rabbits and Hepatomas in Wood- chucks	Israel Chemicals, Ltd.	08/01/94 - 02/28/95	\$10,071 -- \$10,071 (-01 year)	\$3,615 -- \$3,615 (-01 year)	\$13,686 -- \$13,686 (-01 year)
Intenzo, Charles 080-01879	Enoxaparin 529: A Multi- center, Randomized, Partially Blind, Parallel Group, Clinical Trial to Compare the Efficacy and 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	9/1/94-8/31/95	\$26,880 -- \$26,880 (-01 year)	\$6,720 -- \$6,720 (-01 year)	\$33,600 -- \$33,600 (-01 year)
Lev-Toaff, A. 080-01568	A Phase I Clinical Evalua- tion of the Safety & Effi- cacy of SonoRx vs Water in Normal Volunteers	Squibb Diagnostics	11/15/93 - 11/14/94	\$21,763 -- \$21,763 (-01 year)	\$5,440 -- \$5,440 (-01 year)	\$27,203 -- \$27,203 (-01 year)

Lev-Toaff, A. 080-01788	A Phase III Clinical Evaluation of the Safety and Efficacy of SonoRx in Patients Highly Suspected of Having Abdominal Pathology	Squibb Diagnostics	05/01/94 - 06/30/95	\$16,280 -- \$16,280 (-01 year)	\$4,070 -- \$4,070 (-01 year)	\$20,350 -- \$20,350 (-01 year)
Lev-Toaff, A. 080-01884	The Clinical Evaluation of the Safety and Efficacy of SonoRx Vs. Water in Patients Highly Suspected of Having Abdominal Pathology (42,440-7)	Bracco Diagnostics	08/10/94 - 12/01/94	\$20,480 -- \$20,480 (-01 year)	\$5,120 -- \$5,120 (-01 year)	\$25,600 -- \$25,600 (-01 year)
Levin, D. 080-01008	Support for Imaging Research	DuPont	05/01/91 - 04/30/96	\$560,000 -- \$112,000 (-04 year)	\$140,000 -- \$28,000 (-04 year)	\$700,000 -- \$140,000 (-04 year)
Mitchell, D. 080-01195	Contrast Enhanced MRI of the Liver with Intravenous WIN 59010-2 Injection	Sterling-Winthrop	08/01/93 - 07/31/94	\$74,819 -- \$74,819 (-01 year)	\$18,705 -- \$18,705 (-01 year)	\$93,524 -- \$93,524 (-01 year)
Mitchell, D. 080-08601	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, Inc.	06/03/94 - 11/01/94	\$34,400 -- \$34,400 (-01 year)	\$8,600 -- \$8,600 (-01 year)	\$43,000 -- \$43,000 (-01 year)

Mitchell, D. 080-08661	A Phase III Safety & Efficacy Investigation of Code 7227 as a Magnetic Resonance Agent for Imaging the Liver and Spleen	Advanced Magnetics, Inc.	03/01/95 - 08/31/95	\$62,900 -- \$62,900 (-01 year)	\$15,725 -- \$15,725 (-01 year)	\$78,625 -- \$78,625 (-01 year)
Needleman, L. 080-01799	CT Imaging of the Mesenteric Lymph Nodes and Liver by an Oral Route	Sterling-Winthrop	06/01/94 - 12/31/94	\$34,820 -- \$34,820 (-01 year)	\$12,500 -- \$12,500 (-01 year)	\$47,320 -- \$47,320 (-01 year)
Needleman, L. (A. Besarab) 080-01617	The Effects of Normal Versus Anemic Hematocrit on Outcomes of Cardiac Disease in Dialysis Patients: Ancillary Study "The Effect of Increasing Hematocrit on Intra-vascular Access Flow and Pressure	Amgen, Inc.	12/15/93 - 04/15/95	\$14,420 -- \$10,815 (-01 year)	\$3,605 -- \$2,704 (-01 year)	\$18,025 -- \$13,519 (-01 year)
Needleman, L. 080-01608	Evaluation of the Safety, Tolerance, Pharmacokinetics & Ultrasound Contrast Enhancement of QW3600 Injection When Administered Intravenously to Adult Male Volunteers	Sonus Pharmaceuticals	01/13/94 - 01/12/95	\$10,958 -- \$10,958 (-01 year)	\$2,740 -- \$2,740 (-01 year)	\$13,698 -- \$13,698 (-01 year)

