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Department of Radiology-Annual Report-July 1, 1996 to June 30, 1997

David C. Levin
Thomas Jefferson University

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DEPARTMENT OF RADIOLOGY

ANNUAL REPORT

JULY 1, 1996 - JUNE 30, 1997

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

1996/97

DEPARTMENT DIVISIONS AND DIRECTORS

Breast Imaging
Stephen A. Feig, M.D.

Body CT
Richard J. Wechsler, M.D.

Cardiovascular/Interventional Radiology
Geoffrey A. Gardiner, Jr., M.D.

General Diagnostic Radiology
Gary S. Shaber, M.D.

Magnetic Resonance Imaging
Donald G. Mitchell, M.D.

Neuroradiology/ENT Radiology
Carlos F. Gonzalez, M.D.
Vijay M. Rao, M.D.

Nuclear Medicine
Charles M. Intenzo, M.D.

Pediatric Radiology
George Gross, M.D.

Ultrasound
Barry B. Goldberg, M.D.

Academy Imaging Center
Catherine Piccoli, M.D.

DEPARTMENTAL COMMITTEES AND CHAIRMEN

Advisory Committee
Alfred B. Kurtz, M.D.

Education Committee
Vijay M. Rao, M.D.

Research Committee
Barry B. Goldberg, M.D.

Residency Selection Committee
Levon Nazarian, M.D.

Quality Assurance Committee
Paul W. Spirn, M.D.

Computer Committee
Gary S. Shaber, M.D.

Contrast Committee
Richard J. Wechsler, M.D.
DEPARTMENT FULL TIME FACULTY - 1996-1997

Professors
David C. Levin, M.D.
Stephen A. Feig, M.D.
Barry B. Goldberg, M.D.
Carlos F. Gonzalez, M.D.
George W. Gross, M.D.
David Karasick, M.D.
Alfred B. Kurtz, M.D.
Donald G. Mitchell, M.D.
Vijay M. Rao, M.D.
Robert M. Steiner, M.D.
Mathew Thakur, Ph.D.
Richard J. Wechsler, M.D.
Simon Vinitski, Ph.D.

Assistant Professors
Joseph Bonn, M.D.
Azar P. Dagher, M.D.
Diane M. Deely, M.D.
David Eschelman, M.D.
Rick I. Feld, M.D.
Flemming Forsberg, Ph.D.
David P. Friedman, M.D.
Sung M. Kim, M.D.
Andrew A. Maidment, Ph.D.
Levon Nazarian, M.D.
Catherine W. Piccoli, M.D.
Ana Salazar, M.D.
Sharon R. Segal, D.O.
James J. Zhang, Ph.D.

Research Professors
Gary S. Shaber, M.D.

Clinical Professor
Stephen Karasick, M.D.

Associate Professors
Archibald A. Alexander, M.D.
Emily F. Conant, M.D.
Adam E. Flanders, M.D.
Geoffrey A. Gardiner, Jr., M.D.
Ethan J. Halpern, M.D.
Charles M. Intenzo, M.D.
Anna S. Lev-Toaff, M.D.
Laurence Needleman, M.D.
Eric K. Outwater, M.D.
Mark E. Schweitzer, M.D.
Kevin L. Sullivan, M.D.
Lisa M. Tartaglino, M.D.

Clinical Associate Professor
Paul W. Spirn, M.D.

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

Research Associates
P. Macke Consigny, Ph.D.

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

Honorary Professor
A. Edward O'Hara, M.D.
FACULTY WITH SECONDARY APPOINTMENTS IN RADIOLOGY

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

Jerome J. Vernick, M.D., Clinical Professor of Surgery [primary]
Clinical Associate Professor of Radiology [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 1996-97

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

Directed by Gary Shaber, M.D.
Drs. Diane Deely, George Gross, Cindy Isaacson, David Karasick, Stephen Karasick, Anna Lev-Toaff, Anna 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

CARDIOVASCULAR/INTERVENTIONAL RADIOLOGY

Directed by Geoffrey Gardiner, M.D.
Drs. Joseph Bonn, David Eschelman, Kevin Sullivan

NEURORADIOLOGY/ENT RADIOLOGY

Directed by Carlos Gonzalez, M.D. and Vijay Rao, M.D.
Drs. Azar Dagher, Adam Flanders, David Friedman, Lisa Tartaglino

PEDIATRIC RADIOLOGY

Directed by George Gross, M.D.

ULTRASOUND

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

BODY COMPUTED TOMOGRAPHY

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

MAGNETIC RESONANCE IMAGING

Directed by Donald Mitchell, M.D.
Drs. Diane Deely, Eric Outwater, Catherine Piccoli, Mark Schweitzer

NUCLEAR MEDICINE

Directed by Charles Intenzo, M.D.
Dr. Sung Kim

ACADEMY IMAGING CENTER

Directed by Catherine Piccoli, M.D.
Drs. Anna Lev-Toaff, Annina Wilkes
DEPARTMENT OF RADIOLOGY

RESIDENTS/FELLOWS
1996-1997

RESIDENTS

Carin F. Gonsalves, M.D., Chief Resident
Steven G. Moss, M.D., Chief Resident

FIRST YEAR RESIDENTS

Glenn Articolo, M.D.
Steven Epstein, M.D.
Angela J. Gessner, M.D.
Antje Greenfield, M.D.
Jeffrey Mondschein, M.D.
Jennifer Park, M.D.

SECOND YEAR RESIDENTS

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

THIRD YEAR RESIDENTS

Susan T. DeWyngaert, 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.

FOURTH YEAR RESIDENTS

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

NUCLEAR MEDICINE

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

FELLOWS

US/CT/MRI

Kevin M. Cregan, M.D.
Matthew C. Difazio, M.D.
Deborah A. Fein, M.D.
Andrea M. Fisher, M.D.
Robyn F. Frankel-Tiger, M.D.
Pamela T. Johnson, M.D.
Ravi S. Kasat, M.D.
Robert E. Larson, M.D.

NEURO/ENT

Maurice Fitzpatrick, M.D.
Steven Gilbert, M.D.
Thomas J. Grobelleny, M.D.
Michael Hollander, M.D.
Tai H. Luong, M.D.
M. Craig Morriss, M.D.
William G. Vazquez-Choisne, M.D.

MAMMO/US

Manoj Bhatia, M.D.

NEURO/MRI

Vincenzo Giuliano, M.D.
C. Edwin Martin, Jr., M.D.

MUSCULOSKELETAL

Jennifer L. Siliquini, M.D.

CARDIOVASCULAR/INTERVENTIONAL

Robin L. Boyd-Kranis, M.D.
Nilesh Doshi, M.D.
Kenneth P. Moresco, M.D.
Daniel Radack, M.D.
During the past year, there has been considerable doom and gloom throughout the medical community nationwide. Not surprisingly, some of it has filtered down to our department. Nevertheless, I feel we have much to be optimistic about. Although all of us feel squeezed by having to work harder while at the same time deriving lower professional revenues, we have a thriving clinical practice, our teaching programs are recognized for their excellence, and we continue to be one of the most productive academic radiology departments in the country. Moreover, all of us can take pride in our association with Thomas Jefferson University and the Jefferson Health System. In contrast to the behavior of some of our competing health systems in the Philadelphia area, where the only consideration seems to be the bottom line, Jefferson maintains its devotion to the more honorable goals with which academic medical centers have traditionally been associated.

My report will cover the following: (1) Clinical activities during 1996-97, (2) Planned clinical programs for next year, (3) Clinical weaknesses, (4) Research accomplishments of the past year, (5) Research weaknesses, (6) Opportunities for extramural funding, (7) Affiliations and interdepartmental activities, (8) Department administration, (9) Department goals, and (10) Issues for the college and hospital. Immediately following my report, Dr. Vijay Rao will summarize the status of our numerous educational programs. Once again, Judy Dubbs, Toni Salvatore, Dara Killion and their associates contributed greatly toward compiling this entire report. I very much appreciate their help.

CLINICAL ACTIVITIES DURING 1996-97

Much of our attention this year was devoted to two major new undertakings - our assumption of coverage at Academy Imaging Center in Northeast Philadelphia, and the installation of our Canon teleradiology system.

Academy Imaging is a full-modality imaging center, and essentially operates as a private outpatient office. A faculty member is assigned there each day and it has become a formal part of our resident training program. It has proven to be a good experience for our residents, because it gives them some perspective on what the private practice of radiology is like. All MRI and CT scans are transmitted from Academy Imaging to teleradiology workstations in our department, where they are read by the appropriate subspecialty division. Mammograms are brought back to our breast imaging center by courier and read there by mammography-qualified radiologists. Most of the other studies are read directly at the center itself. Our assumption of coverage there has not been without some difficulty. It is a challenge for a highly subspecialized department like ours to take over coverage of a general radiology practice like Academy Imaging. I think we are well on our way to solving most of the problems, and it is encouraging that case volume there has grown significantly in the last several months. Much of the credit for this goes to Dr. Catherine Piccoli, who has been appointed director of our Academy Imaging division and who has done an excellent job getting us over some of the rough spots. She and Drs. Nina Wilkes and Anna Lev-Toaff have each been devoting one full day per week to covering at Academy Imaging: the other two days are covered by radiologists from our general diagnostic, ultrasound, and body CT divisions on a rotating basis. Academy Imaging is owned by Medical Resources, Inc., a rapidly expanding corporation which has become a major presence in the Philadelphia medical marketplace within the past year. We have begun discussions with them about possible expansion of our relationship. However, it is too early to predict what the outcome of these discussions will be.

Teleradiology, also sometimes referred to as a picture archiving and communication system (PACS), is clearly one of the waves of the future. It will allow us to transmit images from remote
facilities directly into our department, where they will be read on workstations. We hope this technology will enable us to obtain new outside reading contracts, but there are even more important benefits to be derived here on the Jefferson campus. For one thing, we hope to be able to significantly reduce the usage of laser camera film and thereby pay for the cost of the system itself. This will require some cooperation on the part of referring physicians, and we have not yet been able to obtain that uniformly. Another potential benefit is to be able to eventually transmit images directly to the personal computers of referring physicians right in their own offices. This will be a tremendous convenience to both them and their patients, and we hope to be able to make our patient care even better through this kind of technology. Despite its promise, teleradiology has also brought us some pain and strain. Reading from the workstations tends to be somewhat slower than reading from film. We do not yet have enough reading stations or enough disk capacity. The paper prints we send to referring physicians have not uniformly been of good quality and this has led to some dissatisfaction. The viewing stations for clinicians have not had all the functionality we had hoped for, although this has been recently improved by Canon. Some software problems still remain to be worked out. The entire installation of the system has been directed by Andrew Maidment, Ph.D., with able and dedicated assistance from Michael Albert, Ph.D. Both of them deserve our thanks for the tremendous efforts they have put into getting the system up and running. At the current time, most of the CTS and MRIs being performed in our neuroradiology, body MRI and body CT divisions are being read on the workstations. Despite some of the frustrations, I think most people would agree that it was high time for us to get into the PACS era and are satisfied that in the Canon system, we have the best one currently available.

Our overall procedure volume for the year was virtually identical with the level from the previous year - about 240,000 studies. Growth was particularly striking in cardiovascular/interventional radiology procedures, which increased by 16.3% compared with the previous year. There was healthy growth as well in body CT (up 13.8%) and body MRI (up 10.7%). Nuclear medicine also showed good growth, with an increase in procedure volume of approximately 7%. Both ultrasound and breast imaging volume rose by approximately 5%. These increases were offset by a decline in plain radiographic and fluoroscopic studies. Neuro/head and neck studies were down slightly at TJUH but this was more than compensated for by new volume at Wills Eye Hospital.

It is quite apparent from the above that while our procedure volume on the Jefferson campus remained stable, our workload actually increased significantly since all the studies in which major growth occurred are those which are work-intensive and have high RVUs. Moreover, these statistics do not include the outside contracts we now have - Academy Imaging, TME MRI centers in Langhorne and Bala, Wills Eye Hospital, Magee Rehabilitation Hospital, portable X-rays from the Mobilex company, and our cardiac nuclear medicine overreading contract with NIS. With the sole exception of NIS, all these outside contracts showed growth (and of course the Academy Imaging contract was an entirely new one). I was particularly pleased to see a steady rise in MRI volume at our TME site in Bala, since that got off to a slow start several years ago. So all things considered, we have had a very busy year clinically with considerable expansion of our practice - and this occurred during a year when our faculty downsized!

Some interesting new clinical developments occurred in several of our divisions. In ultrasound, the relatively new technique of sonohysterography continued to be used for the differentiation of polyps, carcinoma, and submucosal myomas. As a result of some of the pioneering work done here in our department, there was greater use of ultrasound for the evaluation of musculoskeletal disease and of melanoma and other subcutaneous lesions. 3-D gray scale ultrasound showed promise for improved evaluation of fetal and gynecologic abnormalities. Increasing referrals were noted for endorectal ultrasound in the evaluation of anal and prostate lesions, transvaginal ultrasound for the evaluation of anal canal lesions, and both operative and interventional ultrasound. The ultrasound division continued its pioneering work in the use of laparoscopic ultrasound during laparoscopic surgery. As a result of the outstanding reputation Dr. Barry
Goldberg and his colleagues have established, our department was once again the site for testing of much of the new prototype ultrasound equipment being developed by several manufacturers.

In nuclear medicine, In-111 Octreoscan was used for brain SPECT studies to assess meningiomas before and after stereotactic radiosurgery. There was increased use of lymphoscintigraphy to detect sentinel nodes in melanoma, gastric emptying studies, and also routine cardiac nuclear medicine studies. The division introduced new protocols for detection of lower GI bleeding following a heparin challenge, as well as for the evaluation of pancreatic transplants.

In the breast imaging center, there was some growth in the use of stereotactic core and ultrasound-guided breast biopsies, but there probably should be even more of these done. Ductography also increased. We developed a mechanism for sending reminder notes to women who had been recommended to have 6-month repeat mammography. In CVIR, there was considerable growth in placement of venous access catheters and in the treatment of malfunctioning dialysis grafts. In neuroradiology/head and neck radiology, there was increasing interest among our referring physicians in 3-D CT angiography (CTA) of carotid arteries, intracranial aneurysms and AVMs. This is not surprising, giving the astounding quality of these studies, which are rapidly coming to replace catheter carotid angiography. A new Dentascan package was installed in our Main 10 CT scanner. Of course, the major activity of the year for this division was the rapid increase in MRI and CT scans at Wills Eye Hospital.

Our body CT division also noted increased use of CTA for evaluation of abdominal aortic aneurysms and renal arteries. A major renovation of the CT reading room was completed, which gives us badly needed additional space in this high-traffic area. In body MRI, Dr. Mark Schweitzer and his colleagues developed the interesting new technique of MR arthrography and there was considerable interest in it among our referring colleagues in orthopedic surgery. The division also began using a new software package that allows breath-hold T2-weighted MRI studies for high quality images of the fetus and placenta. A number of new referrals from the obstetrical service have occurred as a result.

We are clearly much busier clinically than we have been in recent years. I want to express my acknowledgment and appreciation to our faculty members for their willingness to pitch in and take on this extra work without adding new staff. Virtually every time a new opportunity for expansion of our practice has presented itself, the division(s) involved has assumed the extra workload enthusiastically. Never once has any faculty member come to me and asked, “What’s in it for me?” Our department has truly worked together as a team in this regard.

**PLANNED NEW CLINICAL PROGRAMS FOR NEXT YEAR**

We will continue the development of some of the recent new elements of our clinical practice. Academy Imaging has seen a progressive increase in volume during recent months. I like to think that this is due at least in part to the fact that referring physicians in Northeast Philadelphia recognize and appreciate the expertise that Jefferson radiologists can provide them.

Our use of teleradiology will continue to expand. One of the limiting factors this past year has been an insufficient number of workstations. Within the near future, we will be adding four new workstations. This will further assist in our efforts to reduce the use of laser camera film. It will also improve our ability to get cases reviewed quickly.

At Wills Eye Hospital, major changes will be taking place. Most importantly, our neuroradiology/head and neck radiology division will assume sole responsibility for coverage of the radiology department at Wills. For the past several years, this responsibility was shared with the Pennsylvania Hospital radiology department, but this will no longer be the case. At the same time, the caseload at Wills is increasing on their CT and MRI scanners. The number of
diagnostic angiograms is also increasing as the Wills Neurosensory Institute expands. The case material at Wills is varied and interesting, and it has become a vital part of our neuroradiology teaching program. I greatly appreciate the willingness of the six faculty members in our neuroradiology/head and neck radiology division to undertake this additional workload without any increase in the size of their group.

We are particularly enthusiastic at the prospect of becoming involved in functional neuroimaging. The MRI unit at Wills already has the echo planar capability necessary for this, and we will soon be installing the first such upgrade on our magnet on Main 10. Functional neuroimaging promises to be a fascinating new technique, probably one of the most exciting developments in the field since MR angiography. The installation of the echo speed upgrade on our Main 10 magnet has been delayed by siting problems, but we are hopeful these will be resolved in the near future. Another interesting development will be our involvement in image-guided endoscopic sinus surgery.

In the Breast Imaging Center, we will shortly be installing the new Mammothome system which will allow us to obtain a larger sample size during stereotactic core breast biopsies. We are also planning installation of the U.S. Surgical large bore tissue biopsy unit, which will allow excisional biopsies to be performed under stereotactic mammographic guidance.

Our ultrasound division will continue efforts to expand the use of sonohysterography, musculoskeletal sonography, and ultrasound-guided interventional and operative procedures. When I make my daily rounds in the department, I not uncommonly pass the invasive ultrasound scheduling board and note a complete schedule of 8-10 procedures and sometimes even more. And to think that ultrasound used to be considered just a diagnostic modality! The division will also expand its use of endorectal ultrasound and offer this technique every day instead of just certain days of the week. The ultrasound group is developing a manual of diagnostic criteria that will allow the use of uniform techniques in evaluating liver and renal transplant patients, mesenteric ischemia, pancreatitis, upper and lower extremity venous disease, renal artery stenosis, ovarian lesions (by Doppler), and cerebrovascular disease.

In MRI, we are currently in discussions with two outside companies to install some desired new equipment. One company is MMR, with whom we are exploring the possibility of installing an open MRI unit. The other is Lunar, which will soon be placing an Artoscan extremity-only magnet for Dr. Schweitzer to use in research.

In Nuclear Medicine, several relatively new techniques will come into wider use. These include lymphoscintigraphy to identify axillary node disease in breast cancer, brain perfusion studies to monitor functional capacity of the visual cortex in patients with meningioma of the optic nerve, In-111 Prostascint to detect metastatic prostate cancer, and the use of radioiodine treatment in patients with large benign goiters.

In CVIR, construction is now underway for our third invasive procedure room and we expect to open it during the coming year. When that happens, the CVIR division will begin performing pharmacomechanical declotting procedures on thrombosed dialysis grafts. The transplant surgeons would prefer that we perform these procedures (and they would be more cost-effective for the hospital), but we have simply not had the room time available till now. An exciting new development in this field is the use of endoluminal stent-grafts. Two of these devices were inserted in patients last year, and they will likely become more widely used in the future.

**CLINICAL WEAKNESSES**

I am pleased to report that several of the weaknesses I identified in this report last year are on their way to being corrected. The badly needed third procedure room in CVIR is now under
construction. The CVIR faculty group has been relocated to new office quarters which are in close proximity to their procedure suite. The body CT reading room has undergone the needed renovation and enlargement. I expressed concern last year about the loss of some of our major referring physicians to other institutions. That has now been offset by expansion of the orthopedic surgery, otolaryngology, neurosurgery, and neurology departments here on the Jefferson campus and/or at Wills Eye Hospital. I feel much more comfortable about this situation now than I did a year ago.

Problems still remain, however. We are constantly plagued by delayed transport of patients from nursing stations around the hospital to our imaging facilities. This means that expensive equipment and personnel must sit idle because the patients don't arrive when they are supposed to.

Another problem relates to our physical plant. Last year's capital budget seemed to be put on an indefinite hold and we only ended up receiving a very small allocation, aside from the CVIR renovation which was considered a special project. It was not nearly enough to keep a large department like ours at optimum operating levels. Much of our imaging equipment and other hardware and software are becoming rundown and outdated. It is disconcerting, for example, to find that privately-owned outpatient imaging centers often have MRI software on their GE magnets that we don't yet have here at Jefferson. An example of this is the FLAIR pulse sequence.

As noted earlier, this past year has seen the introduction of our Canon PACS network. One major goal of this system is to reduce the use of laser camera film. To date, that has proven to be a difficult challenge, largely because referring clinicians still insist on having the films. Clearly there will have to be a major educational campaign put on, and we will need to enlist the help of the hospital administration. In conversations I have had with some physicians in other departments, they perceive our attempts to limit laser camera film use as an arbitrary decision by the radiology department that will inconvenience them. If the hospital administration helped us with an educational or marketing campaign in this area, it might make the referring physicians realize that this is an important opportunity for the institution to save costs, not "just some crazy idea on the part of the radiologists". I might point out that to date, the hospital's investment in PACS technology has been minimal compared with that of some other institutions. I recently read that the new VA Hospital in Baltimore spent almost $8 million to equip their radiology department for filmless operation using a PACS system. That department is about 1/4 the size of ours, yet Jefferson so far has spent less than 5% of that figure. I certainly feel we are being cost-effective in our approach to PACS.

Some other less global problems exist within our clinical divisions. Because of a drop in pediatric radiology volume, we are now able to only afford half time coverage by the pediatric radiologists from the A.I. duPont Institute. I don't see an immediate solution to this problem. In ultrasound, as we progressively take on more lengthy and complex procedures (such as operative, endoluminal, and interventional ultrasound), it is becoming increasingly difficult to operate with the reduced technologist and physician staffing that now exists in that division. Also in ultrasound, we had been hopeful that a new computerized touch-screen reporting system would greatly facilitate the reporting of ultrasound examinations. Unfortunately, the company decided not to support the prototype system that had been placed here. In nuclear medicine, we lack the capability for coincidence detection of positron emissions for fluorine-18-labeled FDG. This is sometimes referred to as "the poor man's PET". The hospital made a decision some years ago not to acquire a PET scanner, a decision which I strongly supported. This new technology would enable us to do a number of things that formerly required a far more expensive PET unit. It has certain advantages over MRI and CT in tumor imaging and the determination of myocardial viability. It will require the purchase of some expensive new hardware, but I feel this is desirable in order to keep nuclear medicine at Jefferson competitive.
RESEARCH ACCOMPLISHMENTS DURING 1996-97

Compared with the previous year, our outside grant support and numbers of publications were both down slightly, but I don't believe this represents a significant trend. Department investigators published a total of 319 scientific papers, scientific abstracts, chapters and books in the medical literature. We had a total of 53 outside grants or contracts in force during the year: 9 of these were NIH or other federal grants or subcontracts, 8 were grants from foundations or non-profit medical organizations, and 36 were industry-supported clinical trials. The latter were primarily focused in 4 different areas - interventional radiology, contrast agent development (for ultrasound, CT, and MRI), equipment development in ultrasound, and the use of low molecular weight heparin for treatment of deep vein thrombosis. These 53 grants brought in a total of $1,869,162 in direct costs and $535,102 in indirect costs. Dr. Barry Goldberg held an NIH RO1 grant on breast cancer detection using ultrasound contrast agents, and two NIH subcontracts through Drexel University on tissue characterization in ultrasound and ultrasound contrast agents. Also in ultrasound, Dr. Ji-Bin Liu continued his NIH grant on 2-D and 3-D endoluminal ultrasound. Dr. Stephen Feig had an NIH RO1 grant for development of digital mammography. He also participated in an NIH-funded study of stereotactic breast biopsy vs open surgical biopsy as part of a subcontract through the University of North Carolina. Macke Consigny, Ph.D. was in the first year of his NIH RO1 grant to study re-endothelialization of arteries after angioplasty. Dr. Emily Conant started a DOD grant on 3-D digital analysis of breast calcifications, working closely with Andrew Maidment, Ph.D. Mathew Thakur, Ph.D. began an NIH/NIH grant (in conjunction with Palatin Technologies) on the use of Tc-99m somatostatin analogs for tumor imaging. We have a number of other grant proposals pending and some that have just been recently awarded, as noted in the appendix.

I always like to use the annual meeting of the Radiological Society of North America (RSNA) as an indicator of our research productivity. The RSNA continues to be the largest medical meeting in the world (attended by almost 60,000 registrants per year) and is extremely competitive. There is an acceptance rate of less than 40% for the meeting as a whole. Jefferson radiologists made 79 presentations at this meeting, of which 56 were scientific papers, 14 were refresher courses or special focus sessions, and 9 were scientific exhibits. This is a few less than last year, but is still a tremendous showing for our department. The RSNA doesn't publish statistics by institution, but I'm confident that we are in the top 5-10 academic departments in the world in terms of participation at this major meeting. One of the other major meetings in diagnostic imaging is the American Institute of Ultrasound in Medicine (AIUM). Jefferson investigators made a total of 21 presentations at that meeting - another outstanding performance and continued indication of the premier position which our ultrasound division holds in its field.

In addition to research funded by outside grants, department investigators conducted and published a large number of studies which were funded internally through the departmental overage fund, or in some cases divisional research funds. In ultrasound, Dr. Nazarian and others used color flow Doppler to try and differentiate recurrent melanoma from benign superficial masses. Dr. Lev-Toaff published a study of the value of sonohysterography in diagnosis and management of abnormal uterine bleeding. Dr. Halpern continued his work on the use of Doppler in detecting renal artery stenosis. Dr. Liu published an interesting paper on the use of endoluminal ultrasound in evaluating ureteral and renal pelvic tumors. Dr. Forsberg was quite actively involved in funded research. He completed a number of studies on such things as ultrasound contrast agents, harmonic imaging with proteinaceous and gas-filled microspheres, the detection of GI bleeding using ultrasound contrast, estimation of shear rates in stenotic vessels using time-domain measurements, and 3-D ultrasound.

In the Breast Imaging Center, Dr. Feig continued to accrue cases for the multicenter NCI-funded trial of stereotactic core breast biopsy in the workup of lesions detected by mammography. He also started work on his digital mammography grant, although it has been delayed somewhat by
malfunctions of the prototype equipment. He also conducted a study of the cost-effectiveness of annual vs biennial mammographic screening in women ages 40-49. This paper was presented at the RSNA and attracted widespread media attention. Drs. Conant and Maidment began their 3-D analyses of breast calcifications.

In MRI, Dr. Mitchell evaluated the use of intravenous iron oxide, and also studied the impact of fast MRI techniques in abdominal imaging. Dr. Schweitzer again showed outstanding productivity with 22 papers either in print or in press this past year, on which he was either first or second author. He was very effective in mentoring medical students and residents in research on musculoskeletal MRI. Dr. Outwater was also highly productive, with 14 papers either in print or in press as first or second author. These were mostly on MRI of abdominal, pelvic, or retroperitoneal structures. I don't believe there is a single team in body MRI anywhere in the country that is as active in clinical research as the three of them.

Our nuclear medicine division was also active, both in basic and clinical research. Dr. Thakur used Tc-99m labeled antiSSEA-1 antibody specific for human neutrophils as an agent for imaging infectious lesions. He studied tissue distribution and DNA binding of IUDR in brain tumors. He and his colleagues also published other studies on the chemistry and pharmacodynamics of various new radiolabeled compounds. Dr. Zhang studied the dosimetry of IUDR in malignant gliomas and also developed a "tumor concentration index" to assess the biologic response of tumors before and after chemotherapy and stereotactic radiosurgery. Dr. Kim investigated IUDR as a glioma imaging agent. He assessed multidrug resistant gene expression in brain tumors treated with chemotherapy, using a dual tracer subtraction technique. He also compared left ventricular ejection fraction derived from gated MIBI SPECT and first pass studies. Dr. Intenzo used Tc-99m ECD for brain perfusion analysis in childhood idiopathic language deterioration. He evaluated Tc-99m P-829 for detecting and localizing malignant melanoma. He also participated in a study of the efficacy of the low molecular weight heparin, Enoxaparin-529, in treatment of patients with DVT.

In CVIR Dr. Bonn was principal core lab investigator on the Cordis peripheral stent clinical trial. He and Dr. Consigny conducted an interesting series of animal experiments in which they evaluated restenosis after stent placement. They compared covered vs uncovered stents, and evaluated the influence of stent diameter on this process. Dr. Consigny also completed a study, soon to be published, on placement of endothelial cells on luminal surfaces of arteries after denudation. The group participated in a multicenter trial of a new percutaneously inserted stainless steel Greenfield IVC filter and also published their results of treatment of malignant biliary obstruction by stenting and combined-modality radiation therapy.

In neuroradiology/head and neck radiology, Dr. Flanders published an important study of the use of MRI in forecasting motor recovery after cervical spinal cord injury. Dr. Rao used dynamic gradient echo MRI in evaluating head and neck neoplasms. Dr. Tartaglino completed studies of the MRI findings in idiopathic acute transverse myelitis and the evaluation of brain AVMs with CTA. Dr. Friedman reported upon the MRI evaluation of stereotactic pallidotomy and thalamotomy. Dr. Vinitski and others validated 3-D tissue segmentation in an animal brain tumor model and worked to improve brain lesion characterization by tissue segmentation based on a 3-D feature map. Dr. Gonzalez worked with Drexel investigators and published a study of the hemodynamic changes in recurrent intracranial terminal aneurysms after endovascular therapy.

In our general diagnostic division, Dr. Shaber worked with engineers from the Sterling Diagnostic Imaging Company in developing a prototype digital radiography system. The initial results are excellent, and show promise of obtaining spatial resolution comparable to screen-film technique. Poor spatial resolution has been a significant impediment to the development of digital radiography in recent years, but this new system may overcome it. Dr. David Karasick published
a study of the radiographic assessment of complications of cervical spine fusion and another on the radiographic findings in patients with rheumatoid ankle complicated by chronic leg ulcer.

In body CT, the group published an important study on incidental pulmonary embolism detected on helical CT scans. Dr. Wechsler assessed the relationship of thoracic lymphadenopathy to pulmonary interstitial disease in diffuse and limited scleroderma. He also published studies on helical CT of talar fractures and the effect of training and experience in interpretation of emergency body CT scans. Dr. Halpern continued his work on CTA of the abdominal aorta and renal arteries.

A number of us pursued our interests in health services research. Some of these studies have been mentioned above. Dr. Rao and I used the national Part B Medicare database to determine what proportions of neuroimaging examinations are performed by radiologists or nonradiologists. Dr. Schweitzer studied the effect of training and experience on MRI interpretation of meniscal tears, and also the effect of MRI on clinical decision-making in patients with foot and ankle lesions. Drs. Feig, Spettell, and Keedy assessed the cost-effectiveness of breast ultrasound in patients with breast masses. Dr. Feig also studied the cost-effectiveness of annual vs biennial screening in women age 40-49, compared with age 50-59. Drs. Nazarian and Lev-Toaff studied the effect of CT on clinical decision-making in patients with suspected retroperitoneal hemorrhage. Drs. Piccoli and Goldberg are working with investigators at other institutions to investigate the complementary role of ultrasound in conjunction with mammography to reduce the number of biopsies for benign breast disease. Dr. Piccoli is also working on determining the clinical outcome of patients with palpable breast lesions after ultrasound evaluation. Dr. Intenzo assessed the cost-effectiveness of stress radionuclide myocardial perfusion imaging in patients in an emergency room-based acute chest pain center. Drs. Conant and Spettell compared patients having stereotactic core vs excisional breast biopsies in regard to the elapsed time from the breast biopsy recommendation to the actual performance of the biopsy procedure.

Clearly, our department continues to be very productive in research. This is especially noteworthy, given the increase in workload and the reduction in the size of our faculty that has occurred over the last several years.

RESEARCH WEAKNESSES

As noted above, we continue to have one of the most productive research programs to be found anywhere within academic radiology. I do, however, have some concerns. For one thing, the increased clinical workload we are undertaking with a reduced number of faculty (compared with several years ago) has limited the amount of research time available to our faculty members. Several of them have expressed frustration to me with their participation in commercially-funded clinical trials. These are time-consuming, require lots of paperwork, and are sometimes not intellectually rewarding. Most of this work should be carried out by research coordinators rather than physicians, but to a significant degree research coordinators have to be supported by our departmental overage fund. As clinical revenues continue to decline, this means less monies are available for the overage fund. I therefore have concerns about our ability to continue to maintain the infrastructure needed within the department to support our clinical trials.

During this past year, the hospital signed a contract with a large purchasing consortium, Premier Purchasing Partners. This organization has a very inflexible policy requiring precommitment on the purchase of things like x-ray film, contrast material, etc. Our ability to obtain industrial funding for clinical trials often depends upon our developing good working relationships with the vendors of equipment and supplies. If our hands are tied by the requirement to precommit on purchases because of our contract with Premier, this will adversely affect the development of such relationships with commercial suppliers. In the long run, I fear this will limit our ability to obtain industrial funding for clinical trials. I have expressed this concern to the hospital administration.
and to the leadership of Premier Purchasing Partners itself. In letters to and discussions with the latter, I've suggested that since Premier is made up of over 1800 hospitals, and academic centers like Jefferson comprise less than 1% of the entire group, they should exempt the academic centers from the requirement to precommit. This would free our hands to develop research relationships with commercial vendors, yet wouldn't adversely affect Premier at all since we are such a small part of their overall business. Despite my attempts, the executives at Premier have been totally unresponsive, and it seems quite apparent that they have little concern for the research needs of academic institutions.

Health services research has become an important component of our research program. Recently Dr. Claire Spettell, who has been our director of health services research for the last three years, decided to leave. That creates a void in our program. In addition to Dr. Spettell, our biostatistician, Karen Gilbert, also left recently. We are in the process of trying to recruit a replacement who could function as both an active health services researcher and at the same time provide department investigators with needed biostatistical support. Combining these two roles is part of the downsizing effort we are making in an attempt to conserve our overage fund.

In general, I am quite satisfied with the outside grant funding that has been obtained by some of our Ph.D.s - particularly Drs. Andrew Maidment, Flemming Forsberg, Macke Consigny, and Mathew Thakur. However, I am not satisfied with the funding efforts that have been made in MRI and nuclear medicine physics. I hope it will be possible for the individuals concerned to improve their efforts to obtain outside support and eventually become successful.

**OPPORTUNITIES FOR EXTRAMURAL FUNDING**

As of this writing, department investigators have 25 pending grant proposals (see table 2 of the appendix) and 4 others that have just received notice of funding. Among these 4, Dr. Forsberg has been funded by the DOD for a study on contrast enhanced 3-D color amplitude imaging of the breast, while Dr. Maidment received a DOD grant on 3-D digital imaging of breast calcifications. Dr. Thakur has just received funding from two companies for projects related to radioimmunoscintigraphy and radioimmunotherapy. We have federal grants pending in the area of digital mammography (Drs. Feig and Shaber); ultrasound imaging (Drs. Forsberg, Piccoli, and Goldberg); 3-D breast imaging (Dr. Maidment); thromboembolism imaging with a labeled peptide (Dr. Thakur); and MRI (Dr. Vinitski). Dr. Pamela Johnson submitted a seed grant proposal to the RSNA for her work comparing volume rendering algorithms with maximum intensity projection in CTA of the abdominal vasculature.

A relatively large number of industrial grants and contracts are also pending. One fertile area for future industrial funding is in interventional radiology. Here, Drs. Bonn and Sullivan have been actively seeking corporate support for the CVIR division to serve as the core laboratory for projects involving the testing of vascular stents and other new interventional radiological devices. It is quite apparent that our CVIR group is recognized around the country as the premier core lab for such studies and I applaud their efforts to achieve this. Drs. Forsberg and Thakur have also been quite active in seeking industrial support for their research. Another area that continues to be promising for corporate funding is the development of contrast agents for ultrasound, MRI, CT, and nuclear medicine.

I was very pleased to note Dr. Consigny’s success this past year in obtaining NIH grant funding. He is doing excellent work with experimental models of atherosclerosis and the interventional therapy of that disease, and I am hopeful that he will be able to continue to expand his grant funding for this work. Another promising area of research is perfusion and diffusion brain imaging and other aspects of functional MRI. Work on this has been hampered by lack of the necessary hardware and software on our magnet on Main 10. There are several reasons for this, including building vibration problems on Main 10, but we are hopeful that we can get around these and that
the equipment will be installed during the coming year. MR spectroscopy in the investigation of degenerative diseases of the central nervous system is another interesting possibility. Finally, Drs. Gonzalez and Vinitski are planning to resubmit their proposal to NIH on MR regional volumetric evaluation of multiple sclerosis.

As this brief summary indicates, our department continues to vigorously pursue outside grant funding, and I am hopeful we will continue to be successful. With the growing demands upon the time of our physician faculty members to fulfill their clinical and teaching responsibilities, the burden of getting grant funding will fall increasingly upon our Ph.D. colleagues.