Needleman, L. 080-08603	A Multicenter Safety and Efficacy Evaluation of EchoGen Injection as a Contrast Enhancing Agent for Use in Adult Patients Undergoing Diagnostic Sonography	Sonus Pharmaceuticals	06/20/94 - 11/01/94	\$27,448 -- \$27,448 (-01 year)	\$6,862 -- \$6,862 (-01 year)	\$34,310 -- \$34,310 (-01 year)
Outwater, E. 080-01886	A Phase III Open Label Study of Gadolite Oral Suspension, A Gastrointestinal (GI) Contrast Agent for Magnetic Resonance Imaging (MRI)	Pharmacyclics, Inc.	08/25/94 - 08/24/95	\$54,020 -- \$54,020 (-01 year)	\$13,505 -- \$13,505 (-01 year)	\$67,525 -- \$67,525 (-01 year)
Park, Chan, H. 080-01880	An Open-Label, Multicenter Trial to Evaluate the Diagnostic Accuracy of Technetium TC99M-Sestamibi Scintigraphic Images in Identifying Malignant Breast Lesions in Subjects with Mammographically Detected Non-Palpable Breast Abnormalities	The Dupont Merck Pharmaceutical Company	7/28/94-7/27/95	\$24,000 -- \$24,000 (-01 year)	\$6,000 -- \$6,000 (-01 year)	\$30,000 -- \$30,000 (-01 year)

Park, Chan, H. 080-01888	Phase III Clinical Trials Evaluating the Safety and Efficacy of Technetium Tc 99m P280 in the Detection & Localization of Disorders and Conditions Character- ized by Activated Platelet Involvement: Specifically, Evaluation of Acute Venous Thrombosis by Gamma Scintigraphy	Diatech, Inc.	8/1/94-3/31/95	\$20,000 -- \$20,000 (-01 year)	\$5,000 -- \$5,000 (-01 year)	\$25,000 -- \$25,000 (-01 year)
Piccoli, C. 080-08602	A Multicenter, Double- Blind, Multidose, Within- Patient Study to Evaluate The Safety, Tolerance and Efficacy of MP-1177/10 Injection in MRI of the Breast	Mallinckrodt Medical, Inc.	06/03/94 - 11/01/94	\$34,400 -- \$34,400 (-01 year)	\$8,600 -- \$8,600 (-01 year)	\$43,000 -- \$43,000 (-01 year)
Piccoli, C. 080-01610	TPI/HDI Breast Lesion Sonography Feasibility Study	ATL (Advanced Tech- nologies Labs)	10/15/94 - 04/15/95	\$12,000 -- \$12,000 (-01 year)	\$3,000 -- \$3,000 (-01 year)	\$15,000 -- \$15,000 (-01 year)
Salazar, A. Raichlen, J. 080-08605	Study of the Safety, Sub- ject Acceptance, and Efficacy of Levovist Injec- tion in Subjects with In- conclusive Echocardi- ographic Examination	Berlex Laboratories	05/15/94 -	\$61,093 -- \$61,093 (-01 year)	\$15,274 -- \$15,274 (-01 year)	\$76,367 -- \$76,367 (-01 year)

Thakur, M. 080-01680	Pharmacokinetics of Radiolabeled LEX032	Lexin Pharmaceuticals Corporation	01/03/95 - 06/30/95	\$30,793 -- \$30,793 (-01 year)	\$11,054 -- \$11,054 (-01 year)	\$41,847 -- \$41,847 (-01 year)
			TOTAL INDUSTRIAL FUNDING	\$2,090,730	\$530,942	\$2,621,672
			TOTAL CURRENT YEAR INDUSTRIAL FUNDING	\$1,599,847 (current year)	\$410,185 (current year)	\$2,010,032 (current year)