**AFFILIATIONS AND INTERDEPARTMENTAL ACTIVITIES**

We continue to have discussions with the Methodist Hospital radiologists and a consultant from Coopers and Lybrand about the best way to amalgamate the Methodist radiologists into our department. This transition is scheduled to formally take place in July 1998. Also during the past year, the radiology departments at Lankenau, Bryn Mawr, and Paoli Memorial Hospitals have joined forces to become a single group, headed by Haylor Osborn, M.D. I have recently had discussions with Dr. Osborn and his senior associate, Dr. Ray Baraldi, both of whom have expressed interest in developing a closer relationship with our department. These discussions will continue, although it remains to be seen how such a relationship will actually be structured. All three of us agree that we will be stronger working together than we would if we remained separate. The Jefferson Health System can give us a framework in which to pursue a joint relationship.

Our role at Wills Eye Hospital will expand significantly during the coming year. The Pennsylvania Hospital radiologists will no longer be involved at Wills, and our neuroradiology/head and neck radiology division has become totally responsible for radiology coverage at that institution. We look forward to this expanded role, and we are fully committed to providing outstanding imaging services to patients and referring physicians at Wills. The MRIs, CTs, plain films, and angiograms performed there will become a major component of our teaching program in neuroradiology. We have already developed some fruitful relationships in research with Drs. Warren Goldman and David Andrews and we hope to begin more of these in the future with other Wills physicians.

Many of our faculty members have collaborated with physicians in other departments during the past year. Dr. Feig worked with individuals in both surgery and pathology at a DCIS classification consensus conference. He also participated in a center grant proposal from the Kimmel Cancer Center, in which he is designated as the associate director for cancer control and prevention. Our faculty in neuroradiology is collaborating with scientists at Drexel in the study of the hemodynamics of brain aneurysms. They are also collaborating with the Memory Institute in the study of Alzheimer's patients. Dr. Friedman is working with Dr. Warren Goldman at Wills Eye Hospital on a project involving MRI assessment of stereotactic radiosurgical gamma knife pallidotomy and thalamotomy. In ultrasound, our faculty are collaborating with scientists at Drexel in a variety of grant proposals. We also have ultrasound research collaborations with physicians in cardiology, urology, perinatology, gynecology, neoplastic diseases, orthopedic surgery, general surgery, and gastroenterology. We are having discussions with the departments of obstetrics and gynecology and urology about developing joint clinical/research centers involving ultrasound. Dr. Gardiner in CVIR and Dr. Carabasi in vascular surgery have also had similar discussions about the development of a vascular disease center.

In our body CT division, there has been collaboration (a) with the rheumatology division on a research project evaluating pulmonary interstitial disease in diffuse and limited scleroderma, (b) with anesthesiology on a study of percutaneous lumbar sympathetic plexus catheter placement for pain management, and (c) with radiation oncology on a project involving volumetric
assessment of the prostate in planning brachytherapy. In nuclear medicine, there is quite a bit of
interdepartmental activity. For example, they are working with the emergency department in the
evaluation of patients presenting with acute chest pain. Those who are ruled out for acute
myocardial infarction are sent for radionuclide myocardial perfusion imaging. If this is
negative, the patients are discharged from the emergency department, thereby saving
unnecessary hospitalization. Nuclear medicine physicians are also working with members of the
department of surgery in using lymphoscintigraphy to evaluate cancer patients, and with the
neurosurgeons in evaluating meningiomas with somatostatin analogs to assess the response of
tumors to stereotactic radiosurgery. They are also closely affiliated with Jefferson's new thyroid
center.

We continue to have a close relationship with the department of radiology at the A.I. duPont
Institute, chaired by George Gross, M.D. They serve as our pediatric radiologists and therefore
play a key role in our clinical and educational programs. We enjoy working with all of them and
appreciate their talents and dedication.

DEPARTMENT ADMINISTRATION

The most important administrative change in our department this past year was the recruitment of
Mr. Victor Sarro to replace George McArdle as administrative director. George and I had an
excellent working relationship for 10 years and I was quite concerned about what would happen
after he retired. After an extensive search, Mr. Sarro was recruited from Hartford Hospital in
Connecticut, where he had been the radiology administrator for about three years. Prior to this, he
had been the radiology administrator at Long Island Jewish Medical Center for 12 years, and had
held a similar post at Maimonides Medical Center before that. Victor has been an outstanding
addition. I was greatly impressed at how, after only a very short time, he familiarized himself
with the workings of the hospital and department and was able to plunge right in and begin solving
the host of problems that constantly confront a radiology administrator in a large academic center
like Jefferson. He has proven to be a very hard worker with in-depth knowledge of radiology
operations, lots of innovative ideas, a “can-do” attitude, strong computer and financial skills, a
knack for handling personnel matters, and (along with other important personal qualities) a good
sense of humor. Under his leadership this past year, some important administrative changes
have been instituted - including conversion to new computers for our radiology information
system; improvement of the staffing pattern among our patient schedulers to better match periods
of peak demand; and introduction of the Canon PACS which has allowed us to begin reducing our
use of laser camera film. Before and during the transition, Linda Torres did an outstanding job
at overseeing the administrative affairs of the department.

Our assistant administrator, Carol Williams, also departed to become administrator of the
radiology department at the Children's National Medical Center in Washington, DC. As part of
our efforts to continue downsizing, Mr. Sarro elected not to replace her. Instead, her
responsibilities will be spread among several other individuals in the department - notably Dara
Killion, Judy Dubbs, and Linda Torres. The three of them are highly capable individuals and I
am quite sure they will be able to incorporate her responsibilities into their own work routines.

Some important administrative changes were made among our faculty group as well. I appointed
Mark Schweitzer, M.D. as our new Associate Chairman for Clinical Practice. He joins Drs.
Barry Goldberg and Vijay Rao as associate chairpersons, Dr. Goldberg for research and Dr. Rao
for education. Dr. Schweitzer's primary role will be developing new possibilities for practice
expansion, as well as overseeing our working relationships with our current base of referring
physicians. He has already proven himself highly adept at developing outside business
relationships on behalf of the department, and I know his efforts will benefit all of us in the future.
I also appointed Catherine Piccoli, M.D. as director of our new Academy Imaging Center
division. It was obviously important that one individual in the department assume a leadership
role there, and Cathy volunteered to do it. There have been many administrative problems to be attended to since we assumed that contract in August, 1996 and she has done a fine job at overseeing this process. We've found that running a private outpatient imaging center is a far different experience than running a radiology department in the midst of a large academic institution. In addition to these two changes, three of our faculty members left this year, and we have recruited outstanding replacements for them. Dr. Pamela Johnson is replacing Dr. Archie Alexander in ultrasound and body CT. She comes to us from a radiology residency at Johns Hopkins and our own US/CT/MRI fellowship. Scott Enochs, M.D., Ph.D. replaces Dr. Peter Dagher in neuroradiology. He comes from both a radiology residency and neuroradiology fellowship at the Massachusetts General Hospital. Dr. Steven Nussbaum is replacing Dr. Emily Conant in our Breast Imaging Center. Dr. Nussbaum did an excellent job as a breast imaging fellow here two years ago, and then spent one year on the staff at Long Island Jewish Medical Center. All three of them are bright, hardworking, clinically skilled, and full of good research ideas. We are pleased to have them join our faculty.

Some additional downsizing occurred. Our biostatistician, Karen Gilbert, left recently and we decided not to replace her. It is hoped that the new director of health service research we are currently recruiting will be able to assume the role of department statistician as well. We also dropped one secretarial position from the front office group.

Ms. Shelly Perri joined us as a full time marketing representative this past year, and she has been an important addition to our administrative structure. Shelly is highly knowledgeable and experienced. While it is difficult to precisely quantify the contributions of a marketing person, I feel her work has significantly contributed to our efforts to build our practice. Among the things we are doing with Shelly's help is to develop new surveys of patient satisfaction and some educational literature to inform patients of the difference between screening and diagnostic mammography. We also began distributing a quarterly newsletter called "News from Jefferson Radiology", a 4-page update on scientific activities within the department, to all our referring physicians. This was another of her ideas.

My sincere thanks once again go to Toni Salvatore, Dara Killion, and Judy Dubbs. Like Victor Sarro, they are "can-do" people whom I know I can count on. Most people in the department don't realize the myriad of problems that come up on a daily basis and that Toni and Dara take care of quickly and efficiently. Judy continues to be a tremendous source of help to all department investigators, and as usual she has done a great job in helping to put together this department annual report. All of the other senior supervisors in the department deserve great credit as well, particularly during a year like this which saw a major transition in our administrative leadership.

**DEPARTMENT GOALS**

**Balancing the Need for Excellence in Clinical Practice, Research, and Teaching** - One of our most important goals is to continue our efforts to enlarge our clinical practice. This is becoming more and more of a challenge - our faculty has been downsized (compared with several years ago) while our practice grows more complex and more geographically dispersed throughout a number of outside facilities (Wills Eye Hospital, the two TME MRI sites, and Academy Imaging, for example). At the same time, we intend to maintain and perhaps even improve the strong reputation we have for excellence in research and education. None of this will be easily accomplished in these difficult times, but I have great confidence in the ability and determination of our faculty to do so.

**Marketing** - As Dr. Richard Wechsler stated in his annual report on the body CT division, "One of our major goals during the coming year should be to aggressively market ourselves and our
specialty so that patients and managed care organization realize that radiology services at Jefferson are delivered by high quality subspecialty consultants”. I agree with this completely.

**Maintain State-of-the Art Equipment and Research Resources** - Another goal suggested by Dr. Wechsler was to maintain state-of-the art equipment and the excellent research support structure we have developed. In an era of diminishing revenues, it will not always be easy to do this, but certainly that must remain one of our primary goals. We will need the support of the hospital administration through the capital budget process to maintain our imaging equipment at optimum levels, and we have to rely on our own practice revenues to continue supporting our research infrastructure.

**Building Relationships with New Practices Relocating to TJUH** - With the ending of Jefferson’s relationship with Pennsylvania Hospital, many of the clinical and teaching activities of the departments of neurosurgery, orthopedic surgery, and otolaryngology have transferred to the Jefferson campus. We welcome those physicians and will make very effort possible to provide them with excellent clinical service, support their educational activities, and conduct joint research with their faculty members. Jefferson made a number of other important recruitments during the past year — for example, a new gastroenterology team, a new epilepsy group, and a number of primary care groups. One of the latter is Partners in Primary Care, an expanding practice group in New Jersey headed by Dr. Robert DiRenzo. I had the opportunity to have several discussions with Dr. DiRenzo and we look forward to being able to provide clinical services for he and his colleagues.

**Satellite Facility in New Jersey** - Related to the above, Jefferson is now building a clinical satellite in Voorhees, NJ which will contain imaging equipment. One of our important goals is to incorporate this new facility into our clinical practice. We are currently discussing ways to provide coverage at this new satellite.

**Teleradiology** - As noted earlier, the installation of teleradiology, or PACS, this past year has brought major changes to our department. An important goal of ours is to expand the use of this technology, in the hopes of reducing film costs and quickly distributing images around the hospital and to offices of referring physicians. I predict that within 10-20 years, x-ray film will be a relic of the past and all images will be viewed electronically using workstations and video monitors. Although I feel that our Canon system is the best available on the market, and our working relationship with the software engineers at the company has been excellent, we still have a ways to go before the system achieves its full potential.

**Improved Communication with Referring Physicians** - We need to improve the speed at which we communicate our reports to referring colleagues. Significant progress was made this past year as a result of outsourcing our report transcriptions, but there is still room for improvement. In addition to distribution of images through PACS, we intend to explore ways to shorten report turnaround times and then distribute this information instantaneously. Distribution could occur directly through the PACS network or perhaps via e-mail.

**Grant Support** - As noted earlier, there has been a slight drop-off in the amount of grant support and number of publications by department faculty members. I don’t see this as a significant downturn, but we clearly want to continue our emphasis on obtaining grant funding to support research. We have a number of interesting possibilities pending and hopefully many of them will be successful.

**ISSUES FOR THE COLLEGE AND HOSPITAL**

**Central Billing** - Several departments have already switched to the new Central Billing Office, which uses the IDX system. Our department is scheduled to switch in the Spring of 1998. We have been assured that our billing costs will be no higher than they are now and that our collection rate
will improve. These commitments must be met, to maintain credibility of the Foundation. We will also need to have a knowledgeable individual chosen as our billing account manager.

**Hospital Information System** - The hospital will also be switching to a new information system, and it will be extremely important to interface our existing radiology information system to it. There will be some important issues to be resolved - such as how to handle central registration and radiology scheduling. Some have suggested that there should be open access via computer from all other clinical offices to our radiology schedule. I have serious doubts that this can work. Personnel in physician practice offices don't know the length of time our various examinations take or other requirements such as preparation routines.

**University Accounting System** - There have been major problems within the University accounting system. For example, I scrutinize our practice's revenue and expense statement monthly. Although I don't claim to be an accountant, during the past year I picked $400,000 in expenses that were erroneously charged to our account. This hardly gives one confidence in the system. Are there other mistaken charges that we might have missed? It is important that these problems be corrected promptly, so we can feel comfortable that our revenues and expenses are being tracked accurately.

**Downsizing of Personnel** - Reductions in our staffing as a result of the recommendations of the "redesign" teams have in some cases compromised our ability to provide efficient service to referring physicians and patients. The frustrating delay in patient transport mentioned earlier is one example of this. Since radiology is a revenue-producing department, it is crucial that our staffing levels be maintained at a point where our ability to provide service is not compromised. I hope that if further downsizing is necessary, it will be limited to the many other departments around the institution that don't produce revenue.

**Paperwork** - The increasing blizzard of paperwork is becoming a source of frustration and delay in getting the necessary work done. One example was the recent requirement to produce budgets for the overage fund and other special purpose accounts. These appear to have very little purpose, but they certainly require the time and effort of a number of people, and all during a period when we are expected to work more efficiently. I hope it will be possible to start simplifying our administrative routines, rather than complicating them.

**Purchase of Outside Practices** - During the past year, the Jefferson Health System has greatly improved its posture in acquisition or development of other affiliation agreements with outside physician practices. One concern I have is that while Jefferson money is being spent, these outside practices seem to have no clear mandate to refer their patients to Jefferson for services such as radiology, tertiary level surgery, etc. I know this is a difficult issue with legal ramifications, but we need to be sure that when purchases or other affiliation agreements are made, the institution as a whole benefits from these arrangements.

**Film Usage** - As noted earlier, with the installation of our Canon PACS system, we are attempting to reduce the use of laser camera film throughout the hospital. We've met considerable resistance from our referring physicians, some of whom are comfortable with the use of the old film images and seem unwilling to change. We need to enlist the help of hospital administration to try and make referring physicians aware of the need to reduce costs by cutting back the use of film. This will require the acquisition of new equipment to help make images more available to clinicians electronically, and also a marketing campaign to educate them on the need to save hospital dollars through the use of our PACS equipment.
TEACHING PROGRAMS

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

INTRODUCTION

I am pleased to report that we had a good year overall. All of our fellow graduates were successful in obtaining jobs of their choice. All of our resident graduates have been accepted into top notch fellowship programs. Three out of the six residents chose to stay with us for fellowship training. This is a testimony to the excellence of our programs. Our continuing medical education programs continue to expand, especially under the aegis of the Jefferson Ultrasound Research and Education Institute.

RESIDENCY TRAINING PROGRAM

Our residency is recognized nationally as one of the best training programs. It is gratifying to note that each of our senior residents passed the written and oral board examinations given by the American Board of Radiology. Three out of the six graduating residents chose to stay with us to pursue fellowships; one each in cardiovascular/interventional radiology, cross sectional imaging and neuroradiology/ENT radiology. Two residents are pursuing fellowships in neuroradiology, one at the Hospital of the University of Pennsylvania and the other at Mallinckrodt Institute of Radiology of Barnes Hospital in St. Louis. The sixth resident will do a fellowship in cardiovascular/interventional radiology at the Brigham and Women's Hospital.

Radiology as a career is falling somewhat out of favor compared to the primary care subspecialties in the current environment of health reform. In spite of a shrinking pool of applicants for radiology residency, we fared quite well in the residency match program (NRMP). We filled 5 out of 6 positions with choice candidates. The 6th position was filled by another top-notch applicant who has completed an internship at Duke University and is now pursuing a year of research in our department. I would like to thank Levon Nazarian, M.D. for the terrific job he has done as Chairman of the Residency Selection Committee.

The year-end program critiques completed by the residents were quite upbeat overall. As indicated in my last year's report, we invited Ted Villafana, Ph.D. from Allegheny University to teach radiological physics to our residents. This course incorporates 48 hours of teaching and will run through the summer.

The third and fourth-year residents spent a month each at our new venture in clinical practice, the Academy Imaging Center in Northeast Philadelphia. This is a full-service imaging center. The residents participate in the interpretation of plain films, fluoroscopy, and ultrasound, CT and MRI examinations under direct supervision by a faculty member of our department. The residents have been positive about this rotation since it has added a different dimension to the training program by exposing them to the world of private practice.

It is gratifying to note that our residents are active in research and presented several scientific papers at national radiology meetings. The Radiological Society of North America again sponsored the resident/fellow Roentgen Research Award program and invited academic departments to nominate a candidate who had demonstrated accomplishments in radiological investigation. Rita Patel, M.D. was the recipient of the 1997 Roentgen Research Award for our department.
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.

Unfortunately, downsizing the training programs is slowly becoming a reality in this era of cost containment. We have eliminated one combined body and neuro MRI fellowship position for the current academic year and foresee eliminating a neuroradiology fellowship position beginning next academic year. One CVIR position is also being dropped.

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

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

TEACHING PROGRAMS FOR MEDICAL STUDENTS

A new teaching program for medical students was successfully instituted. The radiology faculty provide nine hours of teaching that was incorporated into the ICM course for sophomore students and was well received. Since this was our first year of participation in this pivotal course for students, we plan to strengthen it based on the course critiques.

The junior and senior students can choose to take one or more of the five separate electives offered by our department which include general radiology, pediatric radiology, neuroradiology/ENT radiology, CVIR, and Ultrasound/CT/MRI. The radiology elective was completed by 128 members (52%) of the senior class, either here or at an affiliated institution.

The evaluations of the general radiology elective continue to be quite positive which is a tribute to Paul Spirn, M.D. The neuroradiology and pediatric radiology electives were completed by 10 and 3 senior students respectively. Electives in US/CT/MRI and CVIR were completed by 1 and 3 students respectively. All of these courses received rave reviews from the students. The elective in pediatric radiology is losing popularity because of lack of pediatric case load. We are discussing with George Gross, M.D., Chairman of Radiology at A.I. DuPont Institute to let the students do their pediatric radiology elective rotation at A.I. DuPont.

CONTINUING MEDICAL EDUCATION PROGRAMS

Jefferson Shoulder, Wrist and Elbow Advanced Imaging Symposium. This course directed by Mark Schweitzer, M.D. and David Karasick, M.D. was given in April, 1997 and was very successful. It was attended by approximately 118 radiologists.

Third Annual Foot and Ankle Advanced Imaging Symposium. This course directed by David Karasick, M.D. and Mark Schweitzer, M.D. was given in May, 1997 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 136 radiologists, orthopedists and podiatrists.

**Weekend Cardiac Radiology Review.** A refresher course in state-of-the-art cardiac imaging incorporating both traditional and newer modalities, directed by Robert Steiner, M.D., was held over a weekend in March, 1997. It was attended by approximately 110 residents in Diagnostic Radiology from all around the eastern U.S. and was very well received.

**Seventeenth Annual Leading Edge in Diagnostic Ultrasound Conference.** The ultrasound division's Seventeenth Annual Leading Edge in Diagnostic Ultrasound, held in Atlantic City, was a major success again this year, having over 1,500 attendees. In addition, the Division of Ultrasound offered about 40 one to five-day continuing medical education courses in ultrasound applications for abdomen, obstetrics and gynecology, sonomammography, Doppler ultrasound, contrast agents in ultrasound, and others.

**Tenth Annual Philip J. Hodes Lecture.** In honor of Philip J. Hodes, M.D., the Ninth Annual Philip J. Hodes Lecture was given and was very successful. The guest speaker was Ernest Ferris, M.D. Professor and Chairman, Department of Radiology, University of Arkansas for Medical Sciences, who gave an outstanding presentation on "The Radiologists' Commitment to Excellence - How Can We Deliver on the Promise?".

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

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

**The Jefferson Ultrasound Research and Education Institute (JUREI).** This program continues to make great strides in regional, national and international education under the direction of Barry B. Goldberg, M.D.

During the past year the educational programs in ultrasound were expanded to include physics and instrumentation, cross-sectional anatomy, abdominal ultrasound, obstetrics and gynecology, vascular imaging and Doppler, echocardiography, neonatal, neurosonography, interventional ultrasound, prostate ultrasound, and sonomammography. A new course entitled, "Three-Dimensional Ultrasound Imaging", is scheduled to begin next year. In addition, there are ultrasound courses given in Spanish.

The JUREI continues to receive funding from the Open Society Institute, now totaling in excess of $150,000 for this past year, which has allowed us to expand our International Education Program. During this past year, we educated 10 individuals from former Russian republics and, beginning this July, another 12 individuals from Russia and 2 from Mongolia. They will be receiving an intensive 3 months of training so they will be able to teach ultrasound in their home countries. We continue to expand our affiliated program and now have 18 centers around the world. These centers are affiliated with our Ultrasound Institute and we have received funds to hook them up to the worldwide web. Our newest centers have recently been opened in Egypt, South Africa, Lithuania, Latvia and Croatia.

The JUREI has received a four-year renewal of support from the World Health Organization where we have been designated 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 or by 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 more individuals than it otherwise could.

FUTURE GOALS

Our primary goal is to maintain the quality of our educational programs in the current environment of managed care and reduced clinical revenues. Our mission is to ensure that all of our training programs for residents and fellows are driven by educational needs rather than service needs. As the applicant pool for radiology residencies continues to shrink, we hope to continue recruiting the best possible applicants.
PUBLICATIONS

Journal Articles:


**Books and Book Chapters:**


CD Roms:


Abstracts:


206. Hilpert PL, Hall BE, Kurtz AB: The atria of the fetal lateral ventricles: A sonographic study of normal atrial size and choroid plexus volume (in) Merritt CRB, Babcock DS,


FORMAL SCIENTIFIC PRESENTATIONS

ARCHIE A. ALEXANDER, M.D.

March 23-26, 1997 41st Annual Convention of the American Institute of Ultrasound in Medicine, San Diego, CA
• “Color Doppler flow in superficial melanoma metastases: Histologic correlation”
• “Transrectal drainage of deep pelvic abscesses”

April 10-11, 1997 Convencion de Ultrasonografia de Rosario, Rosaria, Argentina
• “Scanning technique form TRUS evaluacion of prostate gland”
• “Ultrasonido trans-rectal on cancer de recto”
• “Evaluacion sonografica on incontinencia rectal”
• “Anatomia ecografica de la prostata”
• “US en cancer de prostata”
• “Biopsia de prostata y otras intervenciones transrectales”

May 13-16, 1997 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
• “Prostate ultrasound update '97”

May 31, 1997 Tenth Annual Ultrasound and Imaging Seminar, Isla Verde, PR
• “Ultrasound of normal and benign prostate glands”
• “Sonographic visualization of prostate cancer”
• “Biopsy procedures and complications”
• Case presentation

JOSEPH BONN, M.D.

August 20, 1996 SCVIR Morbidity & Mortality Conference, Coeur d’Alene, ID
• “Pseudoaneurysm associated with a Palmaz iliac stent”

October 6, 1996 Interventional Radiology for Technologists and Nurses IX, Atlanta, GA
• “Venous access device occlusion: Thrombosis and thrombolysis”

March 8-13, 1997 22nd Annual Scientific Meeting of the Society of Cardiovascular and Interventional Radiology, Washington, DC
• “Restenosis in swine iliac arteries after stent placement: Comparison of encapsulated to bare stents”

April 28, 1997 Intravenous Nursing Society, Cherry Hill, NJ
• “Venous access: Complications and management”

June 6-8, 1997 Fourth Annual Penn-Jeff Conference on Inverventional Radiology, Skytop, PA
• “Arterial interventions 1996-1997”
EMILY F. CONANT, M.D.

September 21, 1996  
Society of Diagnostic Medical Sonographers, Palm Springs, CA  
- "Basic breast sonography"  
- "Advanced breast sonography and interventional procedures"

September 30, 1996  
Hospital of the University of Pennsylvania, Department of Radiology, Philadelphia, PA  
- "The basics of breast ultrasound"

October 15-16, 1996  
General Electric Imaging Symposium, Atlanta, GA  
- "Update on breast sonography"

October 23-24, 1996  
General Electric Imaging Symposium, New York, NY  
- "Update on breast sonography"

October 29-30, 1996  
General Electric Imaging Symposium, Chicago, IL  
- "Update on breast sonography"

December 1-6, 1996  
82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL  
- "Small field of view digital imaging of breast calcifications: A method to improve diagnostic specificity"  
- "2-D and 3-D digital imaging of breast calcifications: A method to improve diagnostic specificity" (exhibit)  
- "Three dimensional sonographic anatomy and pathology of the breast" (exhibit)

March 5, 1997  
Cooper Hospital-University Medical Center, Camden, NJ  
- "The basics of breast ultrasound"  
- "Three dimensional sonographic anatomy and pathology of the breast" (exhibit)

March 5, 1997  
Radiologic Society of New Jersey, Camden, NJ  
- "Advances in breast cancer imaging"

P. MACKE CONSIGNY, PH.D.

November 10, 1996  
69th Scientific Session of the American Heart Association, New Orleans, LA  
- "Pathophysiology of peripheral vascular disease"

March 12, 1997  
22nd Annual Scientific Meeting of the Society of Cardiovascular and Interventional Radiology, Washington, DC  
- "How to do research in interventional radiology: A practical guide for the tinkerer in all of us: Research support of interventional research: American Heart Association, Radiologic Society of North American, and Cardiovascular and Interventional Radiology Research and Education Foundation"
AZAR P. DAGHER, M.D.

October 28, 1996
Annual Fall Symposium American Medical Informatics Association, Washington DC
• “Expert refinement of data-derived bayesian networks for medical diagnosis”

December 1-6, 1996
82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
• “Onset of and associations between atrophy, white matter disease, and infarcts on brain MRI in the over-55 age group: The atherosclerosis risk in communities study”

March 24, 1997
23rd Annual Meeting of the American Spinal Injury Association, Houston, TX
• “Interpretation and prognostication of MRI and clinical variables in cervical spinal cord injury using data-derived bayesian networks”

May 16-22, 1997
35th Annual Meeting of the American Society of Neuroradiology, Toronto, Ontario, Canada
• “Correlating brain myoinositol concentrations with mini- mental scores in Alzheimer disease using automated PMRS: Preliminary results”
• “Evaluating the significance of MRI and clinical variables in cervical spinal cord injury using a bayesian network”
• “Decision support software for brain PMRS”

DIANE M. DEELY, M.D.

October 22, 1996
Medical Society of Binghamton, Good Samaritan Hospital, Binghamton, NY
• “MRI of the foot and ankle: Sports-related injuries”
• “MRI of the foot and ankle-Part II: The diabetic foot”

DAVID J. ESCHelman, M.D.

October 9-10, 1996
University of Pennsylvania Interventional Radiology and Vascular Imaging Conference, Philadelphia, PA
• “Peripheral venous access: PICCs and ports”
• “Venous and hemodialysis access and intervention” (workshop)
• “Brachytherapy and metal stent placement for cholangiocarcinoma”

March 12-13, 1997
22nd Annual Scientific Meeting of the Society of Cardiovascular and Interventional Radiology, Washington, DC
• “Introduction to venous access” (workshop)
• “Vena cava filters” (workshop)
• “Alternatives to iodinated contrast” (workshop)
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<tr>
<th>Date</th>
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<tr>
<td>April 20, 1997</td>
<td>4th Annual Cardiovascular Radiology Review Weekend, Philadelphia, PA</td>
<td>• Case Review Session</td>
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<td>May 16, 1997</td>
<td>Beebe Medical Center, Lewes, DE</td>
<td>• &quot;Interventional radiology update&quot;</td>
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<tr>
<td>June 6-8, 1997</td>
<td>4th Annual Penn-Jeff Conference on Interventional Radiology, Skytop, PA</td>
<td>• &quot;Venous disease and diagnosis - pulmonary embolism&quot;</td>
<td>• &quot;Venous intervention and access procedures&quot;</td>
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<td>July 10-12, 1996</td>
<td>National Mammography Quality Assurance Committee, U.S. Food and Drug Administration, Center for Devices and Radiological Health, Rockville, MD</td>
<td>• &quot;Digital mammography: Considerations in developing standards for clinical image review&quot;</td>
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<td>July 21-25, 1996</td>
<td>38th Annual Meeting of the American Association of Physicists in Medicine, Philadelphia, PA</td>
<td>• &quot;Clinical aspects of digital mammography&quot;</td>
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<td>July 30- August 1, 1996</td>
<td>Mobile Breast Care Center Meeting, Sponsored by the Department of Defense, the U.S. Public Health Service, Office of Women's Health and the National Cancer Institute, Chevy Chase, MD</td>
<td>• &quot;Conventional and digital breast imaging&quot;</td>
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<td>September 23-25, 1996</td>
<td>11th Annual Update in Mammography, Medical College of Virginia at Virginia Commonwealth University, Department of Radiology, Richmond, VA</td>
<td>• &quot;QC from the viewbox: Assessing image quality&quot;</td>
<td>• &quot;Results of screening trials&quot;</td>
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<td>September 27-29, 1996</td>
<td>Breast Imaging Update, Sponsored by Department of Radiology, University of California School of Medicine, San Francisco, CA</td>
<td>• &quot;Problem-solving mammography: Challenging cases&quot;</td>
<td>• &quot;Problem-solving mammography&quot;</td>
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<td>• &quot;How to monitor mammographic quality from the viewbox&quot;</td>
<td>• &quot;The mammographic report: Structure, terminology, communication problems&quot;</td>
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<td>• &quot;Conventional needle localization of nonpalpable lesions, technique, problems, solutions&quot;</td>
<td>• &quot;Current status and future applications of digital mammography&quot;</td>
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<tr>
<td></td>
<td></td>
<td>• &quot;Current status and future applications of breast MRI&quot;</td>
<td>• &quot;Breast ultrasonography: Conventional examination and interventional procedures&quot;</td>
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October 2, 1996  Fitzgerald Mercy Hospital, Department of Radiology, Darby, PA
  • "Imaging evaluation of breast masses"

October 9, 1996  Albert Einstein Medical Center, Department of Radiology, Philadelphia, PA
  • "The mammography consultation: Radiologist-clinician-patient communication issues"
  • "Mammography screening: Facts, fictions, controversies and guidelines" (First Annual Harold J. Isard Memorial Lecture)
  • Interesting case presentations

December 1-6, 1996  82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
  • "Cost-effectiveness of annual versus biennial mammographic screening of women aged 40-49 years"
  • "Whole-breast digital mammography: Evaluation of clinical image quality" (refresher course)
  • "Implications of international breast cancer screening on North American policies: Risk, benefit, and cost analysis in the United States" (refresher course)
  • "ACR accreditation programs: Current status and future plans" (refresher course)

January 21-23, 1997  NIH Consensus Development Conference, Breast Cancer Screening for Women Ages 40-49, National Institutes of Health, Bethesda, MD
  • "Radiation risk"

January 22-24, 1997  34th Annual Continuing Education Conference, The Year in Medicine, Northwestern University Medical School, Department of Internal Medicine, Chicago, IL
  • "Controversies in medicine: Breast cancer screening in women aged 40-49 years"

February 20, 1997  Statement and Testimony to the U.S. Senate Subcommittee on Labor, Health and Human Services and Education Appropriations, Special Hearing on NIH Consensus Development Conference on Breast Cancer Screening in Women Ages 40-49, Philadelphia, PA
  • "Perspective on NIH consensus panel statement: Current status of mammography screening of women aged 40-49 years"

February 25, 1997  St. Lukes-Roosevelt Hospital of Columbia University College of Physicians and Surgeons, Department of Radiology, New York, NY
  • "Breast calcifications"

March 7-9, 1997  American Cancer Society Workshop on Guidelines for Breast Cancer Detection, Chicago, IL
  • "Overview of the data on screening pre- and post-menopausal women from randomized trials"
  • "Risk and benefit from mammographic exposures"

March 14-16, 1997  Breast Imaging Update, Sponsored by Department of Radiology, University of California School of Medicine, San Francisco, CA
• "Problem-solving mammography"
• "How to monitor mammographic quality from the viewbox"
• "The mammography report: Structure, terminology, communication problems"
• "Digital mammography"
• "Needle localization of nonpalpable lesions"
• Challenging cases workshop

March 17-21, 1997
40th Annual Diagnostic Radiology Postgraduate Course, Sponsored by Department of Radiology, University of California School of Medicine, San Francisco, CA
• "How to monitor mammographic quality from the viewbox"
• "Current status and future applications of digital mammography"

March 20-23, 1997
Prevention '97, Annual Meeting of the American College of Preventive Medicine and Association of Teachers of Preventive Medicine, Atlanta, GA
• "Critical and controversial issues in women's health: Screening mammography controversies"

March 22-23, 1997
Mammography, A Course for Physicists, Sponsored by Medical College of Wisconsin and Mammography Technology Management Institute, Atlantic City, NJ
• "Breast cancer, anatomy/physiology, diagnosis/treatment"

April 3-6, 1997
First Symposium on Women's Imaging, Sponsored by the Society for the Advancement of Women's Imaging and the Western Pennsylvania Hospital, Washington, DC
• "Microcalcifications: Strategic analysis"
• "The dense breast: Problems and possible solutions"

April 16-19, 1997
Society of Breast Imaging 3rd Postgraduate Course, San Diego, CA
• "Mammographic screening-new evidence"

April 24-27, 1997
DCIS Consensus Conference, Sponsored by the Breast Health Institute and Jefferson Medical College, Philadelphia, PA
• "Mammographic estimation of DCIS extent"
• "Imaging innovations for DCIS detection"

May 15, 1997
Long Island Jewish Hospital, Department of Radiology, New Hyde Park, NY
• "Screening mammography trials and guidelines"
• Interesting case presentation

May 20, 1997
The Mount Sinai Medical Center, Department of Radiology, New York, NY
• "ACR Mammography Reporting Lexicon (BIRADS)"
• "Breast cancer screening controversies and guidelines"
• Case presentations

June 6-8, 1997
2nd International Congress - Prevention of Human Cancer, Sponsored by UNESCO, Venice, Italy
• "Benefits of mammographic screening for women ages 40-49 years"

**RICK I. FELD, M.D.**

December 1-6, 1996  
82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL  
• "Carotid Doppler sonography" (hands-on workshop; refresher course)

March 23-26, 1997  
41st Annual Convention of the American Institute of Ultrasound in Medicine, San Diego, CA  
• "Challenging US-guided biopsies" (meet the professor session)

May 13-16, 1997  
The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ  
• "Laparoscopic ultrasound"

May 20, 1997  
Greater Delaware Valley Ultrasound Society, Philadelphia, PA  
• "Ultrasound-guided abscess drainage"

**ADAM E. FLANDERS, M.D.**

December 1-6, 1996  
82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL  
• "Superiority of MR imaging to the manual muscle test (MMT) in determining the neurological level in spinal cord injury"

April 12-18, 1997  
5th Scientific Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine, Vancouver, British Columbia, Canada  
• "Spine trauma: Pathology and protocols" (clinical MRI course)

**FLEMMING FORSBERG, PH.D.**

July 21-25, 1996  
38th Annual Meeting of the American Association of Physicists in Medicine, Philadelphia, PA  
• "Ultrasound contrast agents - An update"

August 9-11, 1996  
The Whitaker Foundation Biomedical Engineering Research Conference, Snowbird, UT  
• "Nonstationary spectral analysis of Doppler ultrasound signals" (poster)

September 19-22, 1996  
Society of Diagnostic Medical Sonographers Thirteenth Annual Conference and Exhibition, Palm Springs, CA  
• "Ultrasound contrast agents and harmonic imaging"

October 3-6, 1996  
9th Congress of the European Federation of Societies for Ultrasound in Medicine and Biology, Budapest, Hungary
• "In vitro and in vivo ultrasonic measurements of hemodynamic parameters"
• "Basic principles of ultrasound contrast"
• "New contrast specific imaging techniques"

October 22-23, 1996
Advances in Echocardiography: Contrast Echocardiography and Perfusion Imaging, 11th Annual Symposium sponsored by University of Illinois, Chicago, IL
• "Harmonic imaging and acoustic emission with contrast"

November 3-6, 1996
IEEE 1996 Ultrasonics Symposium, San Antonio, TX
• "Study of the AQD spectral estimator on simulated and in vivo Doppler data"
• "Comparison of air and perfluorocarbon filled microbubbles for ultrasound contrast studies" (poster)
• "Shear rate estimation in stenotic vessels using a clinical ultrasound scanner" (poster)

November 20-21, 1996
7th Annual Montefiore Symposium on Advances in Vascular Diagnosis and Vascular Laboratory Management, New York, NY
• "New developments in the use of ultrasound contrast agents in vascular diagnosis"

December 1-6, 1996
82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
• "Air-filled versus perfluorocarbon-filled microbubbles for US contrast"
• "Ultrasonic shear rate estimation in vessels with atherosclerotic disease"
• "Parenchymal enhancement with low dosages of an US contrast agent"

January 13, 1997
EchoGen Launch Meeting, Amsterdam, Holland
• "Ultrasound imaging basics"
• "Ultrasound contrast"

March 12, 1997
Montgomery College 3rd Annual Ultrasound Seminar, Takoma, MD
• "Advances in ultrasound contrast agents"

March 23-26, 1997
41st Annual Convention of the American Institute of Ultrasound in Medicine, San Diego, CA
• "Doppler spectral estimation with the adaptive-Q Distribution"

May 1, 1997
Office of Women's Health, Technology Transfer Workshop on Breast Cancer Detection, Diagnosis, and Treatment, Washington, DC
• "US contrast agents for breast cancer detection and diagnosis"

May 13-16, 1997
The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
• "Optimizing harmonic imaging"
• "Hemorrhaging diagnosis"
June 7, 1997  
Current and Future Concepts in Vascular Diagnostics, sponsored by Diasonics Ultrasound, Charlotte, NC  
• “Ultrasound contrast agents”

June 7-11, 1997  
32nd Annual Meeting and Exposition of the American Association for the Advancement of Medical Instrumentation, Washington, DC  
• “Basic principles of ultrasound contrast imaging”

DAVID P. FRIEDMAN, M.D.