TOTAL FUNDING	\$5,907,567	\$1,860,973	\$7,768,540
TOTAL CURRENT YEAR FUNDING 1994-1995	\$2,967,583 (current year)	\$756,157 (current year)	\$3,723,740 (current year)

Table 2

Pending Grants
 07/01/94 - 06/30/95
 (Report reflects entire award period and first year of award)
 Revised 6/30/95

NIH/GRANTS

PRINCIPAL INVESTIGATOR	TITLE OF PROJECT	FUNDING SOURCE	FUNDING DATES	DIRECT COSTS	INDIRECT COSTS	TOTAL COSTS FUNDED
Alexander, A. (Gomella, L.)	Developing a Program of Translational Research in Prostate Cancer	NIH	10/01/95 - 09/30/99	\$176,936 -\$44,234	\$118,547 -\$29,637	\$295,483 -\$73,871
Consigny, M.	Re-endothelialization of Arteries after Angioplasty	NIH	12/01/95 - 11/30/98	\$414,902 -\$187,220 (-01 year)	\$215,088 -\$62,541 (-01 year)	\$629,990 -\$249,761 (-01 year)
Goldberg, B.	Breast Cancer Detection Using Ultrasound Contrast	NIH 1 RO1 CA60854	12/01/95 - 11/30/00	\$865,035 -\$176,238 (-01 year)	\$563,336 -\$104,522 (-01 year)	\$1,428,371 -\$280,760 (-01 year)
Gonzalez, C.	MRI Regional Volumetric Evaluation of MS	NIH 1 RO1 NS32722-01A2	12/01/95 - 11/30/98	\$767,471 -\$296,461 (-01 year)	\$425,512 -\$147,060 (-01 year)	\$1,192,983 -\$443,521 (-01 year)
Thakur, M.	Radiolabeled Receptor Specific Peptides and Peptide Antisense Conjugates for Tumor Imaging and Therapy	DOE	07/01/95 - 06/30/98	\$767,288 -\$250,078 (-01 year)	\$488,915 -\$142,384 (-01 year)	\$1,256,203 -\$392,462 (-01 year)
Thakur, M.	Novel Antibody Conjugates for Enhanced Tumor Uptake	DOE	09/01/95 - 08/31/98	\$465,682 -\$71,856 (-01 year)	\$304,292 -\$48,144 (-01 year)	\$769,974 -\$120,000 (-01 year)
REDUCED FUNDING						

Thakur, M.	Augmenting Tumor Uptake: Immunotherapy and Scintigraphy	NIH	04/01/96 - 03/31/99	\$459,587 ----- \$156,387 (-01 year)	\$300,208 ----- \$97,064 (-01 year)	\$759,795 ----- \$253,451 (-01 year)
TOTAL NIH GRANT FUNDING			\$3,916,901 -----	\$2,415,898 -----	\$6,332,799 -----	
TOTAL FIRST YEAR NIH FUNDING			\$1,182,474 (-01 year)	\$631,351 (-01 year)	\$1,813,825 (-01 year)	

Pending Grants

07/01/93 - 06/30/94

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

Revised 3/7/95

FOUNDATION/NON-PROFIT ORGANIZATION GRANTS

PRINCIPAL INVESTIGATOR	TITLE OF PROJECT	FUNDING SOURCE	FUNDING DATES	DIRECT COSTS	INDIRECT COSTS	TOTAL COSTS FUNDED
Maidment, A.	Three-dimensional Analysis of Breast Calcifications	Whitaker Foundation	12/01/95 - 11/30/98	\$78,389 -\$179,902 (-01 year)	\$9,581 -\$29,883 (-01 year)	\$87,970 -\$209,785 (-01 year)
Thakur, M.	Receptor-specific Peptides for Imaging Pancreatic Cancer	American Cancer Society	07/01/95 - 06/30/98	\$233,459 -\$84,387 (-01 year)	\$58,364 -\$21,097 (-01 year)	\$291,823 -\$105,484 (-01 year)
Zhang, J.	Artificial Intelligence Expert System in Nuclear Medicine Cardiology for Diagnosing Myocardial Function and Perfusion	American Heart Association	07/01/96 - 06/30/98	\$55,547 -\$31,962 (-01 year)	\$5,555 \$3,196 (-01 year)	\$61,102 -\$35,158 (-01 year)
TOTAL FOUNDATION/ NON-PROFIT FUNDING				\$367,395	\$73,500	\$440,895
TOTAL FIRST YEAR FOUNDATION FUNDING				\$296,251 (-01 year)	\$54,176 (-01 year)	\$350,427 (-01 year)