December 1-6, 1997  
82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL  
• “Stereotactic pallidotomy and thalamotomy: Immediate postoperative MR imaging findings with clinical correlation”  
• “Anomalies and abnormalities of the deep medullary white matter veins: MR imaging findings” (exhibit)

May 16-22, 1997  
35th Annual Meeting of the American Society of Neuroradiology, Toronto, Ontario, Canada  
• “Holospinal subdural hematoma after lumbar puncture” (exhibit)

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

October 9, 1996  
Third International Symposium on Cardiovascular and Interventional Radiology, Harvard Medical School, Boston, MA  
• “The STAR Registry: Summary of enrollment phase and early results”  
• “The role of interventional therapy in failing arterial bypass grafts”

June 6-8, 1997  
Fourth Annual Penn-Jeff Conference on Interventional Radiology, Skytop, PA  
• “Arterial diseases and diagnosis”

BARRY B. GOLDBERG, M.D.

September 17, 1996  
Capitol Hill Imaging Briefing, Washington DC  
• “New frontiers in breast cancer imaging and early detection”

October 1-4, 1996  
Euroson Congress 1996, Budapest, Hungary  
• “Advances in ultrasound contrast agents”

October 6-8, 1996  
University of Medicine and Pharmacy “Iuliu Hatieganu,” Cluj, Romania  
• “Advances in ultrasound”

October 9-13, 1996  
Ultrasound Diagnostic and Educational Center - National Medical University, Kiev, Ukraine  
• “New horizons in ultrasound”
October 17-19, 1996  
Torsten Almen Symposium, Malmo, Sweden  
• “Advances in ultrasound contrast agents”

November 18, 1996  
Italian Society of Ultrasound in Medicine and Biology, Florence, Italy  
• “Contrast media in ultrasound”

November 25, 1996  
MedSim - Educator Conference, Philadelphia, PA  
• “Future directions in ultrasound”

March 23-26, 1997  
41st Annual Convention of the American Institute of Ultrasound in Medicine, San Diego, CA  
• “Governmental and other influences of ultrasound”

CARLOS F. GONZALEZ, M.D.

September 12-15, 1996  
13th Annual Meeting of the European Society of Magnetic Resonance in Medicine, Prague, Czech Republic  
• “MR 3D segmentation analysis of white matter lesions”

September 17-21, 1996  
22nd Congress of the European Society of Neuroradiology, Milan, Italy  
• “MRI 3D tissue segmentation analysis of brain tumors: A histological correlation”

October 14-18, 1996  
Ibero American Society of Neuroradiology, Caracas, Venezuela  
• “MRI post-processing: New techniques”

January 15-18, 1997  
National Society of Multiple Sclerosis, Oxford, England  
• “Technical aspects of the use of MRI techniques in Multiple Sclerosis”

ETHAN J. HALPERN, M.D.

December 1-6, 1996  
82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL  
• “Application of receiver operating characteristic methods when the clinical significance of disease is related to its severity”  
• “Comparison of upper-extremity US with venography”  
• “Prospective study of main versus segmental artery doppler US for detection of renal artery stenosis”  
• “CT angiography of renal donors: Effect of pitch and collimation”

February 5, 1997  
Columbia-Presbyterian Medical Center, New York, NY  
• “Abdominal CT angiography”

February 18, 1997  
Maryland Radiological Society, Baltimore, MD  
• “Spectral Doppler waveform analysis”

May 14, 1997  
The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
• "CT and MR abdominal angiography"

CHARLES M. INTENZO, M.D.

October 17, 1996
Lankenau Hospital, Endocrine Grand Rounds, Wynnewood, PA
• "Management of well-differentiated thyroid cancer"

December 1-6, 1996
82th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
• "Tc-99m ECD brain SPECT for the diagnosis of Landau Kleffner Syndrome: Correlation with MRI and clinical outcome"

January 23, 1997
Lankenau Hospital, Wynnewood, PA
• "Neuroendocrine tumor imaging"

June 2, 1997
44th Annual Meeting of the Society of Nuclear Medicine, San Antonio, TX
• "Scintigraphic patterns of subclinical hyperthyroidism"

DAVID KARASICK, M.D.

August 19-22, 1996
International Skeletal Society, Paris, France
• "Aggressive fibrosis dysplasia"
• "Common adult foot disorder" (refresher course)

September 19, 1996
Bryn Mawr Hospital, Bryn Mawr, PA
• "Bone tumors - diagnostic approach"

December 1-6, 1996
82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
• "The traumatized cervical spine in patients with Klippel-Feil Syndrome: Patterns of injury"

January 2-3, 1997
Wilford Hall Medical Center, San Antonio, TX
• "Foot trauma"
• "Elbow imaging"

January 22, 1997
Mercy Catholic Hospital, Darby, PA
• "Benign bone tumors"

March 1-2, 1997
Second Annual Jefferson Shoulder, Elbow & Wrist Advanced Imaging Symposium, Philadelphia, PA (Course Co-Director)
• "Radiology of elbow trauma"
• "Radiology of shoulder trauma"
• "Shoulder arthrography"
• "Radiology of shoulder impingement"
• "Shoulder arthropathies"
• "Wrist arthrography"
• "CT of the wrist"
April 12-13, 1997  Third Annual Jefferson Foot & Ankle Advanced Imaging Symposium, Philadelphia, PA (Course Co-Director)
  • “Common adult foot disorders”
  • “Arthritis of the foot and ankle”
  • “Achilles and PTT disorders”

STEPHEN KARASICK, M.D.

September 18, 1996  Mercy Catholic Hospital, Darby, PA
  • “Uroradiology update”

December 1-6, 1996  82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
  • “Role of hysterectomy and parity in the development of defecographic pelvic floor abnormalities”

March 8-14, 1997  1997 Annual Meeting of the Society of Gastrointestinal Radiologists, Cancun, Mexico
  • “Defecography: Does parity play a role in the development of rectal prolapse?”

May 21, 1997  Rochester General Hospital, Rochester, NY
  • “Esophageal strictures”
  • Interesting GI/GU cases

May 22, 1997  Bryn Mawr Hospital, Bryn Mawr, PA
  • “Uroradiology, update”

SUNG M. KIM, M.D.

December 1-6, 1996  82th Scientific Assembly and Annual Meeting of the Radiological Society of North America Chicago, IL
  • “Dynamic brain SPECT with iododeoxyuridine in malignant glioma”
  • “Evaluation of supratentorial gliomas with Tc-99m-MIBI brain SPECT: Comparison with Tl-201 SPECT”
  • “Comparison of parathyroid imaging: Dual tracer thallium vs single tracer Tc-99m-MIBI”

April 6-9, 1997  3rd International Conference of Nuclear Cardiology, Florence, Italy
  • “Accuracy of left ventricular ejection fraction measurement from gated Tc-MIBI myocardial SPECT: Validation with first pass angiography”

  • “Functional brain SPECT in evaluation of brain tumor”
ALFRED B. KURTZ, M.D.

October 25-27, 1996
Advances in Sonography, Society of Radiologists in Ultrasound, San Francisco, CA
• “Second and third trimester obstetrical emergencies” (meet the professor)
• “Ultrasound and doppler evaluation of ectopic pregnancy”

December 1-6, 1996
82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
• “Estimate gestational age” (special course)
• “Ovarian cancer. Evaluation of neoplasms of the female reproductive system”

December 19, 1996
Bryn Mawr Hospital, Ultrasound Radiology Conference, Bryn Mawr, PA
• Case presentation to residents

February 18-19, 1997
20th Annual Advanced Ultrasound Seminar, Lake Buena Vista, FL
• “The analysis of twin gestations”
• “Detection of ovarian cancer”

March 23-26, 1997
41st Annual Convention of the American Institute of Ultrasound in Medicine, San Diego, CA
• “Obstetrical measurement used in a routine examination” (special course)
• “OB emergencies in the second and third trimester” (meet the professor)

May 13-16, 1997
The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
• “First trimester-measurements and landmarks”
• “Fetal chest”
• “The fetal GI tract”
• “The post partum pelvis”

DAVID C. LEVIN, M.D.

December 1-6, 1996
82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
• “How to survive under a capitated radiology contract: Part 1 - Assessing the financial feasibility of a proposed contract”
• “Participation by radiologists in pelvic ultrasound: Nationwide Medicare data for 955,345 studies in 1993”
• “Advances in the evaluation of coronary arteries: Conventional angiography, CT, and MR imaging”
• “Turf battles in radiology: How to fight them and win!”

January 22-26, 1997
Special Focus Lecture of the Seventh International MRI Symposium, Garmisch-Partenkirchen, Germany
• “What is the economic future of a high cost technology like MRI in an era of cost containment?”
March 12, 1997
Pennsylvania Radiological Society, Residents' Section, Philadelphia, PA
• "How to succeed in radiology"

March 31, 1997
University of Texas Medical Center/Hermann Hospital, Houston, TX
• "Angiocardiography of complex congenital heart disease - tetralogy of Fallot, tricuspid atresia, and double outlet right ventricle"
• "How to interpret coronary arteriograms - the basics"

March 31, 1997
M. D. Anderson Cancer Center, Houston, TX
• "The future of radiology"

April 5, 1997
American College of Radiology Managed Care Seminar, Chicago, IL
• "Capitated contracting in radiology"

April 11, 1997
Association of University Radiologists, Research Directors' Symposium, Dallas, TX
• "Balancing research, education and clinical activities"

April 16, 1997
American Healthcare Radiology Administrators, Atlantic City, NJ
• "Turf battles in radiology - Issues and solutions"

May 8, 1997
Johns Hopkins Medical Institutions, Baltimore, MD
• "How to fight turf battles in radiology"

May 13-14, 1997
Long Island Jewish Medical Center, New Hyde Park, NY
• "How to interpret coronary arteriograms"
• "Current status of femoropopliteal angioplasty"
• "The future of radiology in the United States" (Seventeenth Annual Bernard S. Epstein Memorial Lecture)

ANNA S. LEV-TOAFF, M.D.

July 22-25, 1996
University of California San Diego, Department of Radiology, San Diego, CA
• "Sonohysterography: Evaluation of endometrial and myometrial abnormalities"

December 1-6, 1996
82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
• "Transvaginal sonohysterography: Technique, instrumentation, practical hints and potential pitfalls" (exhibit)
• "Three-dimensional sonohysterography and 3-D transvaginal US: A problem-solving tool in complex gynecologic cases"

February 6, 1997
Philadelphia Roentgen Ray Society, Blue Ribbon Lecture, Philadelphia, PA
• "Sonohysterography: Evaluation of endometrial and myometrial abnormalities"
February 16-21, 1997 3rd Annual Snowmass Clinical Ultrasound Conference, Snowmass, CO  
• "Oral contrast use for abdominal ultrasound"  
• "Non-acute ultrasound evaluation of the liver and biliary system: Correlation with other imaging modalities"  
• "Ultrasound evaluation of uterine malformations"  
• "Sonohysterography"

March 23-26, 1997 41st Annual Convention of the American Institute Ultrasound Medicine, San Diego, CA  
• "Transvaginal sonohysterography: Technique, instrumentation, practical hints and potential pitfalls" (exhibit)  
• "Safety and efficacy of oral simethicone-coated cellulose in patients with suspected upper abdominal pathology"  
• "The value of 3D sonohysterography and 3D transvaginal ultrasound in complex cases"

April 15, 1997 Frankford Hospital, Departments of OB/GYN and Radiology, Philadelphia, PA  
• "Sonohysterography"

May 4-9, 1997 97th Annual Meeting of the American Roentgen Ray Society, Boston, MA  
• "Transvaginal sonohysterography: Technique, instrumentation, practical hints" (exhibit)

May 8, 1997 1st International 3D Ultrasound Forum, Seewalchen, Austria  
• "3D ultrasound in gyn and interventional ultrasound"

June 21-26, 1997 Annual Conference for the American Society of Radiologic Technologists, Providence, RI  
• "Intraoperative and endoscopic sonography"  
• "New topics in OB/GYN: Sonohysterography and 3-D GYN ultrasound"

June 25-28, 1997 8th Annual Meeting and Postgraduate Course, European Society of Gastrointestinal and Abdominal Radiology, Amsterdam, The Netherlands  
• "SonoRx®, a new oral ultrasound contrast agent: Clinical experience in patients with suspected abdominal pathology"

JI-BIN LIU, M.D.

September 5, 1996 General Military Hospital, Taipei, Taiwan  
• "Ultrasound contrast agents"

September 5, 1996 Taipei Veterans General Hospital, Taipei, Taiwan  
• "Non-vascular endoluminal ultrasound"

September 7, 1996 Taiwan University Hospital, Taipei, Taiwan  
• "Sonohysterography"
September 8, 1996 1996 Annual Convention of the Society of Ultrasound in Medicine, ROC, Taipei, Taiwan.
  • "A review of ultrasound contrast agents"

September 9, 1996 Jen-Ai Hospital, Taichung, Taiwan
  • "Ultrasound contrast agents: A review"

September 10, 1996 Taichung Veterans General Hospital, Taichung, Taiwan
  • "Non-vascular endoluminal ultrasound"

September 10, 1996 Chung-Tai College of Medical Technology, Taichung, Taiwan
  • "New developments in diagnostic ultrasound"

September 10, 1996 Chung-Tai Society of Radiology, Taichung 803 Military Hospital, Taichung, Taiwan
  • "A review of vascular and oral ultrasound contrast agents"

September 11, 1996 Taichung Veterans General Hospital, Taichung, Taiwan
  • "Sonohysterography"
  • "Laparoscopic ultrasound"

December 1-6, 1996 82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
  • "Endoluminal sonography of the obstructed ureteropelvic junction" (exhibit)

March 17-19, 1997 Peking Union Medical College Hospital, Beijing, China
  • "Ultrasound contrast agents: A review"

March 23-26, 1997 41st Annual Convention of the American Institute of Ultrasound in Medicine, San Diego, CA
  • "Endoluminal ultrasound of the obstructed ureteropelvic junction" (exhibit)

May 16-18, 1997 82nd Annual Meeting of The Pennsylvania Radiological Society, Hershey, PA
  • "Endoluminal ultrasound of the obstructed ureteropelvic junction" (exhibit)

ANDREW D.A. MAIDMENT, PH.D.

July 21-25, 1996 38th Annual Meeting of the American Association of Physicists in Medicine, Philadelphia, PA
  • "3-D imaging of mammary calcifications"
  • "Compensation for patient motion in stereotactic mammography"
  • "Digital angiography of the breast"

September 5-6, 1996 II Jornadas Internacionales de Ingenieria y Mantenimiento Hospitalario, Entre Rios, Argentina,
  • "Calidad en imágenes radiológicas - principios prácticos en la física de imágenes para diagnóstico"
<table>
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<th>Date</th>
<th>Event</th>
<th>Venue</th>
<th>Presentations</th>
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<tbody>
<tr>
<td>October 16, 1996</td>
<td>Fórum Nacional de Ciência e Tecnologia em Saúde - VI Congresso</td>
<td>Campos do Jordão, Brasil, Brasil</td>
<td>• “Full field digital mammography”</td>
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<tr>
<td>December 1-6, 1996</td>
<td>82nd Scientific Assembly and Annual Meeting of the Radiological</td>
<td>Chicago, IL</td>
<td>• “Method for conducting MQSA-type inspections by mail”</td>
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<tr>
<td></td>
<td>Society of North America</td>
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<td>• “Characterization of resolution of a slot-scanning digital mammography system”</td>
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<td>• “A method for 3-D reconstruction of breast calcifications”</td>
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<td></td>
<td>• “MQSA-type inspections by mail: An alternative to on-site inspections”</td>
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<td>• “Prototype workstation for 3-D diagnosis of breast calcifications”</td>
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**DONALD G. MITCHELL, M.D.**

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<tr>
<th>Date</th>
<th>Event</th>
<th>Venue</th>
<th>Presentations</th>
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<tbody>
<tr>
<td>August 17-24, 1996</td>
<td>19th Annual Course of the Society of Body Computed Tomography and</td>
<td>Aspen, CO</td>
<td>• “MRI of the liver”</td>
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<td>Magnetic Resonance</td>
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<td>• “MRI of the pancreas”</td>
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<td>• “MRI of the adrenal glands”</td>
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<tr>
<td>November 13, 1996</td>
<td>Bracco Imaging Symposium</td>
<td>Barcelona, Spain</td>
<td>• “Contrast agents for body MRI”</td>
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<tr>
<td>December 1-6, 1996</td>
<td>82nd Scientific Assembly and Annual Meeting of the Radiological</td>
<td>Chicago, IL</td>
<td>• “Pancreatobiliary and abdominal vascular MR imaging: Totally tubular”</td>
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<td>Society of North America</td>
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<tr>
<td>January 22-26, 1997</td>
<td>Seventh International MRI Symposium-MR '97</td>
<td>Garmisch-Partenkirchen, Germany</td>
<td>• “MRI of the pancreas”</td>
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<tr>
<td>March 16-21, 1997</td>
<td>Breckenridge 1997, MRI: Basics to Advanced - What You Need to</td>
<td>Breckenridge, CO</td>
<td>• “MR imaging of focal and diffuse liver disease”</td>
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<td>• “MR evaluation of pancreatobiliary pathology”</td>
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<td>• “Contrast use in abdominal MRI”</td>
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<tr>
<td>April 12-18, 1997</td>
<td>5th Scientific Meeting and Exhibition of the International Society</td>
<td>Vancouver, British Columbia, Canada</td>
<td>• “Techniques for liver MRI”</td>
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<td>for Magnetic Resonance</td>
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**LEVON N. NAZARIAN, M.D.**

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<tbody>
<tr>
<td>October 7-11, 1996</td>
<td>Sixth Annual Meeting of the Musculoskeletal Ultrasound Society</td>
<td>Montreal, Quebec, Canada</td>
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• Hands-on scanning sessions

December 1-6, 1996
82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
• "Power Doppler demonstration of soft-tissue hyperemia in reflex sympathetic dystrophy of the lower extremity"
• "CT to rule out retroperitoneal hemorrhage: Does it have an impact on clinical decision-making?"

March 23-26, 1997
41st Annual Convention of the American Institute of Ultrasound in Medicine, San Diego, CA
• "Paraspinal ultrasonography: Lack of utility in evaluating patients with cervical and/or lumbar back pain"
• "Can color Doppler flow differentiate recurrent melanoma from benign superficial masses?"

May 13-16, 1997
The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
• "Musculoskeletal ultrasound"
• "Musculoskeletal imaging techniques"

LAURENCE NEEDLEMAN, M.D.

September 6-8, 1996
2 Simposio Ecografia y Doppler, Argentine, International Chapter of the American Institute of Ultrasound in Medicine, Buenos Aires, Argentina
• "Interpretation of spectral, color Doppler and new modalities"
• "Cerebrovascular ultrasound-general principles and interpretation"
• "Unusual findings in cerebrovascular ultrasound"
• "Lower extremity venous ultrasound"
• "Dialysis grafts"
• "Contrast agents"

October 3-5, 1996
Sociedad Paulista de Radiologia, Collegio Brasileiro de Radiologia, 1° Congresso Brasileiro de Ultra-Sonografia, Sao Paulo, Brazil
• "Principles of interpretation of color and spectral Doppler"
• "IUGR"
• "Arterial Doppler"
• "New advance in vascular ultrasound"

October 17, 1996
Ultrasound Update, sponsored by Robert Wood Johnson School of Medicine and Advanced Technology Laboratories, New Brunswick, NJ
• "Interpretation of Doppler ultrasound"
• "New aspects of vascular diagnosis"

November 3, 1996
Current Practice of Vascular Ultrasound, Institute for Advanced Medical Education, Atlanta, GA
• "Overview of abdominal Doppler"
• "Venous dynamics in the abdomen"

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December 1-6, 1996
82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
• “Contrast enhancement with an US contrast agent in Phase 1, 2 and 3 clinical trials”
• “Deep venous thrombosis: Doppler sonography” (hands-on workshop)
• “Special course in diagnostic ultrasound: Hypertension and bruit”

December 13, 1996
Twenty Eighth Annual Meeting of the British Medical Ultrasound Society, Edinburgh, Scotland
• “A clinical overview of echo enhancement”

April 20, 1997
Current Practice of Vascular Ultrasound, Institute for Advanced Medical Education, Chicago, IL
• “Mesenteric arteries and aorta”
• “Liver Doppler”
• “Doppler of the male pelvis”

May 13-16, 1997
The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
• “Interpretation of spectral Doppler”
• “The future of vascular sonography”
• Vascular case studies

June 3, 1997
Sackler School of Medicine and Israel Society of Ultrasound, Tel Aviv, Israel
• “Interpretation of spectral and color Doppler” (Barry B. Goldberg Lecture)
• “Lower and upper extremity venous ultrasound”
• “Liver Doppler”
• “Renal artery Doppler”
• “Ultrasound contrast agents”

HECTOR V. ORTEGA, M.D.

September 12-16, 1996
IV National Congress of Neuroradiology Guadalajara, Jal Mexico
• “Hemodynamics in brain aneurysms: Animal model”
• “Hemodynamics in brain aneurysms: Human model”
• “Hemodynamics in the development of the carotid artery”

September 19-21, 1996
National University of Campeche, Campeche City, Mexico
• “Computer flow modeling and its applications in medicine”

October 23, 1996
University of Oaxaca, Oaxaca, Mexico
• “Hemodynamics in renal artery stenosis: Comparative study of MRA, DSA, ultrasound and mathematical model”

April 2-5, 1997
16th Reunion of Asociacion Mexicana de Ultrasonido en Medicina, Veracruz, Mexico
• “New methods to evaluate blood flow”
• “Contrast in ultrasound”
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<tr>
<td>April 8, 1997</td>
<td>Society of Research in Medicine, Buenos Aires, Argentina</td>
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<td>• “Study of the development of brain aneurysms using mathematical models and angiographic studies”</td>
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<td>• “Diagnostic correlation in vessels of the neck using MRA, Doppler and DSA”</td>
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<td>April 9-12, 1997</td>
<td>Primera Convención de Ultrasonografia, Rosario, Argentina</td>
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<tr>
<td></td>
<td>• “Renal stenosis”</td>
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<td>• “Testicular ultrasound”</td>
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<td>• “Contrast in ultrasound”</td>
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<td>June 17-19, 1997</td>
<td>1997 Worldwide Fluent User’s Group Meeting, Burlington, VT</td>
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<td>• “Mathematical blood flow models and its applications in Medicine”</td>
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**ERIC K. OUTWATER, M.D.**

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<tr>
<th>Date</th>
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<tbody>
<tr>
<td>October 9, 1996</td>
<td>University of Connecticut Medical Center, Farmington, CT</td>
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<tr>
<td></td>
<td>• “Female pelvis - MR techniques”</td>
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<td>• “Characterization of adnexal masses with MR”</td>
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<tr>
<td>January 26-30, 1997</td>
<td>Diagnostic Imaging Compendium, Vail, CO</td>
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<td>• “Evaluation of the pancreas and biliary tree with MRI”</td>
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<td>• “MR imaging techniques in the pelvis”</td>
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<td>• “MR imaging of adrenal masses”</td>
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<td>• “MRA in the abdomen and pelvis”</td>
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<tr>
<td>February 5, 1997</td>
<td>Albert Einstein Medical Center, Department of Radiology, Philadelphia, PA</td>
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<tr>
<td></td>
<td>• “Characterization of adnexal masses with MR”</td>
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<tr>
<td>April 12-18, 1997</td>
<td>5th Scientific Meeting and Exhibition of the International Society</td>
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<td>for Magnetic Resonance in Medicine, Vancouver, British Columbia, Canada</td>
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<td>• “Clinical educational course: &quot;Gynecologic MRI&quot;</td>
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<td>• “Detection of lipid in renal clear cell adenocarcinomas on in-phase and opposed-phase gradient echo MR images”</td>
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<td>April 28, 1997</td>
<td>Inha University Hospital, Inchon, South Korea</td>
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<td></td>
<td>• “Techniques in liver MRI”</td>
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<td></td>
<td>• “Techniques in gynecologic MRI”</td>
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<tr>
<td>April 29, 1997</td>
<td>Seoul National University Hospital, Seoul, South Korea</td>
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<tr>
<td></td>
<td>• “Adrenal MRI”</td>
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<td>• “Techniques in gynecologic MRI”</td>
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<tr>
<td>April 29, 1997</td>
<td>Korean Uroradiologic Society, Seoul National University Hospital, Seoul, South Korea</td>
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<tr>
<td></td>
<td>• “Techniques in gynecologic MRI”</td>
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<tr>
<td>April 30, 1997</td>
<td>Younsei University Hospital, Seoul, South Korea</td>
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<td>• “Techniques in liver MRI”</td>
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April 30, 1997

Samsung Medical Center, Seoul, South Korea
- "Techniques in liver MRI"

CATHERINE W. PICCOLI, M.D.

September 27, 1996

The Role of Ultrasound in Early Detection of Cancer in Women, sponsored by the Foundation of Health Education, New Orleans, LA
- "Ultrasound of the breast: The radiologist approach from the initial referral to diagnosis"
- "The altered breast: Evaluation of implants with ultrasound and MRI"

November 16, 1996

MRI Contrast Media - New Developments and Trends, sponsored by Bracco Diagnostics, Barcelona, Spain
- "Contrast-enhanced breast MRI: Factors affecting sensitivity and specificity"

December 1-6, 1996

82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Outcome of patients with palpable breast abnormalities after sonography"
- "Dynamic contrast-enhanced multisection MR imaging: Intuitive color encoding of data from multiple time points"

December 18, 1996

Hunterdon Medical Center, Flemington, NJ
- "Breast ultrasound and results of the multicenter ATL study"

May 13-16, 1997

The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- "Advances in high resolution imaging: Sonomammography"

May 30, 1997

First International Congress on MR-Mammography, Friedrich Schiller University, Jena, Germany
- "MR-mammography: Factors affecting specificity"

VIJAY M. RAO, M.D.

November 13, 1996

Mercy Catholic Medical Center, Department of Radiology, Darby, PA
- "Head and neck imaging"

December 1-6, 1996

82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Imaging of the temporomandibular joints"
- "Utility of GRE dynamic MR imaging in squamous cell carcinoma of the oral cavity"
- "Imaging of laryngeal fracture and dislocation: Anatomic and functional considerations" (exhibit)

January 27, 1997

Wills Eye Hospital, Philadelphia, PA
- "Orbital CT and MR imaging"
May 15-18, 1997
31st Annual Meeting of the American Society of Head and Neck Radiology, Toronto, Canada
• "Functional endoscopic sinus surgery: Pre- and post-operative evaluation"

June 2-7, 1997
26th Annual Symposium, The Voice Foundation, Philadelphia, PA
• "Imaging of laryngeal fracture and dislocation: Anatomic and functional considerations"
• "Care of the professional voice" (exhibit)

June 11, 1997
A. I. DuPont Institute, Department of Radiology, Wilmington, DE
• Interesting cases

ANA M. SALAZAR

January 20-25, 1997
14th Annual Meeting of the Society of Thoracic Radiology, Naples, FL
• "Thoracic splenosis" (case of the day)

April 13, 1997
4th Annual Cardiac Radiology Review Course, Jefferson Medical College, Philadelphia, PA
• Cardiac case review session

MARK E. SCHWEITZER, M.D.

August 19, 1996
20th World Congress of the Societe Internationale de Chirurgie Orthopedique et de Traumatologie, Amsterdam, The Netherlands
• "Update on imaging: Wrist, ankle and shoulder"

August 22, 1996
International Skeletal Society, Paris, France
• "MRI of knee ligament injuries"

October 3-4, 1996
University of Toronto, Toronto, Canada
• "Musculoskeletal infections"
• "Cervical spine trauma"
• "MRI of shoulder impingement and rotator cuff tears"
• "MRI of knee ligament injuries"

October 9, 1996
Pennsylvania College of Podiatric Medicine, Philadelphia, PA
• "MRI of foot tendons"
• "MRI of cartilage and osseous lesions"

November 15, 1996
University of Medicine and Dentistry of New Jersey, Newark, NJ
• "MR arthrography"
• "Cervical spine trauma"

December 1-6, 1996
82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
• "Knee ligament injuries"

December 17, 1996
Mt. Sinai School Hospital Medical Center, New York, NY
• "Contrast enhanced musculoskeletal MRI"
• "MR technique optimization"
• "MRI of the foot and ankle"

January 9, 1997
Delaware Valley Magnetic Resonance Imaging Society, Philadelphia, PA
• "MR of musculoskeletal infection"

January 22-26, 1997
Seventh International MRI Symposium-MR '97, Garmisch-Partenkirchen, Germany
• "MRI of musculoskeletal infection"

February 12, 1997
Northwestern University Hospital, Chicago, IL
• "MRI of the wrist"

March 1-2, 1997
Second Annual Jefferson Shoulder, Elbow & Wrist Advanced Imaging Symposium, Philadelphia, PA (Course Co-Director)
• "MR of the acromioclavicular joint and clavicle"
• "MR of the biceps tendon"
• "MR of occult osseous injury/avascular necrosis/cartilage injury"
• "MR of the wrist - TFCC, SL and LT"
• "MR of the wrist - carpal tunnel and Guyon's canal"
• "MR of the wrist - osseous injury, AVN"
• "MR of the wrist - arthritis and tumors"

March 10, 1997
New York Hospital, Cornell Medical Center, New York, NY
• "MRI of the wrist"

April 12-13, 1997
Third Annual Jefferson Foot & Ankle Advanced Imaging Symposium, Philadelphia, PA (Course Co-Director)
• "MRI of foot tendons"
• "MRI of sports injuries"
• "MRI of arthritis and infections"
• "MRI of soft tissue and bone"

April 12-18, 1997
5th Scientific Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine, Vancouver, British Columbia, Canada
• "Cost-effectiveness of MRI"

May 8, 1997
97th Annual Meeting of the American Roentgen Ray Society, Boston, MA
• "MRI of the foot and ankle"

May 13, 1997
Beth Israel Hospital, New York, NY
• "MRI of marrow"
• "Tumor to trauma"
• Board review

May 15, 1997
Allegheny University - East Falls, Philadelphia, PA
• Board review

May 27, 1997
Roosevelt Hospital, New York, NY
• "Musculoskeletal pulse sequence selection"

SHARON R. SEGAL, D.O.

March 23-26, 1997 41st Annual Convention of the American Institute of Ultrasound in Medicine, San Diego, CA
• “Ultrasonic features of gastrointestinal duplications”

April 24, 1997 Research Recognition Day, Albert Einstein Medical Center, Philadelphia, PA
• “Ultrasonic features of gastrointestinal duplications”

May 13-16, 1997 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
• Stump the stars

May 17-20, 1997 Mid-Year Conference of the American Osteopathic College of Radiology, Hilton Head, SC
• “Ultrasound of liver masses”
• “Fetal intracranial sonography”

PAUL W. SPIRN, M.D.

January 20-25, 1997 14th Annual Meeting of the Society of Thoracic Radiology, Naples, FL
• “The post-thoracotomy chest-radiographic assessment”

ROBERT M. STEINER, M.D.

August 3, 1996 University of California San Francisco Medical Center, San Francisco, CA
• Selected interesting cases

September 26, 1996 Lankenau Hospital, Department of Cardiology, Philadelphia, PA
• “Congenital heart disease in the adult patient”

• “The role of the American College of Radiology”

December 1-6, 1996 82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
• “The thoracic manifestations of connective tissue disease” (refresher course)

December 6, 1996 University of Illinois Medical Center, Department of Medicine, Chicago, IL
• “The role of high resolution CT in connective tissue disease”

January 31, 1997 Allegheny University Hospitals, Philadelphia, PA
• Radiology board review
May 1-2, 1997 Allegheny University Hospitals, Pittsburgh, PA
- "Sarcoidosis and other non-tuberculous granulomatous diseases"
- "The radiology of adult heart disease"
- "Imaging the pericardium"

KEVIN L. SULLIVAN, M.D.

October 9-10, 1996 University of Pennsylvania Interventional Radiology and Vascular Imaging Conference, Philadelphia, PA
- "Dialysis access: Screening and angioplasty"

October 26, 1996 The Second Annual Conference on Angio Access Establishment and Maintenance of Dialysis Venous Access, Williamsburg, VA
- "Access surveillance, pressure measurements and prophylactic angioplasty to preserve vascular access"

December 1-6, 1996 82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Factors influencing academic productivity and generation of clinical revenue in a university hospital radiology department"

March 8-13, 1997 22nd Annual Scientific Meeting of the Society of Cardiovascular and Interventional Radiology, Washington, DC
- "Alternatives to iodinated contrast" (workshop coordinator)

June 6-8, 1997 4th Annual Penn-Jeff Conference on Interventional Radiology, Skytop, PA
- "Oncologic interventions"
- "Venous interventions"

LISA M. TARTAGLINO, M.D.

December 1-6, 1996 82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Idiopathic transverse myelitis: MR findings and similarities to Guillain-Barre and ischemia"
- "Evaluation of arteriovenous malformations with CT angiography"

June 20, 1997 Allegheny University, Department of Neurology, Philadelphia, PA
- "Imaging presentations of Multiple Sclerosis"

MATHEW L. THAKUR, PH.D.

September 12-20, 1996 Meeting of the European Association of Nuclear Medicine, Copenhagen, Denmark
- "Imaging acute inflammation"
December 1-6, 1996
82th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Targeting tumors with radiiodinated deoxyuridine"

December 17-20, 1996
Annual Meeting of the Society of Nuclear Medicine, Gwalior, India
- "Chemokines in imaging acute infection"

February 6-9, 1997
Meeting of the American College of Nuclear Physicians/American College of Nuclear Medicine, Palm Springs, CA
- "Receptor imaging"

May 17-23, 1997
10th International Symposium of Radiopharmacology, Genoa, Italy
- "I-131-LEX-032: A recombinant hybrid of antichymotripsin: Pharmacokinetics and distribution"

May 24-29, 1997
8th International Symposium of Radiolabeled Blood Elements, Rome, Italy
- "New radiopharmaceuticals for imaging infection"

May 31 - June 4, 1997
44th Annual Meeting of the Society of Nuclear Medicine, San Antonio, TX
- "Rapid infection/inflammation imaging with Tc-99m-anti-SSEA-1"
- "Dosimetry of I-123 iododeoxyuridine as a SPECT agent for human glioma" (poster)

June 16-19, 1997
12th International Symposium on Radiopharmaceutical Chemistry, Uppsala, Sweden
- "Thrombospondin analog Tc-99m-TP-1201 for imaging thrombosis"
- "Tc-99m labeled vasoactive intestinal peptide (VIP): Preparation and preliminary evaluation"

TERRI TUCKMAN, M.D.

May 13-16, 1997
The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- "Ectopic pregnancies: How to diagnose them"
- Stump the stars

SIMON VINITSKI, PH.D.