Pending Grants

07/01/94 - 06/30/95

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

Revised 3/7/95

INDUSTRIAL GRANTS

PRINCIPAL INVESTIGATOR	TITLE OF PROJECT	FUNDING SOURCE	FUNDING DATES	DIRECT COSTS	INDIRECT COSTS	TOTAL COSTS FUNDED
Alexander, A.	Evaluation of a Three Dimensional Transrectal Ultrasound Imaging System	Advanced Technologies, Inc.	11/15/94 - 11/14/95	\$9,000 -- \$9,000 (-01 year)	\$2,250 -- \$2,250 (-01 year)	\$11,250 -- \$11,250 (-01 year)
Consigny, P.M.	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 (-01 year)	\$6,750 -- \$6,750 (-01 year)	\$33,750 -- \$33,750 (-01 year)
Forsberg, F. FUNDED	Evaluating the Effect of a Polymer-based Ultrasound Contrast Agent on Normal Vasculature Perfusion	Acusphere, Inc.	07/01/95 - 06/30/96	\$18,963 -- \$18,963 (-01 year)	\$6,808 -- \$6,808 (-01 year)	\$25,771 -- \$25,771 (-01 year)
Goldberg, B. FUNDED	Natural Hepatomas Visualized with a Polymer-Based Ultrasound Contrast Agent	Acusphere, Inc.	07/01/95 - 06/30/96	\$25,921 -- \$25,921 (-01 year)	\$9,306 -- \$9,306 (-01 year)	\$35,227 -- \$35,227 (-01 year)
Goldberg, B. FUNDED	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 (-01 year)	\$6,176 -- \$6,176 (-01 year)	\$23,380 -- \$23,380 (-01 year)
Goldberg, B. FUNDED	Evaluation of MRX-115 in Rabbits with VX2 Tumors	ImaRx Pharmaceutical Corporation	07/1/95 - 10/31/95	\$10,890 -- \$10,890 (-01 year)	\$3,910 -- \$3,910 (-01 year)	\$14,800 -- \$14,800 (-01 year)

Needleman, L. FUNDED	An Open Label Study of the Safety and Efficacy of Albutex in Transcranial Doppler	Mallinckrodt Medical, Inc.	07/11/95 - 06/30/96	\$12,280 -- \$12,280 (-01 year)	\$3,070 -- \$3,070 (-01 year)	\$15,350 -- \$15,350 (-01 year)
Needleman, L. FUNDED	A Multicenter Double-Blind Placebo-Controlled Safety and Efficacy Evaluation of EchoGen Injection as an Ultrasound Contrast Agent in Adult Patients Undergoing Examination of the Liver, Kidneys and/or Peripheral Vessels	Sonus Pharmaceuticals	06/22/95 - 06/21/96	\$47,472 -- \$47,472 (-01 year)	\$11,880 -- \$11,880 (-01 year)	\$59,352 -- \$59,352 (-01 year)
Thakur, M.	Imaging Intestinal Adenocarcinoma with Tc-99m-Vasoactive Intestinal Peptide	Johnson & Johnson	09/01/95 - 08/31/97	\$191,998 -- \$104,012 (-01 year)	\$19,200 -- \$10,401 (-01 year)	\$211,198 -- \$114,413 (-01 year)
Vinitzki, S.	MR Research Support	GE Medical Systems	07/01/95 - 06/30/98	\$75,000 -- \$25,000 (-01 year)	\$0 -- \$0 (-01 year)	\$75,000 -- \$25,000 (-01 year)
Zhang, James J.	Non-invasive Quantitative Measurement of Regional Cerebral Blood Flow By Spect to Evaluate Newborns Treated with ECMO Procedure and Their Neuro Development Outcome	The DuPont Merck Pharmaceutical Company		\$111,000 -- \$55,000 (-01 year)	\$27,750 -- \$13,750 (-01 year)	\$138,750 -- \$68,750 (-01 year)
TOTAL INDUSTRIAL FUNDING				\$546,728	\$97,100	\$643,828
TOTAL FIRST YEAR NIH FUNDING				\$352,742 (-01 year)	\$74,301 (-01 year)	\$427,043 (-01 year)
TOTAL FUNDING PENDING				\$4,831,024	\$2,586,498	\$7,417,522
TOTAL FUNDING PENDING -First Year				\$1,831,467 (-01 year)	\$759,829 (-01 year)	\$2,591,296 (-01 year)