July 21-25, 1996
38th Annual Meeting of the American Association of Physicists in Medicine, Philadelphia, PA
- "Hemodynamics of the carotid artery blood flow in stenotic patient: Effect on MR angiography"

October 2, 1996
IEEE Biomedical Engineering Symposium, Amsterdam, The Netherlands
- "Validation of tissue segmentation based on 3D feature map using the animal model of brain tumor"
April 12-18, 1997  
5th Scientific Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine, Vancouver, British Columbia, Canada
- "Tissue segmentation based on 3D feature map-validation in-vivo"
- "Tissue segmentation based on 4D feature map"
- "Effect of 3D flow disturbances on MR angiography as studied with 3D computer simulation of blood flow"

RICHARD J. WECHSLER, M.D.

December 1-6, 1996  
82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Percutaneous lumbar sympathetic plexus catheter placement for short and long-term pain relief: CT techniques"

April 1, 1997  
Beth Israel Hospital, Department of Radiology, New York, NY
- "Abdominal applications of spiral CT"

April 12-13, 1997  
Third Annual Jefferson Foot & Ankle Advanced Imaging Symposium, Philadelphia, PA (Course Co-Director)
- "Helical CT of hindfoot fractures"

May 7, 1997  
Albert Einstein Hospital, Philadelphia, PA
- "Abdominal applications of spiral CT"

ANNINA N. WILKES, M.D.

March 23-26, 1997  
41st Annual Convention of the American Institute of Ultrasound in Medicine, San Diego, CA
- "Abnormal fetal heart: Recognition of cardiac anomalies on routine obstetric ultrasound" (exhibit/videotape)

May 13-16, 1997  
The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- "Non-cardiac fetal chest"
- "Fetal echocardiography"

JAMES J. ZHANG, PH.D.

December 1-6, 1996  
82th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Tumor concentration index compared with maximum tumor index in the evaluation of recurrent brain tumor: Correlation with clinical outcome"

April 6-9, 1997  
3rd International Conference of Nuclear Cardiology, Florence, Italy
- "Is there a linear relationship between the height/weight (H/W) ratio and the anterior/inferior (A/I) myocardium count ratio in Tl-201 cardiac SPECT?"
June 1-5, 1997

44th Annual Meeting of the Society of Nuclear Medicine, San Antonio, TX

• "Dosimetry of I-123 iododeoxyuridine as a SPECT agent for human glioma"
HONORS, EDITORIAL ACTIVITIES, SERVICE TO REGIONAL OR NATIONAL ORGANIZATIONS

ARCHIE A. ALEXANDER, M.D.

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

JOSEPH BONN, M.D.

- President, Philadelphia Angiography and Interventional Radiology Society
- Councilor for Internal Affairs, Society of Cardiovascular and Interventional Radiology
- Past Chairman, Annual Meeting Committee, Society of Cardiovascular and Interventional Radiology
- Fellow, Society of Cardiovascular and Interventional Radiology
- Fellow, Council on Cardiovascular Radiology, American Heart Association
- Consultant to the Editor, Interventional-Cardiovascular section, Radiology
- Member, Medical Advisory Board, IMPRA, Inc.
- Abstracts of Current Literature Editor, Journal of Vascular and Interventional Radiology
- Associate Editor, Journal of Vascular and Interventional Radiology

EMILY F. CONANT, M.D.

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

P. MACKE CONSIGNY, PH.D.

- Member, Board of Directors, Cardiovascular and Interventional Radiology Research and Education Foundation
- Program Director, CIRREF/Bracco Research Award Program, Cardiovascular and Interventional Radiology Research and Education Foundation
- Member, Executive Committee, Council on Cardiovascular Radiology, American Heart Association
- Member, Executive Committee Advisory Council, Society of Cardiovascular and Interventional Radiology
- Member, Research Committee, Society of Cardiovascular and Interventional Radiology
- Associate Editor, Journal of Vascular and Interventional Radiology
- Reviewer, Seed Grand Awards, Radiological Society of North America
- Reviewer, American Heart Association Student Scholarships in Cardiovascular Disease and Stroke
- Reviewer, Cardiovascular and Interventional Radiology
• Reviewer, *Journal of Pharmacology and Experimental Therapeutics*
• Reviewer, *Journal of Vascular and Interventional Radiology*
• Editor's Recognition Award for Distinction in Reviewing, *Journal of Vascular and Interventional Radiology*

**AZAR PETER DAGHER, M.D.**

• Reviewer, 1997 American Medical Informatics Association Annual Fall Symposium

**DIANE M. DEELY, M.D.**

• Member, Expert Panel, Orthopedic, Radiology, and Pathology Society, Philadelphia, PA
• Program Director, Orthopedic, Radiology, and Pathology Society, Philadelphia, PA
• Reviewer, *American Journal of Roentgenology*

**DAVID J. ESCHELMAN, M.D.**

• Member, Program Committee, Philadelphia Angiography and Interventional Radiology Society
• Member, Relative Value Update Advisory Committee, Society of Cardiovascular and Interventional Radiology
• Reviewer, *Academic Radiology*
• Reviewer, *Journal of Vascular and Interventional Radiology*
• Reviewer, *Radiology*
• Editor's Recognition Award for Distinction in Reviewing, *Journal of Vascular and Interventional Radiology*

**STEPHEN A. FEIG, M.D.**

• Chairman, Mammography Practice Accreditation Committee, American College of Radiology
• Member, Breast Task Force, American College of Radiology
• Member, Written Examination Committee, American Board of Radiology
• Member, Commission on Standards and Accreditation, American College of Radiology
• Chairman, Ad hoc Committee on Mammography Screening Guidelines, American College of Radiology
• Member, Mammography Quality Assurance Subcommittee, American College of Radiology
• Member, Mammography Physics Subcommittee, American College of Radiology
• Member, Executive Committee, Society of Breast Imaging
• Vice President, Society of Breast Imaging
• Chairman, Ad hoc Committee Breast Imaging Training Advisory, Society of Breast Imaging
• 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
• Member, Committee on Stereotactic Breast Biopsy Accreditation, American College of Radiology
• Co-Chairman, Committee on Correlation of Phantom and Clinical Image Quality, American College of Radiology
• Chairman, Ad hoc Committee for Whole Breast Digital Mammography Standard, American College of Radiology
• Member, Scientific Committee 72: Radiation Protection in Mammography, National Council on Radiation Protection and Measurements
• Guest Examiner, American Board of Radiology
• Member, Full-field Digital Mammography Medical Advisory Board, General Electric Medical Systems
• Editor-in-Chief, *Seminars in Breast Disease*
• Editor, *Breast Diseases, A Year Book Quarterly* (Published by C.V. Mosby - Year Book Medical Publishers)
• Editor, *Society of Breast Imaging Newsletter*
• Co-Editor, *Breast Diseases, An International Journal* (Published by Elsevier Medical Publishers)
• Associate Editor, *Journal of Women's Imaging* (Published by The Society of Women's Imaging)
• Editorial Advisory Board, *Breast Cancer Alert*
• Editorial Advisory Board, *Mammography Today*
• Editorial Advisory Board, *Women's Imaging*
• Editorial Board, *Advance for Administrators in Radiology and Radiation Oncology*
• Reviewer, *American Journal of Roentgenology*
• Reviewer, *Breast Cancer Research and Treatment*
• Reviewer, *Cancer*
• Reviewer, *International Journal of Cancer*
• Reviewer, *Journal of the American Medical Association*
• Reviewer, *Journal of the National Cancer Institute*
• Reviewer, *Radiation Research*
• Reviewer, *Radiographics*
• Reviewer, *Radiology*
• Editor's Recognition Award for Special Distinction in Reviewing, *Radiology*

**RICK I. FELD, M.D.**

• Fellow, The College of Physicians of Philadelphia
• Abstract Reviewer, Abdomen-General, American Institute of Ultrasound in Medicine, 41st Annual Convention
• Reviewer, *Clinical Imaging*
• Reviewer, *International Medical Image Registry*
• Reviewer, *Journal of Clinical Ultrasound*
• Reviewer, *Journal of Vascular and Interventional Radiology*

**ADAM E. FLANDERS, M.D.**

• Consultant, Squibb Diagnostics, Contrast Division
• Member, Squibb Diagnostics Contrast Speakers Bureau
• Reviewer, *Neuroradiology*
FLEMMING FORSBERG, PH.D.

- Member, Technical Standards Committee, American Institute of Ultrasound in Medicine
- Reviewer, Annual Meeting of the IEEE Engineering in Medicine & Biology Society
- Reviewer, Ferroelectronics & Frequency Control, IEEE Transactions on Ultrasonics, Ferroelectrics and Frequency Control
- Reviewer, Journal of Ultrasound in Medicine
- Reviewer, Radiology
- Reviewer, Ultrasound in Medicine and Biology

DAVID P. FRIEDMAN, M.D.

- Member, Scientific Exhibits Committee, 1997 Annual Meeting of the Radiological Society of North America
- Reviewer, American Journal of Roentgenology
- Reviewer, Neurology

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

- Fellow, Council on Cardiovascular Radiology, American Heart Association
- Board Examiner, American Board of Radiology for Added Qualifications in Vascular and Interventional Radiology
- Society of Cardiovascular and Interventional Radiology Carotid IDE Task Force Committee (for developing clinical trial protocol for carotid stenting)
- Editorial Board, Cardiovascular and Interventional Radiology
- Associate Editor, Journal of Vascular and Interventional Radiology
- Reviewer, Cardiovascular and Interventional Radiology
- Reviewer, Circulation
- Reviewer, Journal of Vascular and Interventional Radiology
- Reviewer, Radiology

BARRY B. GOLDBERG, M.D.

- President, World Federation for Ultrasound in Medicine and Biology
- Chairman, Committee on Government Relations, Commission on Ultrasound, American College of Radiology
- Chairman, Archives Committee, American Institute of Ultrasound in Medicine
- Chairman, Archives Committee, World Federation for Ultrasound in Medicine and Biology
- International Advisory Board, Indian Journal of Medical Ultrasound
- Member, Editorial Board, Radiologia
- Member, Editorial Advisory Board, Journal of Ultrasound in Medicine and Biology
- Member, Editorial Board, Journal d'Echographie et de Medicine Ultrasonore
- Member, Editorial Advisory Board, Clinics in Diagnostic Ultrasound
- Grant Reviewer, Binational Science Foundation
- Medical Advisor in Ultrasound, World Health Organization
- Member, Commission on Ultrasound, American College of Radiology
- Member, Commercial Liaison Committee, Society of Radiologists in Ultrasound
- Member, NICER Advisory Board
• Reviewer, American Journal of Roentgenology
• Reviewer, Cancer
• Reviewer, Gastroenterology
• Reviewer, Radiology
• Honorary Professorship, Shanghai Medical University
• Certificate of Merit, "Endoluminal sonography of the obstructed ureteropelvic junction." (exhibit), 82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Il, December 1996
• First Prize, "Endoluminal ultrasound of the obstructed ureteropelvic junction." (exhibit), 41st Annual Convention of the American Institute of Ultrasound in Medicine, San Diego, CA, March 1997
• Honorary Mention, "Endoluminal ultrasound of the obstructed ureteropelvic junction." (exhibit), 82nd Annual Meeting of the Pennsylvania Radiological Society, Hershey, PA, May 1997

CARLOS F. GONZALEZ, M.D.

• Reviewer, IEEE Trans Biomed Eng
• Reviewer, Neuroradiology

ETHAN J. HALPERN, M.D.

• Reviewer, Academic Radiology
• Reviewer, Journal of Clinical Ultrasound
• Reviewer, Radiology

CHARLES M. INTENZO, M.D.

• Reviewer, Journal of Nuclear Medicine

DAVID KARASICK, M.D.

• Board Examiner in Musculoskeletal Radiology, American Board of Radiology
• Editor-in-Chief, Seminars in Musculoskeletal Radiology
• Book Reviewer, American Journal of Roentgenology
• Reviewer, American Journal of Roentgenology
• Reviewer, Radiology
• Reviewer, Skeletal Radiology

STEPHEN KARASICK, M.D.

• Board Examiner, Written, American Board of Radiology
• Reviewer, American Journal of Roentgenology

SUNG M. KIM, M.D.

• Secretary, The Korean-American Society of Nuclear Medicine
• Member, Committee on Brain Council, Society of Nuclear Medicine
• Member, Committee on Computer and Instrument Council, Society of Nuclear Medicine
• Member, Nuclear Medicine Science Committee, American College of Nuclear Physicians
• Member, Radiopharmaceutical Affairs Committee, American College of Nuclear Physicians
• Reviewer, *American Journal of Clinical Oncology*

**ALFRED B. KURTZ, M.D.**

• Secretary, American Institute of Ultrasound in Medicine
• Board Examiner, Oral, American Board of Radiology
• Councilor, American College of Radiology, Society of Radiologists in Ultrasound
• Medical Advisor, Blue Shield of Pennsylvania on Ultrasonic Procedures
• Member, Editorial Board, *Journal of Women’s Imaging*
• Member, Ultrasound Manuscript Reviewer, *Radiology*
• Reviewer, *American Family Physician*
• Reviewer, *American Journal of Obstetrics and Gynecology*
• Reviewer, *American Journal of Roentgenology*
• Reviewer, *Cancer*
• Reviewer, *Journal of Ultrasound Medicine*
• Reviewer, *Obstetrics and Gynecology*
• Reviewer, *Radiographics*
• Editor’s Recognition Award for Special Distinction in Reviewing, *Radiographics*

**DAVID C. LEVIN, M.D.**

• Distinguished Achievement Award of the Scientific Councils, American Heart Association
• Seventh Annual International MR Symposium. Special Focus Lecture. What is the economic future of a high cost technology like MRI in an era of cost containment? Garmisch-Partenkirchen, Germany, January 1997
• 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
• Immediate past-president, Society of Chairman of Academic Radiology Departments
• Vice-Chairman, Committee on Health Policy and Practice, Radiological Society of North America
• Vice-Chairman, Commission on Medical Insurance, Pennsylvania Radiological Society
• Third Vice-President, Radiological Society of North America
• Inducted by Alpha Omega Alpha as the honored faculty member for 1997 at Jefferson Medical College
• Ad hoc Appropriateness/Coding Committee, American College of Radiology
• Scientific Advisor, Radiological Society of North America Research and Education Fund
• Public Information Advisory Board, Radiological Society of North America
• Task Force on Value-Added Radiology, American College of Radiology
• Commission on Research and Technology Assessment, American College of Radiology
• Radiology Advisory Committee, Keystone Health Plan East
• Committee on Transcatheter Therapy of Peripheral Vascular Disease, Council on Cardiovascular Radiology, American Heart Association
• Committee on Research and Technology Assessment of the Commission on Interventional and Cardiovascular Radiology, American College of Radiology
• Cardiac Catheterization Committee, American College of Cardiology
• Committee on Diagnostic Radiology, Pennsylvania Radiological Society
• Public Relations and Marketing Committee, Pennsylvania Radiological Society
• Publications Committee, Pennsylvania Radiological Society
• Committee on Radiology Practice and Management, Pennsylvania Radiological Society
• Economics Committee, Philadelphia Roentgen Ray Society
• Committee on Managed Care, American College of Radiology
• Executive Committee, Society of Chairmen of Academic Radiology Departments
• Invited external reviewer, Department of Radiology, University of California, Davis Medical Center
  • Editorial Board, Academic Radiology
  • Editorial Board, Current Diagnosis
  • Reviewer, American Journal of Roentgenology
  • Reviewer, New England Journal of Medicine
  • Reviewer, Radiology

ANNA S. LEY-TOAFF, M.D.

• Vice President, Greater Delaware Valley Ultrasound Society
• Member, Scientific Exhibits Committee, Pennsylvania Radiological Society
• Elected Senior Member, American Institute of Ultrasound Medicine
• Book Reviewer, American Journal of Roentgenology
• Reviewer, American Journal of Roentgenology
• Reviewer, Obstetrics and Gynecology
• Reviewer, Radiology
• Certificate of Merit, “Transvaginal sonohysterography: Technique, instrumentation, practical hints and potential pitfalls” (exhibit), 82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL, December 1996

JI-BIN LIU, M.D.

• Certificate of Merit, “Endoluminal sonography of the obstructed ureteropelvic junction.” (exhibit), 82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL, December 1996
• First Prize, “Endoluminal ultrasound of the obstructed ureteropelvic junction.” (exhibit), 41st Annual Convention of the American Institute of Ultrasound in Medicine, San Diego, CA, March 1997
• Honorary Mention, “Endoluminal ultrasound of the obstructed ureteropelvic junction.” (exhibit), 82nd Annual Meeting of the Pennsylvania Radiological Society, Hershey, PA, May 1997

ANDREW D.A. MAIDMENT, PH.D.

• Member, Committee on Correlation of Phantom and Clinical Image Quality, American College of Radiology
• Member, Physics Sub-committee, Committee of Chest Radiology, American College of Radiology
• Phantom Reviewer, Stereotactic Breast Biopsy Accreditation Program, American College of Radiology
• Member, Diagnostic X-ray Imaging Committee, American Association of Medical Physicists
• Member, Task Group 14, Digital Mammography for Stereotactic Localization, American Association of Medical Physicists
• Chairman, Task Group 16, Noise Power Spectrum Analysis, American Association of Medical Physicists
• Member, National Association of Photographic Manufacturers, American National Standards Institute
• Member, Technical Subcommittee IT2-31, (X-ray Image Evaluation), National Association of Photographic Manufacturers, American National Standards Institute
• Member, Task Group on Film Performance, Technical Subcommittee, National Association of Photographic Manufacturers, American National Standards Institute
• Grant Reviewer, Department of Defense, Breast Cancer Research Program, Study Session RSD-3
• Grant Reviewer, NCI/NIH STTR/SBIR Study Session SSS-7, 7/96
• Grant Reviewer, NCI/NIH STTR/SBIR Study Session SSS-7, 3/97
• Reviewer of Proffered Presentations, 39th Annual Meeting of the American Association of Medical Physicists
• Reviewer, American Journal of Roentgenology
• Reviewer, Medical Physics

DONALD G. MITCHELL, M.D.
• Chairman, Workshop Committee, International Society for Magnetic Resonance in Medicine
• Member, Program Committee, The 82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America
• Course Director, Body MR Educational Program, International Society for Magnetic Resonance in Medicine
• Member, Board of Trustees, International Society for Magnetic Resonance in Medicine
• Member, Finance Committee, International Society for Magnetic Resonance in Medicine
• Member, Coordination Committee, International Society for Magnetic Resonance in Medicine
• Member, Program Committee, International Society for Magnetic Resonance in Medicine
• Co-Editor, Topics in Magnetic Resonance Imaging
• Co-Editor, Clinical Desktop Section, MResource Guide
• Associate Editor, Journal of Magnetic Resonance Imaging
• Consultant to Editor, Radiology
• Member, Editorial Board, Abdominal Imaging
• Member, Editorial Board, Journal of Computer Assisted Tomography
• Member, Editorial Board, MRI, Radiology
• Reviewer, Academic Radiology
• Reviewer, American Journal of Roentgenology
• Reviewer, Investigative Radiology
• Reviewer, Radiographics

LEYON N. NAZARIAN, M.D.
• Reviewer, American Journal of Roentgenology

LAURENCE NEEDLEMAN, M.D.
• Member, Professional Practice and Standards Committee, Society of Radiologists in Ultrasound
• 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 Radiologic Society
• Presented the 15th Annual Barry B. Goldberg lecture to the Israel Society of Ultrasound, Tel Aviv, Israel, June 1997
• Abstract Reviewer, Cardiovascular Section, American Institute of Ultrasound in Medicine Annual Meeting
• Abstract Reviewer, Vascular Section, The American Heart Association Annual Meeting

ERIC K. OUTWATER, M.D.

• Named American Roentgen Ray Society’s Visiting Scientist at the Armed Forces Institute of Pathology, 1997
• Editorial Board, Radiology
• Guest Editor, Topics in Magnetic Resonance Imaging
• Reviewer, Critical Reviews in Diagnostic Radiology
• Reviewer, Journal of Computer Assisted Tomography
• Reviewer, Journal of Magnetic Resonance Imaging
• Reviewer, Magnetic Resonance in Medicine
• Reviewer, Obstetrics and Gynecology
• Reviewer, Radiology
• Reviewer, Scientific exhibits at RSNA, Radiographics
• Editor’s Recognition Award for Special Distinction in Reviewing, Radiology
• Radiology’s most prolific reviewers, Editor’s Page, Radiology
• Certificate of Merit, “High resolution MR imaging of the vagina” (poster), 82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL, December 1996

CATHERINE W. PICCOLI, M.D.

• Guest Editor, Topics in Magnetic Resonance Imaging
• Clinical Reviewer, Mammography Accreditation Program, American College of Radiology
• Reviewer, American Journal of Roentgenology
• Reviewer, Journal of Ultrasound in Medicine

VIJAY M. RAO, M.D.

• Chairperson, Ad hoc Committee on Curriculum, Association of Program Directors in Radiology
• Member, Rules Committee, Association of Program Directors in Radiology
• Member, Education Committee, American Society of Head and Neck Radiology
• Member, Scientific Program Committee, Association of University Radiologists
• Member, Scientific Program Committee, American Society of Head and Neck Radiology
• Alternate Councilor, Pennsylvania Chapter, American College of Radiology
• Editorial Executive Committee, Academic Radiology
• Reviewer, American Journal of Neuroradiology
• Reviewer, Neuroradiology
• Reviewer, Radiographics
• Reviewer, Radiology
• Editor's Certificate of Recognition for Review of Manuscripts, Radiographics
• Editor's Certificate of Recognition for Review of RSNA Scientific and InfoRAD exhibits

ANA M. SALAZAR, M.D.

• A. Edward O'Hara, M.D. Award for Excellence in Teaching, Department of Radiology, Thomas Jefferson University Hospital, 1997.
• Reviewer, American Journal of Roentgenology

MARK E. SCHWEITZER, M.D.

• Member, Expert Panel, Orthopedic Radiology and Pathology Society
• Member, Steering Committee, Musculoskeletal Research Group
• Associate Editor, Seminars in Musculoskeletal Imaging
• Reviewer, American Journal of Roentgenology
• Reviewer, Annals of Internal Medicine
• Reviewer, Cancer
• Reviewer, Journal of Clinical Rheumatology
• Reviewer, Journal of Clinical Ultrasound
• Reviewer, Journal of Computer Assisted Tomography
• Reviewer, Journal of Magnetic Resonance Imaging
• Reviewer, Radiographics
• Reviewer, Radiology
• Editor's Recognition Award for Special Distinction in Reviewing, Radiology

SHARON R. SEGAL, D.O.

• Editorial Board, American Osteopathic College of Radiology

ROBERT M. STEINER, M.D.

• President-Elect, Society of Thoracic Radiology
• Chairman, Chest Accreditation Committee, American College of Radiology
• Chairman, NASCI-STR Coordination Committee, North American Society for Cardiac Imaging
• Chairman, Radiology Technician Advisory Committee, Philadelphia Roentgen Ray Society
• Chairman, Program Committee, Society of Thoracic Radiology
• Member, Executive Committee, Intersociety Commission of the American College of Radiology
• Member, Subcommittee for the Chest and Bedside Chest Radiography Standards, American College of Radiology
• Member, Subcommittee for Adult and Pediatric Chest, American College of Radiology
• Member, Expert Chest Panel Continuing Professional Improvement Program, American College of Radiology
• Member, Nominating Committee, Pennsylvania Radiological Society
• Member, Board of Censors, Philadelphia Roentgen Ray Society
• Member, Training and Standards of Care Committee, Society of Thoracic Radiology
• Editor, Society of Thoracic Radiology Newsletter
• Editorial Board, RadioGraphics
• Reviewer, American Journal of Roentgenology
• Reviewer, Cancer
• Reviewer, Radiology
• Reviewer, Respiratory Medicine
• Editor's Recognition Award for Special Distinction in Reviewing, Radiographics

KEVIN L. SULLIVAN, M.D.

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

LISA M. TARTAGLINO, M.D.

• Co-director, Philadelphia Neuroradiology Club

MATHEW L. THAKUR, PH.D.

• Delegate-at-large, The Society of Nuclear Medicine
• Member, Board of Governors, Greater New York Chapter of the Society of Nuclear Medicine
• Member, Scientific Exhibit Committee, 44th Annual Meeting of the Society of Nuclear Medicine
• Member, Scientific Program Committee, Annual Meeting of the European Association of Nuclear Medicine
• Member, Scientific Program Committee, International Symposium of Radiolabeled Blood Elements, Pre-Congress Meeting
• Member, Scientific Program Committee, 10th International Symposium on Radiopharmacology
• Member, Scientific Program Committee, The 8th International Symposium on Radiolabeled Blood Elements
• Editorial Board, Journal of Nuclear Medicine and Biology
• Editorial Board, Nuclear Medicine Communications
• Editorial Board, Journal of Nuclear Medicine
• Editorial Board, Journal of the Indian Association of Clinical Medicine
• Member, Advisory Committee, US Pharmacopea
• Chairman, RhoMed Scientific Advisory Committee
• Member, Advisory Committee, Kuwait Medical Research Council
• Member, Advisory Committee, International Atomic Energy Agency
• Ad hoc member, Grant Review Service, National Institutes of Health
• Ad hoc member, Grant Review Service, American Cancer Society
• Member, Grant Review Service, Canadian Medical Research Council
• Member, Grant Review Service, Veterans Administration
• Member, Grant Review Service, Department of Energy
• Reviewer, Cancer Research
• Reviewer, Conjugate Chemistry
• Reviewer, Journal of Immunological Methods
• Reviewer, Journal of Immunotherapy
• Reviewer, Journal of Laboratory Investigation
• Reviewer, Journal of Nuclear Medicine
• Reviewer, Journal of Nuclear Medicine and Biology
• Reviewer, Nuclear Medicine Communications
TERRI TUCKMAN, M.D.

- Co-Chairperson, Women Physicians’ Forum
- Chairperson, Personal Development Committee, American Medical Women’s Association
- Chairperson, Committee on Dependent Care, American Medical Women’s Association
- Member, Strategic Planning Committee, 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.

- Reviewer, Investigative Radiology
- Reviewer, IEEE Trans Medical Imaging
- Reviewer, Journal of Magnetic Resonance Imaging
- Reviewer, Magnetic Resonance in Medicine
- Reviewer, Medical Physics
- Reviewer, Radiology

RICHARD J. WECHSLER, M.D.

- Alternate Councilor, American College of Radiology
- Secretary, Philadelphia Roentgen Ray Society
- Member Executive Committee, Philadelphia Roentgen Ray Society
- Member, Membership Committee, Philadelphia Roentgen Ray Society
- Member, Budget Committee, Philadelphia Roentgen Ray Society
- Member, Chest Radiology Accreditation Committee of the Commission on Standards and Accreditation, American College of Radiology
- Reviewer, American Journal of Roentgenology
- Reviewer, Anesthesiology
- Reviewer, Radiology
- Editor’s Recognition Award for Special Distinction in Reviewing, Radiology

ANNINA N. WILKES, M.D.

- Second Place, “Abnormal fetal heart: Recognition of cardiac anomalies on routine obstetric US - Correlation with normal fetal heart” (exhibit/videotape), 41st Annual Convention of the American Institute of Ultrasound in Medicine, San Diego, CA, March 1997
APPENDIX

Table 1  ACTIVE GRANTS
Table 2  PENDING GRANTS
### Table 1

**Active Grants**

07/01/96 - 06/30/97

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

Revised 06/30/97

**NIH/OTHER FEDERAL GRANTS**

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<tr>
<th>PRINCIPAL INVESTIGATOR</th>
<th>TITLE OF PROJECT</th>
<th>FUNDING SOURCE</th>
<th>FUNDING DATES</th>
<th>DIRECT COSTS</th>
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<td>Conant, E. 080-05275 XO5501</td>
<td>2-D and 3-D Digital Analysis of Breast Calcifications: A Technique to Improve Mammographic Specificity</td>
<td>U.S. Army Medical Research Acq. DAMD17-96-1-6280</td>
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<td>NIH 1 R01 HL55508 01 year</td>
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<td>Clinical Evaluation of Digital Mammography</td>
<td>NIH 5 R01 CA60192 03 year</td>
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<td>Tumor Evaluation by 2D and 3D Endoluminal Ultrasound</td>
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<td>Thakur, M. Z12001</td>
<td>Tc-99m Somatostatin Analogues for Imaging Tumors</td>
<td>NIH/SBIR Palatin Technologies</td>
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**Active Grants**

**07/01/96 - 06/30/97**

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

**FOUNDATION/NON-PROFIT ORGANIZATION GRANTS**

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<tr>
<th>PRINCIPAL INVESTIGATOR</th>
<th>TITLE OF PROJECT</th>
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<th>FUNDING DATES</th>
<th>DIRECT COSTS</th>
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<td>Flanders, A. 900-11100</td>
<td>Human Spinal Cord and Processing</td>
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<td>Whitaker Foundation</td>
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<td>Lev-Toaff, A.</td>
<td>Review of Volume Sonographic Studies Across Networks: A Feasibility Study</td>
<td>Society of Radiologists in Ultrasound (SRU)</td>
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<td>Schweitzer, M.</td>
<td>The Cost Effectiveness of MRI for the Diagnosis, Evaluation and Management of Osteomyelitis</td>
<td>RSNA Scholars Program</td>
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**Active Grants**

07/01/96 - 06/30/97

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

### INDUSTRIAL GRANTS

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<th>PRINCIPAL INVESTIGATOR</th>
<th>TITLE OF PROJECT</th>
<th>FUNDING SOURCE</th>
<th>FUNDING DATES</th>
<th>DIRECT COSTS</th>
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<tr>
<td>Bonn, J.</td>
<td>A Randomized, Prospective, Controlled Study Evaluating the Safety &amp; Efficacy of the Cordis Peripheral Stent and Delivery System Versus PTA in the Treatment of Iliac Artery Oclusive Disease</td>
<td>Cordis Corporation</td>
<td>01/21/97 - 01/20/98</td>
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<td>Consigny, P.M.</td>
<td>Restinosis in Pig Iliac Arteries After Stent Placement: Comparison of Covered Vs. Uncovered Stents</td>
<td>Impra, Inc.</td>
<td>09/01/95 - 08/31/96</td>
<td>$40,145</td>
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<td>Consigny, P.M.</td>
<td>Stenosis in Pig Iliac Arteries after Stent Placement: Influence of Device Diameter</td>
<td>Impra, Inc.</td>
<td>06/14/96 - 06/13/97</td>
<td>$35,133</td>
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<td>Consigny, P.M.</td>
<td>Multi-Channel Balloon Drug Delivery: Inhibition of Intimal Thickening After Balloon Angioplasty by Delivery</td>
<td>Boston Scientific Corporation</td>
<td>07/01/95 - 12/31/96</td>
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(c) (current year)
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<td>Feld, R. 080-08684</td>
<td>The Prevention of Deep Vein Thrombosis in Acute Spinal Cord Injury Comparing Enoxaparin Versus Low Dose Heparin Plus External Pneumatic Compression During the First Two Weeks Followed by Enoxaparin Versus Low Dose Heparin in the Remaining Six Weeks</td>
<td>Lovenox Spinal Cord Injury Study-611</td>
<td>03/01/95</td>
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<td>Nycomed R &amp; D</td>
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<td>Nycomed R &amp; D</td>
<td>12/15/95</td>
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<td>Advanced Development Projects on the Gateway Series and/or Synergy Sites</td>
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<td>The Effects of Ultrasound Bone Healing on Fractured Bone in Dogs</td>
<td>Exogen, Inc.</td>
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<td>Ultrasound Contrast Imaging in Normal and Abnormal Prostates</td>
<td>Nycomed, Inc.</td>
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<td>Optimized Harmonic Imaging with Contrast (Logiq 700)</td>
<td>General Electric Corporate Research and Development Company</td>
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<td>In Vitro Backscatter Estimation for Polymer-Based Ultrasound Contrast Agents</td>
<td>Acusphere, Inc.</td>
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<td>Enoxaparin 529: A Multicenter, Randomized, Partially Blind, Parallel Group, Clinical Trial to Compare the Efficacy &amp; Safety of Twice &amp; Once Daily Subcutaneously Administered Enoxaparin and Continuous Infusion Heparin in the Treatment of Patients with Deep Vein Thrombosis with or without Pulmonary Embolism</td>
<td>Rhone-Poulenc Rorer</td>
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<td>Enoxaparin 307: A Double-Blind, Placebo-Controlled, Clinical Trial Comparing the Efficacy and Safety of Prolonged Outpatient Enoxaparin and Placebo Therapies in the Prevention of Venous Thromboembolic Disease in Patients Undergoing Elective Primary Hip or Knee Replacement</td>
<td>Rhone-Poulenc Rorer</td>
<td>10/04/94 - 10/03/96</td>
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<td>Development of a Simulator for Ultrasound Scanning</td>
<td>Goldberg, B.</td>
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**Notes:**
- Year range format: 11/01/94 - 11/30/96
- Funding range format: $170,731 - $60,069
- Project sponsors include:
  - MidSim, Inc.
  - Newcome, Inc.
  - Israel Chemicals, Ltd.
  -...
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<td>A Clinical Comparison of the Safety and Efficacy of Multihance and Omniscan in MRI in Patients Highly Suspected of Having Lesions of the Central Nervous System</td>
<td>Bracco Diagnostics #43,779-9A</td>
<td>11/01/96 - 10/31/97</td>
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<td>A Safety, Dosing, and Efficacy Study of AF0150 for Contrast-Ultrasound Assessment of Focal Lesions of the Liver or Kidney in Patients with CT- or MRI- Confirmed Abnormalities</td>
<td>Alliance Pharmaceutical Corporation</td>
<td>10/10/96 - 10/09/97</td>
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<td>Enoxaparin 529: A Multicenter, Randomized, Partially Blind, Parallel Group, Clinical Trial to Compare the Efficacy &amp; Safety of Twice &amp; Once Daily Subcutaneously Administered Enoxaparin and Continuous Infusion Heparin in the Treatment of Patients with Deep Vein Thrombosis with or without Pulmonary Embolism</td>
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<td>Mitchell, D.</td>
<td>A Phase II, Dose-Ranging, and Comparative Study of the Safety and Efficacy of Gadobenate Dimeglumine in MRI in Patients with Focal Liver Lesions</td>
<td>Bracco Diagnostics</td>
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<td>Needleman, L.</td>
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<td>Berlex Laboratories</td>
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<td>Nycomed R &amp; D Addendum IV</td>
<td>06/03/96 - 06/30/97</td>
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<td>A Phase II Double-Blind Multicenter Trial to Evaluate the Safety and Determine the Optimal Image Enhancement Dose of MRX 115 for 2-D Gray Scale Imaging and Optimal Time Range for Color and Power Doppler Imaging in Patients with Liver and Kidney Abnormalities Detectable by Ultrasound</td>
<td>DuPont Merck</td>
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<td>Contrast-Enhanced Ultrasound Imaging of the Liver with Intravenous NC100100: A Phase II Multicenter, Randomized, Double-Blind, Placebo-Controlled, Dose-Finding Trial in Adult Patients with Known or Strongly Suspected Focal Solid Liver Lesions</td>
<td>Nycomed, Inc.</td>
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<td>Advanced Magnetics, Inc.</td>
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<td>A Multicenter, Double-Blind, Multidose, Within-Patient Study to Evaluate the Safety, Tolerance, and Efficacy of MP1177/10 in MRI of the Musculoskeletal System</td>
<td>Mallinckrodt Medical, Inc.</td>
<td>01/01/96 - 12/31/96</td>
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<td>Comparison of Vertebral Strength Properties of Anthropometrically Similar Males and Females Using Quantitative CT</td>
<td>Information Network Systems, Inc. (INS)</td>
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<td>Multicenter, Double-Blind, Randomized, Phase III Study Comparing Recombinant Human Tumor Necrosis Factor Receptor Fusion Protein to Methotrexate in Treatment of Patients with Early Active Rheumatoid Arthritis</td>
<td>Immunex Corporation</td>
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<td>A Phase III Multicenter, Double-Blind, Parallel, Stratified, Randomized Clinical Investigation to Assess Safety &amp; Efficacy of Iomeprol 250 mg/mL Compared to Isovist 250 mg/mL in Patients Undergoing Body CT (008A/B)</td>
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**TOTAL INDUSTRIAL FUNDING**

|                      | $2,630,768 | $3,334,048 |
|                      | $914,621   | $1,165,875 |
| INDUSTRIAL FUNDING  | $2,630,768 | $3,334,048 |

**TOTAL FUNDING**

|                      | $6,394,889 | $8,653,845 |
|                      | $2,258,956 | $8,653,845 |

**TOTAL CURRENT YEAR FUNDING**

|                      | $1,869,162 | $2,404,264 |
|                      | $535,102   | $2,404,264 |
### Table 2

**Pending Grants**

07/01/96 - 06/30/97

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

Revised 06/30/97

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TOTAL NIH GRANT FUNDING: $1,881,664
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FOUNDATION/NON-PROFIT ORGANIZATION GRANTS

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TOTAL FOUNDATION/ NON-PROFIT FUNDING: $20,000
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