Table 3
FY'93 INCOME AND EXPENSES

PRINCIPAL INVESTIGATOR Grant Number Total grant period	TITLE OF PROJECT	FUNDING SOURCE	TOTAL COSTS		TOTAL INCOME	ACTUAL EXPENSES		TOTAL EXPENSES
			FY'94	FY'94		FY'94	FY'94	
Alexander, A. 080-01783 04/15/94-04/14/95	Evaluation of an Ultrasound Contrast Agent in an Animal Model (VX tumors-20 rabbits)	Sterling-Winthrop	\$15,146	\$5,437	\$20,583	\$18,335	\$6,868	\$25,203
Bonn, J. 080-01787 4/15/94-6/30/96	A Randomized Trial Comparing Percutaneous Transluminal Angioplasty to the PALMAZ Stent in de Novo Lesions of the Superficial Femoral Artery	Johnson & Johnson	\$188,532	\$37,706	\$226,238	\$59,488	\$0	\$59,488
Consigny, P.M. 080-01077 07/01/93-06/30/95	Re-endothelialization of Arteries after Angioplasty	American Heart Association	\$18,182	\$1,818	\$20,000	\$21,579	\$2,157	\$23,736
Consigny, P.M. 080-01318 09/01/93-08/31/94	Effect of Hydrogel Coating on Endothelial Denudation by Angioplasty Balloons	Boston Scientific	\$911	\$0	\$911	\$1,292	\$0	\$1,292
Consigny, P.M. 080-01797 04/01/94-03/31/95	Delivery of Heparin to the Rabbit Iliac Artery Using Hydrogel-coated Angioplasty Balloons	Boston Scientific	\$6,595	\$1,319	\$7,914	\$14,946	\$4,614	\$19,560
Feig, S. 080-02042 09/30/93-08/31/98	Clinical Evaluation of Digital Mammography	NIH 1 RO1 CA 60192	\$143,063	\$70,669	\$213,732	\$6,313	\$43	\$6,356

PRINCIPAL INVESTIGATOR Grant Number	TITLE OF PROJECT	FUNDING SOURCE	TOTAL COSTS		TOTAL INCOME		ACTUAL EXPENSES		TOTAL EXPENSES FY'94
			DIRECT FY'94	INDIRECT FY'94	DIRECT FY'94	INDIRECT FY'94	DIRECT FY'94	INDIRECT FY'94	
Forsberg, F. 080-08669	In Vitro Characterization of Polymer-Based Ultrasound Contrast Agents	Acusphere	\$4,452	\$1,598	\$6,050	\$736	\$0	\$736	\$736
Gardiner, G. 080-08309	SCVIR Transluminal Angioplasty and Revascularization Registry (STAR)	CIRREF	\$162,564	\$14,852	\$177,416	\$98,517	\$7,919	\$106,436	\$106,436
Gardiner, G. 080-08337	Enoxaparin 567: A Double Blind, Parallel Group, Randomized Trial to Compare the Efficacy & Safety of Enoxaparin 40MG SC TID and Unfractionated Heparin 5000 IU SC TID During 6-12 Days for Prevention of Deep Venous Thrombosis in 850 Patients after Planned Elective Curative Cancer Surgery	Rhone Poulenc Rorer	\$38,507	\$9,627	\$48,134	\$22,910	\$5,727	\$28,637	\$28,637
Gardiner, G. 080-01878	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	\$99,200	\$24,800	\$124,000	\$0	\$2,624	\$2,624	\$2,624

PRINCIPAL INVESTIGATOR	TITLE OF PROJECT	FUNDING SOURCE	TOTAL COSTS		TOTAL INCOME	ACTUAL EXPENSES		TOTAL EXPENSES
			DIRECT	INDIRECT		DIRECT	INDIRECT	
Grant Number			FY'94	FY'94	FY'94	FY'94	FY'94	FY'94
Total grant period								
Gardiner, G. 080-08680 10/04/94-10/03/95	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	\$73,019	\$18,254	\$91,273	\$0	\$0	\$0
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	\$16,000	\$4,000	\$20,000	\$0	\$0	\$0
Goldberg, B. 080-03219 04/01/86-07/31/94	Effects of Prenatal Ultrasound on Postnatal Development	NIH 2 RO1 HD21678	\$6,839	\$2,235	\$9,074	\$15,572	\$0	\$15,572
Goldberg, B. (Graziani, L.) 080-02548 05/01/91-04/31/96	Ultrasound and Ventilator Studies in Preterm Infants	NIH	\$18,517	\$12,406	\$30,923	\$18,517	\$12,406	\$30,923

PRINCIPAL INVESTIGATOR Grant Number	TITLE OF PROJECT	FUNDING SOURCE	TOTAL COSTS		TOTAL INCOME		ACTUAL EXPENSES		ACTUAL EXPENSES	
			DIRECT FY'94	INDIRECT FY'94	FY'94	FY'94	DIRECT FY'94	INDIRECT FY'94	DIRECT FY'94	INDIRECT FY'94
Total grant period										
Goldberg, B. 080-08615	Diagnostic Ultrasound Training Program (for Dr. Andrei Yefimenko)	NIH Courtesy Associates	\$4,241	\$0	\$4,241	\$2,648	\$0	\$2,648	\$0	\$2,648
Goldberg, B. 080-05123	Developing of Ultrasonic Tissue Characterization	NIH 2PO1 CA52823	\$32,923	\$22,058	\$54,981	\$5,807	\$0	\$5,807	\$0	\$5,807
Goldberg, B. (Wheatley, M.) 080-	Development of a New Class of Ultrasound Contrast Agents	NIH	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Goldberg, B. 080-08124	A Diagnostic Ultrasound Training Program	USAID	\$78,982	\$0	\$78,982	\$88,149	\$0	\$88,149	\$0	\$88,149
Goldberg, B. 080-01679	A Diagnostic Ultrasound Training Program	Soros Foundations	\$15,475	\$0	\$15,475	\$16,874	\$0	\$16,874	\$0	\$16,874
Goldberg, B. 080-08136	A Diagnostic Ultrasound Training Program	USAID	\$88,636	\$0	\$88,636	\$59,250	\$0	\$59,250	\$0	\$59,250
Goldberg, B. 080-01353	A Diagnostic Ultrasound Training Program	Soros Foundations	\$9,920	\$0	\$9,920	\$5,880	\$0	\$5,880	\$0	\$5,880
Goldberg, B. 080-01792	Evaluation of FS069: A Novel Ultrasound Contrast Agent	Molecular Biosystems Inc.	\$48,363	\$17,362	\$65,725	\$60,490	\$20,835	\$60,490	\$20,835	\$81,325

PRINCIPAL INVESTIGATOR	TITLE OF PROJECT	FUNDING SOURCE	TOTAL COSTS		TOTAL INCOME		ACTUAL EXPENSES		TOTAL EXPENSES
			DIRECT	INDIRECT	DIRECT	INDIRECT	DIRECT	INDIRECT	
Grant Number			FY'94	FY'94	FY'94	FY'94	FY'94	FY'94	FY'94
Total grant period									
Goldberg, B. 080-01558	Endoluminal Evaluation of the Urethra and Anal-Rectal Region Using a Special Ultrasound Probe	Intra-Sonix	\$1,700	\$425	\$2,125	\$634	\$600	\$1,234	
Goldberg, B. 080-01914 11/01/94-10/31/95	Development of a Simulator for Ultrasound Scanning	Med-Sim	\$59,020	\$14,755	\$73,775	\$63,583	\$5,530	\$69,113	
Goldberg, B. 080-08647 01/01/95-06/30/95	Evaluation of Filmix in VX-2 Tumor Models in Rabbits	Israel Chemicals, Ltd.	\$4,115	\$1,477	\$5,592	\$3,767	\$0	\$3,767	
Goldberg, B. 080-08648 08/01/94-02/28/95	Evaluation of Filmix in VX-2 Tumor Models in Rabbits and Hepatomas in Woodchucks	Israel Chemicals, Ltd.	\$10,071	\$3,615	\$13,686	\$3,112	\$3,615	\$6,727	
Halpern, E. 080-08609 07/01/94-06/30/95	Application of Ultrasound, Spiral CT and MR Angiography to Screen for Renal Artery Stenosis	GE-AUR	\$50,000	\$0	\$50,000	\$49,989	\$0	\$49,989	
Intenzo, C. 080-01879 09/01/94-08/31/95	Enoxaparin 529: A Multi-center, 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	\$22,400	\$5,600	\$28,000	\$0	\$826	\$826	

PRINCIPAL INVESTIGATOR Grant Number	TITLE OF PROJECT	FUNDING SOURCE	TOTAL COSTS		TOTAL INCOME		ACTUAL EXPENSES		TOTAL EXPENSES FY'94
			DIRECT FY'94	INDIRECT FY'94	DIRECT FY'94	INDIRECT FY'94	DIRECT FY'94	INDIRECT FY'94	
Total grant period			\$66,897	\$44,821	\$111,718	\$57,373	\$38,440	\$95,813	
Kurtz, A. 080-03250 09/30/92-09/29/95	The Detection and Staging of Ovarian Cancer (RDOG IV)	NIH 1RO1 CA59648	\$13,392	\$3,348	\$16,740	\$4,000	\$1,000	\$5,000	
Lev-Toaff, A. 080-01568 11/15/93-11/14/94	A Phase I Clinical Evaluation of the Safety & Efficacy of SonoRx vs Water in Normal Volunteers	Squibb Diagnostics	\$18,163	\$4,541	\$22,704	\$20,652	\$6,024	\$26,676	
Lev-Toaff, A. 080-01788 05/01/94-06/30/95	A Phase III Clinical Evaluation of the Safety & Efficacy of SonoRx in Patients Highly Suspected of Having Abdominal Pathology	Squibb Diagnostics	\$40,960	\$10,240	\$51,200	\$39,992	\$9,998	\$49,990	
Levin, D. 080-01008 05/01/91-04/30/96	Support for Imaging Research	Du Pont	\$93,333	\$23,333	\$116,666	\$115,662	\$28,916	\$144,578	
Maidment, A. 080-01462 11/01/93-10/31/94	3-D Morphological Analysis of Breast Calcifications	RSNA	\$6,667	\$0	\$6,667	\$11,997	\$0	\$11,997	
Mitchell, D. 080-01195 08/01/93-07/31/94	Contrast Enhanced MRI of the Liver with Intravenous WIN 59010-2 Injection	Sterling Winthrop	\$4,743	\$1,247	\$5,990	\$0	\$0	\$0	

PRINCIPAL INVESTIGATOR Grant Number	TITLE OF PROJECT	FUNDING SOURCE	TOTAL COSTS		TOTAL INCOME		ACTUAL EXPENSES		TOTAL EXPENSES FY'94
			DIRECT FY'94	INDIRECT FY'94	DIRECT FY'94	INDIRECT FY'94	DIRECT FY'94	INDIRECT FY'94	
			\$4,987	\$1,256	\$6,243	\$1,415	\$1,370	\$2,785	
Needleman, L. 080-01608 01/13/94-01/12/95	Evaluation of the Safety, Tolerance, Pharmacokinetics and Ultrasound Contrast Enhancement of QW 3600 Injection When Administered Intravenously to Adult Male Volunteers	Sonus							
Needleman, L. 080-08603 06/20/94-11/01/94	A Multicenter Safety and Efficacy Evaluation of Echo-Gen Injection as a Contrast Enhancing Agent for Use in Adult Patients Undergoing Diagnostic Sonography	Sonus	\$27,448	\$6,862	\$34,310	\$27,490	\$7,777	\$35,267	
Outwater, E. 080-01886 08/25/95-08/24/95	A Phase III Open Label Study of Gadolite Oral Suspension, A Gastrointestinal (GI) Contrast Agent for Magnetic Resonance Imaging (MRI)	Pharmaceuticals	\$45,017	\$11,254	\$56,271	\$48,281	\$12,153	\$60,434	
Park, C. 080-01880 07/28/94-07/27/95	An Open-Label, Multicenter Trial to Evaluate the Diagnostic Accuracy of Technetium Tc99m-Sestamibi Scintigraphic Images in Identifying Malignant Breast Lesions in Subjects with Mammographically Detected Non-Palpable Breast Abnormalities	The DuPont Merck Company	\$22,000	\$5,500	\$27,500	\$0	\$0	\$0	

PRINCIPAL INVESTIGATOR Grant Number	TITLE OF PROJECT	FUNDING SOURCE	TOTAL COSTS		TOTAL INCOME		ACTUAL EXPENSES		TOTAL EXPENSES FY'94
			DIRECT FY'94	INDIRECT FY'94	INCOME FY'94	TOTAL FY'94	DIRECT FY'94	INDIRECT FY'94	
Park, C. 080-01888 08/01/94-03/31/95	Phase III Clinical Trials Evaluating the Safety and Efficacy of Technetium Tc 99m P280 in the Detection and Localization of Disorders and Conditions Characterized by Activated Platelet Involvement: Specifically, Evaluation of Acute Venous Thrombosis by Gamma Scintigraphy	Diatech	\$20,000	\$5,000	\$25,000	\$25,000	\$0	\$0	\$0
Piccoli, C. 080-08602 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 Breast	Mallinckrodt Medical	\$28,666	\$7,166	\$35,832	\$35,832	\$23,664	\$3,010	\$26,674
Piccoli, C. 080-01610 10/15/94-04/15/95	TPI/HDI Breast Lesion Sonography Feasibility Study	ATL	\$12,000	\$3,000	\$15,000	\$15,000	\$10,397	\$1,400	\$11,797
Salazar, A. (Raichlen, J.) 080-08605 05/12/94-05/11/95	Study of the Safety, Subject Acceptance and Efficacy of Levovist Injection in Subjects with Inconclusive Echocardiographic Examination	Berlex	\$9,368	\$2,342	\$11,710	\$11,710	\$9,368	\$2,342	\$11,710

PRINCIPAL INVESTIGATOR Grant Number	TITLE OF PROJECT	FUNDING SOURCE	TOTAL COSTS		TOTAL INCOME	ACTUAL EXPENSES		TOTAL EXPENSES
			DIRECT FY'94	INDIRECT FY'94		DIRECT FY'94	INDIRECT FY'94	
Thakur, M. 080-08132	Evaluation of Biological Response Modifiers in Enhancement of Tumor Uptake of Tc-99m Labeled Monoclonal Antibodies	Department of Defense DEGF 02 92 ER61485	\$144,872	\$83,106	\$227,978	\$111,575	\$73,686	\$185,261
Thakur, M. 080-08354	Radiolabeled Somatostatin Analogs in Prostate Cancer	American Cancer Society	\$60,000	\$15,000	\$75,000	\$53,237	\$13,309	\$66,546
07/01/94-06/30/95								
Thakur, M. 080-01680	Pharmacokinetics of Radio-labeled LEX032	Lexin	\$30,793	\$11,054	\$41,847	\$3,354	\$10,983	\$14,337
01/03/95-06/30/95								
TOTAL ACTIVITY			\$2,098,747	\$564,811	\$2,663,558	\$1,319,556	\$324,209	\$1,643,765